

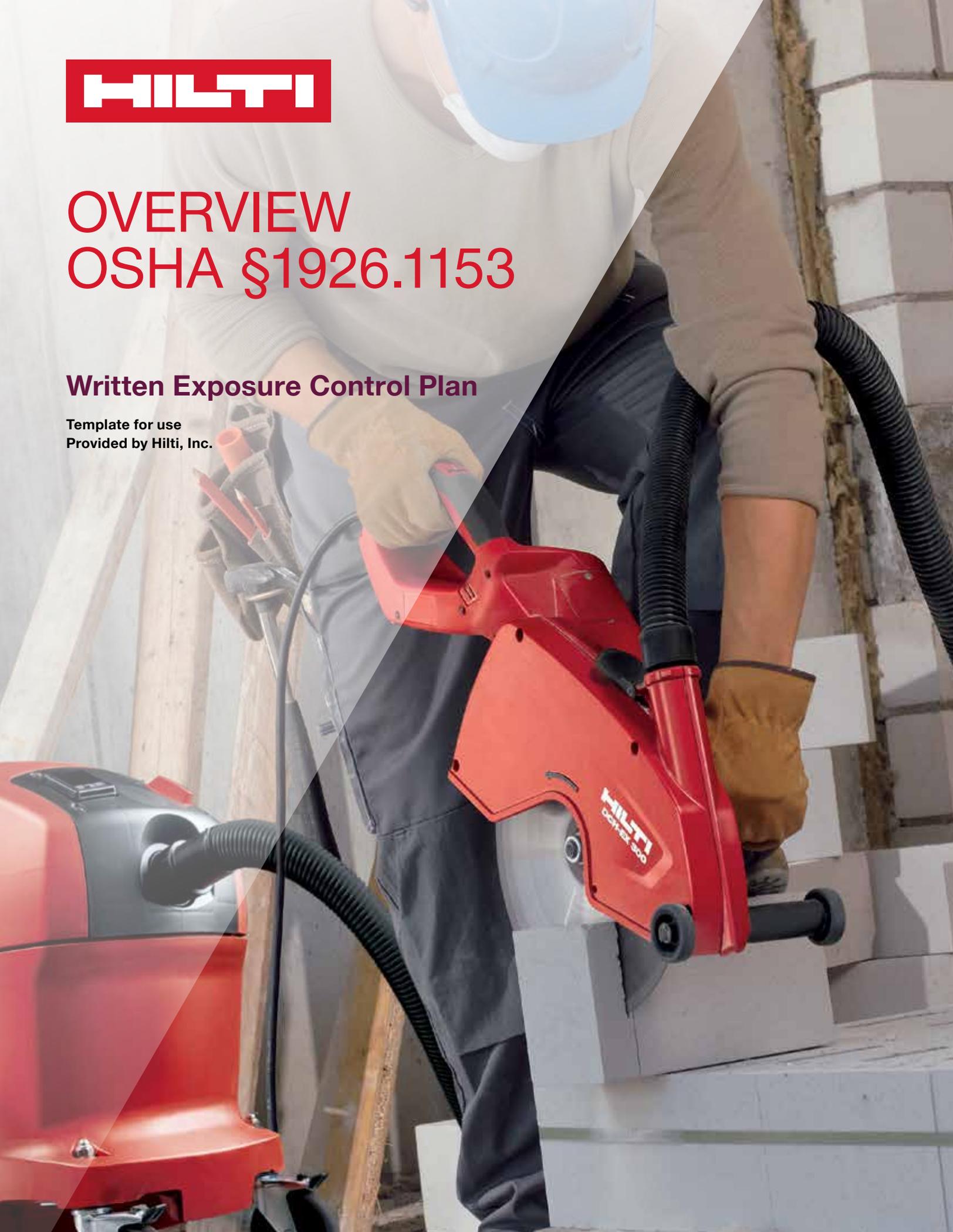


# OVERVIEW

# OSHA §1926.1153

## Written Exposure Control Plan

Template for use  
Provided by Hilti, Inc.



# OVERVIEW

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### Written Exposure Control Plan

In its published Docket, OSHA says the purpose of the plan is to “help limit exposure to respirable crystalline silica to as few employees as possible.”

Elsewhere, OSHA says: “Written exposure control plans provide a systematic approach for ensuring proper function of engineering controls and effective work practices that can prevent overexposures from occurring. OSHA expects a written exposure control plan will be instrumental in ensuring that companies comprehensively and consistently protect their employees.”

### ACCORDING TO OSHA §1926.1153(g)(1), A WRITTEN EXPOSURE CONTROL PLAN MUST CONTAIN AT LEAST THE FOLLOWING FOUR ELEMENTS:

- (i) “A description of the tasks in the workplace that involve exposure to respirable crystalline silica;”
- (ii) “A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;”
- (iii) “A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica;” and
- (iv) “A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other companies or sole proprietors.”

### ADDITIONAL REQUIREMENTS PERTAINING TO THE WRITTEN EXPOSURE CONTROL PLAN:

- 1926.1153(g)(2)** “The company shall review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.”
- 1926.1153(g)(3)** “The company shall make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this section, their designated representatives, the Assistant Secretary and the Director.”
- 1926.1153(g)(4)** “The company shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.”

### SAMPLE EXPOSURE CONTROL PLAN:

The following is a general template for a sample Exposure Control Plan (“ECP”). It includes topics addressed in the Rule, beyond those specified for an ECP. This ECP template is general in nature, with titles and various sections containing language for consideration — the ECP must be tailored for each specific company, which may require additions / changes / deletions. Highlighted sections are not able to be generally-addressed, and must be determined by each company. Consult OSHA §1926.1153 for complete details. This ECP is provided without representation of any kind as to its accuracy, completeness, or adequacy.

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## 1. COMPANY INFORMATION

## 2. WORKSITE INFORMATION



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### 3. PURPOSE AND RESPONSIBILITIES

The purpose of this Exposure Control Plan (ECP) is to identify potential sources of employee exposure to respirable crystalline silica dust (“Silica”), specify appropriate engineering controls and work practices to limit exposure, and address the use of personal protective equipment where exposures exceed applicable limits (collectively, “Controls”). The ECP also addresses other topics listed in 29 CFR 1926.1153 (the “Rule”), including employee training, a medical surveillance program, and a record retention policy. The requirements of this ECP do not apply to employees who are not reasonably expected to be exposed to Silica at or above the AL, as defined in section 4, below.

#### a. Company responsibilities

The Company is responsible for development of the ECP, and overall responsibility for its implementation and review.

#### b. Competent person

##### i. Identification

##### ii. Responsibilities

The Competent Person shall have full knowledge of this ECP; and shall be capable of identifying existing and foreseeable Silica hazards in the workplace, including the ability (or access to an individual with the ability), to perform risk assessments as set forth in section 6, below. The Competent Person shall have authorization to take prompt corrective measures to eliminate or minimize Silica hazards, and have the knowledge and ability necessary to make frequent and regular inspections of job sites, materials, and equipment to implement this ECP.

#### c. Supervisor responsibilities

Supervisors shall have general knowledge of the Rule and this ECP, and specific knowledge of the contents of sections 6 and 7, below. Supervisors shall ensure their subordinates are trained on the proper use of all Controls; and that all Control requirements contained in this ECP are fully and properly implemented.

In general, full-shift exposure to visible Silica dust will exceed the PEL. If such a condition exists, the supervisor shall immediately investigate, involving the Competent Person as necessary, to mitigate the exposure.

### d. Employee responsibilities

Employees are responsible for understanding the ECP, the Rule and applicable Safety Data Sheets, and where they can be located; and fully and properly implementing all Control requirements as contained in this ECP. Employees shall immediately notify their supervisor and/or the Competent Person if they have reason to believe excess Silica exposure is occurring, or experience signs or symptoms of silica-related illness.

### 4. HEALTH HAZARDS FROM SILICA EXPOSURE

Silica is quartz, and the less common cristobalite and tridymite. Silica (quartz) is present in many common construction materials, including concrete, mortar, block, brick, stone, and asphalt. Airborne dust is created when these materials are disturbed, such as by cutting, coring, drilling, demolishing, or grinding. A portion of this dust is “respirable” ( $\leq 10$  microns in size — very fine particles which can reach the lungs); and a portion of this respirable dust is silica. The silica content of dust varies by material and geography.

Prolonged overexposure to Silica can result in health-related injury, including silicosis, cancer, tuberculosis, chronic bronchitis, and immune system and kidney effects. The Rule has established exposure limits intended to protect employees from these effects. These limits include an Action Level (“AL”) of  $25 \mu\text{g}/\text{m}^3$  as an 8-hour Time Weighted Average (“TWA”), and a Permissible Exposure Limit (“PEL”) of  $50 \mu\text{g}/\text{m}^3$  as an 8-hour TWA.

### 5. EMPLOYEE TRAINING

#### b. Frequency/tracking

##### a. Training program content

Each employee shall be trained on Silica exposure in compliance with the OSHA Hazard Communication standard, 29 CFR 1910.1200. Training shall ensure the employee can demonstrate knowledge and understanding of the health hazards associated with exposure to Silica, the specific situations in their workplace where Silica exposure may occur, the specific measures implemented to protect them from exposure to Silica (including Controls), and the content of the Rule.

## 6. RISK ASSESSMENT

An initial assessment must be conducted for all work-related situations where an employee may experience Silica exposure. This includes employees engaged in a Silica-generating task, as well as employees in the vicinity of Silica-generating tasks being performed by others (“Bystanders”). The assessment shall be based on exposure without use of Controls. Where exposures may reasonably be expected to reach or exceed the AL, action must be taken as set forth in this ECP.

### a. Exposure limits

The Rule requires employee exposure to Silica be kept below the PEL. Where, after instituting all feasible engineering controls and work practices, exposures remain above the PEL, respiratory protection is required.

### b. Silica-generating tasks – Controls

#### i. Task Assessment

For each Silica-generating task where exposure may be at or above the AL, engineering controls and/or work practices must be instituted. When these are not sufficient to reduce exposure to or below the PEL, then in addition to using engineering controls and/or work practices to reduce exposure to the lowest feasible level, a suitable respirator must be utilized.

There are three methods for assessing exposure. For each of the tasks listed in the following section (ii), one of these three methods shall be specified, and associated support documentation maintained:

- I. Table 1 of the Rule: a list of tasks and associated Controls which, if fully and properly implemented, are deemed to maintain exposure below the PEL without further assessment (note that in some cases the Controls include a respirator requirement);
- II. Performance Option: use of any combination of air monitoring data or Objective Data sufficient to accurately characterize employee exposure. The Objective Data must reflect the same or higher exposure potential as

the task to be performed. Objective Data documentation must specify its source, base material worked on, test protocol and results, a description of the task being performed, and any other information that would be relevant to the assessment; or

- III. Scheduled Monitoring Option: personal breathing zone air samples that establish exposure for a “shift + job + work area”. Representative sampling is permitted, as long as sampling is performed on the highest-exposure employee(s). Test records shall contain the date of the measurement; the task; sampling and analytical methods; number, duration and results of the test; identity of laboratory that performed the analysis (laboratory must meet the requirements of the Rule Appendix A); type of PPE worn by the employees tested; the name, SSN, and job classification of all employees represented by the test; and the name of the employee(s) tested. Testing frequency shall be performed as follows:

1. If initial monitoring indicates that employee exposures are below the AL, monitoring may be discontinued for those employees whose exposures are represented by such monitoring;
2. Where the most recent exposure monitoring indicates that employee exposures are at or above the AL but at or below the PEL, the monitoring shall be repeated within six months of the most recent monitoring. Note that if exposure monitoring indicates the exposure is above the PEL, additional Controls must be implemented to reduce exposure below the PEL;
3. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the monitoring shall be repeated within three months of the most recent Monitoring. Note, in addition, Controls must be implemented to reduce exposure below the PEL;

4. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the AL, the monitoring shall be repeated within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the AL, at which time monitoring may be discontinued for those employees whose exposures are represented by such monitoring.

ii. Task list — general

The following is a list of tasks and activities, the method of exposure compliance, and the associated Controls (including engineering controls, work practices, and respirator requirements):

Examples: hammer drilling; grinding; cutting — see, as an example of a Control method for hammer drilling with on-board dust collection, the attached Hilti Submittal Package for hammer drilling with on-board DRS...

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#### iii. Special tasks

Before performing any task not otherwise addressed in (ii), above, consult the Competent Person.

#### iv. General housekeeping

Engineering controls and work practices shall be implemented to minimize housekeeping-related Silica exposure. These include:

- Minimize accumulation of residual dust through periodic clean-up with a HEPA filtered vacuum or wet sweeping of the work area. Do not dry sweep.
- Do not use compressed air to clean clothing or other surfaces, unless used in conjunction with a ventilation system that effectively contains the dust.
- Clean up immediately after water-based activities (e.g., wet coring), while the slurry is wet, to avoid secondary Silica exposure from dry slurry. Dispose of slurry in accordance with local/jobsite requirements.
- Use vacuums with disposable liners, which can be tied-off and disposed.
- Leave Silica-exposed clothing at the work site.
- Clean hands before eating or drinking.

#### v. Training — Controls

Training shall be provided to each employee regarding the proper use of the engineering controls they will utilize.

#### vi. Additional requirements

For tasks performed indoors in enclosed areas, utilize a means of exhaust as needed to minimize accumulation of airborne dust. For tasks performed utilizing a wet dust suppression method, apply water at flow rates sufficient to minimize the release of visible dust.

#### vii. Employee notification

For tasks where exposure is assessed based on Scheduled Monitoring (section (i)(III), above), all affected employees and their representatives shall be provided the opportunity to observe the monitoring. Within five days after completing any assessment (either the Performance [(i)(II), above], or Scheduled Monitoring [(i)(III), above] options), each affected employee shall be notified in writing of the results, or the results shall be posted in an appropriate location accessible to all affected employees.

#### c. Bystander exposures

Where a Bystander-employee is not engaged in a Silica-generating task, but will be working in the vicinity of a Silica-generating task, or in a location where visible dust is present from a Silica-generating task, the employee shall consult with his/her supervisor. The supervisor shall follow the below requirements. Very short-term exposure (e.g., walking through the area, retrieving equipment, etc.), is exempt from this requirement.

##### i. Company-generated Silica exposures

The supervisor shall identify the Silica-generating task and the exposure. As long as the task is being performed in accordance with this ECP and the associated exposure is below the PEL (without need for a respirator), no further action is required (note: if exposure is below the PEL due to an abbreviated work shift, the Bystander's duration in the area shall be similarly limited). If the exposure is above the PEL, such that employees engaged in the task are required to wear respirators, the supervisor shall, with the assistance of the Competent Person as necessary:

- Provide the Bystander with a comparable respirator;
- Remove the Bystander from the area while the Silica-generating task is being performed; or

- If data is available to accurately assess the exposure, determine the period of time the Bystander can remain in the area without exceeding the PEL.
- ii. 3rd-party generated Silica exposures

The supervisor shall consult with the 3rd-party performing the Silica-generating task. If the 3rd-party is able to reliably verify the task is being performed in a manner which keeps exposure below the PEL without need for a respirator, no further action is required (note: if exposure is below the PEL due to an abbreviated work shift, the Bystander's duration in the area shall be similarly limited). If the exposure is above the PEL, the supervisor shall, with the assistance of the Competent Person as necessary:

- Provide the Bystander with a comparable respirator;
- Remove the Bystander from the area while the Silica-generating task is being performed; or
- If the 3rd-party provides data to accurately assess the exposure, determine the period of time the Bystander can remain in the area without exceeding the PEL.

If the exposure is not able to be reliably verified, the supervisor shall notify the Competent Person, who shall assess the exposure before the Bystander is allowed to enter the area.

## 7. PERSONAL PROTECTIVE EQUIPMENT

For tasks utilizing a Table 1 solution which specifies use of a respirator, and for other tasks or activities where employee Silica exposure exceeds the PEL, a respirator must be provided to each affected employee.

### a. PPE requirements for silica

For tasks utilizing a Table 1 solution which specifies use of a respirator, the specified respirator shall be provided. For other tasks or activities, a respirator suitable for the exposure shall be provided, as determined by the Competent Person.

### b. Respiratory protection

Respirator selection and use shall comply with 29 CFR 1910.134. For Silica exposures up to ten times the PEL (i.e., up to 500 µg/m<sup>3</sup> as an 8-hour TWA), an APF 10 respirator with a NIOSH N95 filter rating shall be used. For Silica exposures between ten and twenty-five times the PEL (i.e., 500 µg/m<sup>3</sup> to 1250 µg/m<sup>3</sup> as an 8-hour TWA), an APF 25 respirator with a NIOSH N100 filter rating shall be used. For Silica exposures exceeding 1250 µg/m<sup>3</sup> as an 8-hour TWA, consult with the Competent Person.

#### i. Program requirements

I. Employee training — content/frequency/  
tracking

II. Fitness testing — content/frequency/  
tracking

#### ii. Frequency of use — tracking

A record shall be kept of the total number of days (regardless of duration of use per day), each employee is required, pursuant to this section 7, to wear a respirator during each 12-month period. Employees who wear, or are expected to wear, a respirator thirty-or-more days per year shall be subject to the Medical Surveillance requirements of section 8, below.

## 8. MEDICAL SURVEILLANCE

At the time of an employee's job assignment, an assessment shall be made as to the expected frequency of the employee's respirator use required by section 7, above. Within thirty days of job assignment, a medical examination per this section 8 shall be made available, at no cost and at a reasonable time and place, to every employee who will be, or is expected to be, required to wear a respirator per section 7, above, thirty-or-more days per year (Exception: if the employee has received a medical examination meeting these section 8 requirements within the then-previous three years, a medical examination need not be offered until three years after the preceding exam). A medical examination shall continue to be offered at least every three years (or more frequently if recommended by the PLHCP — see section a, below), to each employee who continues to meet the thirty-day respirator limit set forth above.

#### a. PLHCP

PLHCP is a "physician or other licensed health care professional" whose legally permitted scope of practice (i.e., license, registration or certification) allows him/her to independently provide or delegate the responsibility to provide the services set forth in this section.

#### i. PLHCP list

#### ii. Medical examination requirements

- I. Medical and work history, with emphasis on: past, present and anticipated exposure to Silica, dust and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, coughing, wheezing); history of tuberculosis; and smoking status and history.
- II. A physical examination with special emphasis on the respiratory system.
- III. A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches], or digital radiography systems), interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a NIOSH-certified B Reader;
- IV. A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;
- V. Testing for latent tuberculosis infection; and
- VI. Any other tests deemed appropriate by the PLHCP.

#### iii. Documentation provided by Company to PLHCP

- I. A copy of the Rule, unless the PLHCP has a copy;
- II. A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Silica;
- III. The employee's former, current, and anticipated levels of occupational exposure to Silica;

IV. A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

V. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the Company.

#### iv. PLHCP's written medical report to employee

The Company shall ensure the PLHCP explains to the employee the results of the medical examination and provides the employee with a written medical report within 30 days of the examination. The medical report shall contain the following:

- I. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Silica and any medical conditions that require further evaluation or treatment;
- II. Any recommended limitations on the employee's use of respirators;
- III. Any recommended limitations on the employee's exposure to Silica; and
- IV. A statement that the employee should be examined by a specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

#### v. PLHCP's written medical opinion to Company — requirements

The Company shall obtain a written medical opinion from the PLHCP, and provide the employee with a copy, within 30 days of an employee's medical examination. The medical opinion shall contain the following:

- I. The date of the examination;
- II. A statement that the examination has met the requirements of this section a;

III. Any recommended limitations on the employee's use of respirators; and,

IV. If the employee provides written authorization:

1. Any recommended limitations on the employee's exposure to Silica; and
2. A statement that the employee should be examined by a specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP

vi. Specialist

If the PLHCP's written medical opinion indicates an employee should be examined by a specialist, the Company shall make such examination available within thirty days of receipt of the medical opinion, following the requirements of sections (iii) — (v), above.

## 9. RECORD KEEPING

Employee medical records (including the employee's name and SSN, the PHLCs' and specialists' written opinions, and a copy of the information provided to the PHLCs and specialists — see section 8), and Objective Data and air monitoring data (see section 6), shall be maintained in accordance with 29 CFR 1910.1020.

## 10. REVIEW

This ECP shall be reviewed annually for effectiveness. At any time, any task or activity shall be reassessed if there is a reasonable belief that new or additional Silica exposure may occur at or above the AL. The ECP shall be revised as necessary to achieve its purpose.