



Don H. Mahaffey Drilling Co.

RESPIRABLE CRYSTALLINE SILICA



YOUR OSHA COMPLIANCE SOLUTION

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1 OBJECTIVE

It is the intent of Don H. Mahaffey Drilling Co. to equip employees with the necessary knowledge, environment and equipment to adequately protect themselves from the potential hazardous health effects stemming from exposure to respirable crystalline silica as well as ensuring compliance with the California Code of Regulations, Title 8, Section 1532.3 (Occupational Exposures to Respirable Crystalline Silica) and Title 8, Section 5203 (Carcinogen Report of Use Requirements).

2 ADMINISTRATOR

Don H. Mahaffey Drilling Co. has designated Ashley Mahaffey Tullius for the administration of this program and with responsibility for:

- a. Identifying work areas and tasks that have the potential to expose employees to respirable crystalline silica;
- b. Arranging for exposure assessments to be conducted;
- c. Maintaining records pertaining to this program;
- d. Evaluating this program at least annually; and
- e. Updating the written program, as needed.

3 RESPIRABLE CRYSTALLINE SILICA, AN EXPLANATION OF

3.1 Definition

According to the Occupational Safety and Health Administration, crystalline silica is a basic component of soil, sand, granite and many other minerals. There are 3 forms of crystalline silica with quartz being the most common. The other 2 forms of crystalline silica are cristobalite and tridymite. All 3 forms may become respirable size particles when workers chip, cut, drill or grind objects that contain crystalline silica.

3.2 Methods of Exposure

Workers may be exposed to crystalline silica during a variety of construction activities including, but are not limited to, abrasive blasting, jackhammering, rock/well drilling, concrete mixing, concrete drilling, brick and concrete block cutting and sawing, tuck pointing and tunneling operations.

3.3 Health Effects of Exposure to Crystalline Silica

3.3.1 Lung cancer

Crystalline silica has been classified as a lung carcinogen.

3.3.2 Silicosis

Breathing crystalline silica has also been linked to silicosis which, in severe cases, can be disabling or fatal. Silicosis affects lung function, making one more susceptible to lung infections such as tuberculosis. There is no cure for silicosis.

4 REPORT OF USE

- 4.1 Initial use of a regulated carcinogen will be reported in writing to the Chief within 15 calendar days of initial use.
- 4.2 Any changes in the reported information will be similarly reported in writing within 15 calendar days of such change.
- 4.3 All written reports will be mailed to:
- Occupational Carcinogen Control Unit
Division of Occupational Safety and Health
Post Office Box 420603
San Francisco, California 94142
- 4.4 The report will include:
- a. The company name and address of each workplace where a regulated carcinogen is in use;
 - b. An identifying description of where the use of a regulated carcinogen is located in the workplace;
 - c. A brief description of each process or operation which creates employee exposure to the regulated carcinogen, including the estimated number of employees engaged in each process or operation; and
 - d. The names and address of any collective bargaining units or other representatives of the affected employees.

Note: Employees may use the Appendix 4 – Carcinogen Report of Use form for this report.

5 SPECIFIED EXPOSURE CONTROL METHODS

5.1 For each employee engaged in a task identified in Table 1, the engineering controls, work practices and respiratory protection specified for the task on Table 1 will be fully and properly implemented unless the exposure of the employee to respirable crystalline silica is assessed and limited in accordance with Section 5.

Table 1			
Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
(i) Stationary mason saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None
(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: <ul style="list-style-type: none"> • When used outdoors • When used indoors or in an enclosed area 	None APF 10	APF 10 APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8" or less)	For tasks performed outdoors only: Use saw equipped with commercially-available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
(iv) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: <ul style="list-style-type: none"> • When used outdoors • When used indoors or in an enclosed area. 	None APF 10	None APF 10
(v) Drivable saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None

(vi)	Rig-mounted core saws or drills	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(vii)	Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially-available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None
(viii)	Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
(ix)	Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector	None	None
		OR Operate from within an enclosed cab and use water for dust suppression on drill bit	None	None
(x)	Jackhammers and handheld powered chipping tools	Use tools with water delivery system that supplies a continuous stream or spray of water at the point of impact: <ul style="list-style-type: none"> • When used outdoors • When used indoors or in an enclosed area 	None APF 10	APF 10 APF 10
		OR Use tool equipped with commercially-available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism: <ul style="list-style-type: none"> • When used outdoors • When used indoors or in an enclosed area 	None APF 10	APF 10 APF 10

(xv)	Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. For cuts of 4 inches in depth or less on any substrate:	None	None
		Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
		OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
(xvi)	Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator or a remote control station.	None	None
(xvii)	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
(xviii)	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading or fracturing silica-containing materials.	Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
		OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

5.2 When implementing the control measures specified in Table 1, Don H. Mahaffey Drilling Co. will:

- a. For tasks performed indoors or in an enclosed area, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- b. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

- c. For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - 1. Is maintained as free as practicable from settled dust;
 - 2. Has door seals and closing mechanisms that work properly;
 - 3. Has gaskets and seals that are in good condition and working properly;
 - 4. Is under positive pressure maintained through continuous delivery of fresh air;
 - 5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and
 - 6. Has heating and cooling capabilities.
- 5.3 Where an employee performs more than one task on Table 1 during the course of a shift and the total duration of all tasks combined is more than 4 hours, the required respiratory protection for each task is the respiratory protection specified for more than 4 hours per shift. If the total duration of all tasks on Table 1 combined is less than 4 hours, the required respiratory protection for each task is the respiratory protection specified for less than 4 hours per shift.

6 ALTERNATIVE EXPOSURE CONTROL METHODS

For tasks not listed in Table 1, or where the engineering controls, work practices and respiratory protection prescribed in Table 1 are not fully and properly implemented, the provisions of this section will be complied with.

6.1 Permissible Exposure Limit

No employee will be exposed to an airborne concentration of respirable crystalline silica in excess of $50 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

6.2 Exposure Assessment

6.2.1 The exposure of each employee who is, or may reasonably be expected to be exposed to, respirable crystalline silica at or above the action level in accordance with either the performance option in Section 6.2.2 or the scheduled monitoring option in Section 6.2.3 will be assessed.

6.2.2 Performance Option

The 8-hour TWA exposure for each employee will be assessed on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

6.2.3 Scheduled Monitoring Option

a. Initial monitoring will be performed 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. Where several employees perform the same tasks on the same shift and in the same work area, a representative fraction of these employees may be sampled in order to meet this requirement. In representative sampling, the employee(s) who

are expected to have the highest exposure to respirable crystalline silica will be sampled.

- b. If initial monitoring indicates that employee exposures are below the action level, monitoring for those employees whose exposure are represented by such monitoring may be discontinued.
- c. Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, such monitoring will be repeated within 6 months of the most recent monitoring.
- d. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, such monitoring will be repeated within 3 months of the most recent monitoring.
- e. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, such monitoring will be repeated within 6 months of the most recent monitoring until 2 consecutive measurements, taken 7 or more days apart, are below the action level, at which time monitoring may be discontinued for those employees whose exposures are represented by such monitoring, except as otherwise provided in Section 6.2.4.

6.2.4 Reassessment of Exposures

Exposures will be reassessed 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 action level or when there is reason to believe that new or additional exposures at or above the action level have occurred.

6.2.5 Methods of Sample Analysis

All samples taken to satisfy the monitoring requirements of Section 6.2 will be evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Appendix 3.

6.2.6 Employee Notification of Assessment Results

- a. Within 5 working days after completing an exposure assessment in accordance with Section 6.2, affected employees will be individually notified in writing of the results of that assessment or the results will be posted in an appropriate location accessible to all affected employees.
- b. Whenever an exposure assessment indicates that employee exposure is above the PEL, the written notification will describe the corrective action being taken to reduce employee exposure to or below the PEL.

6.2.7 Observation of Monitoring

- a. Where air monitoring is performed to comply with the requirements of this program, affected employees or their designated representatives will be provided with an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.
- b. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, the observer will be provided with protective clothing and equipment at no cost and will be required to use such clothing and equipment.

7 METHODS OF COMPLIANCE

7.1 Engineering and Work Practice Controls

- 7.1.1 Engineering and work practice controls will be used to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL unless such controls are demonstrably infeasible.
- 7.1.2 Where such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, they will be used to reduce employee exposure to the lowest feasible level and will be supplemented with the use of respiratory protection that complies with the requirements of Section 8.

7.2 Abrasive Blasting

In addition to the requirements of Section 7.1, all other Cal/OSHA standards will be complied with, when applicable, where abrasive blasting is conducted using crystalline silica-containing blasting agents or where abrasive blasting is conducted on substrates that contain crystalline silica.

8 RESPIRATORY PROTECTION

8.1 General

Where respiratory protection is required by this program, each employee will be provided with an appropriate respirator that complies with the requirements of this section and California Code of Regulations, Title 8, Section 5144. Respiratory protection is required:

- a. Where specified by Table 1 of Section 4; or
- b. For tasks not listed in Table 1 or where the engineering controls, work practices and respiratory protection described in Table 1 are not fully and properly implemented;
 - 1. Where exposures exceed the PEL during period necessary to install or implement feasible engineering and work practice controls;
 - 2. Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
 - 3. During tasks for which all feasible engineering and work practice controls have been implemented and such controls are not sufficient to reduce exposures to or below the PEL.

8.2 Respiratory Protection Program

Where respirator use is required by this program, Don H. Mahaffey Drilling Co.'s respiratory protection program will be implemented.

9 HOUSEKEEPING

- 9.1 Dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica is prohibited unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.
- 9.2 Compressed air will not be used to clean clothing or surfaces where activity could contribute to employee exposure to respirable crystalline silica unless:
 - a. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
 - b. No alternative method is feasible.

10 EXPOSURE CONTROL PLAN

- 10.1 The Exposure Control Plan (Appendix 2) will be implemented and contains the following:
 - a. A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
 - b. A description of the engineering controls, work practices and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;
 - c. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
 - d. 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.
- 10.2 The exposure control plan will be reviewed and evaluated for effectiveness at least annually and will be updated as necessary.
- 10.3 The exposure control plan will be readily available for examination and copying, upon request, to each employee covered, their designated representatives, the Chief and the Director.
- 10.4 A competent person will be designated to make frequent and regular inspections of job sites, materials and equipment to implement the exposure control plan.

11 MEDICAL SURVEILLANCE

11.1 General

- 11.1.1 Medical surveillance will be made available at no cost to the employee and at a reasonable time and place for each employee who will be required to use a respirator for 30 or more days per year.
- 11.1.2 All medical examinations and procedures required by this program will be performed by a PLHCP as defined in Appendix 1.

11.2 Initial Examination

An initial (baseline) medical examination will be made available within 30 days after initial assignment unless the employee has received a medical examination that meets the requirements of this section within the last 3 years. The examination will consist of:

- a. A medical and work history with emphasis on:
 1. Past, present and anticipated exposure to respirable crystalline silica, dust and other agents affecting the respiratory system;
 2. Any history of respiratory system dysfunction, including signs and symptoms of respiratory disease;
 3. History of tuberculosis; and
 4. Smoking status and history;
- b. A physical examination with special emphasis on the respiratory system;
- c. 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) of a 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;
- d. 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;
- e. Testing for latent tuberculosis infection;
- f. Any other tests deemed appropriate by the PLHCP.

11.3 Periodic Examinations

Medical examinations that include the procedures described in Section 11.2 (except Section 11.2(e)) will be made available at least every 3 years, or more frequently if recommended by the PLHCP.

11.4 Information Provided to the PLHCP

The examining PLHCP will be provided with a copy of California Code of Regulations, Title 8, Section 1532.3 and the following information:

- a. A description of the employee's former, current and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;
- b. The employee's former, current and anticipated levels of occupational exposure to respirable crystalline silica;
- c. 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
- d. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Don H. Mahaffey Drilling Co..

11.5 PLHCP's Written Medical Report for the Employee

The PLHCP will explain to the employee the results of the medical examination and will provide each employee with a written medical report within 30 days of each medical examination performed. The written report will contain:

- a. 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 respirable crystalline silica and any medical conditions that require further evaluation or treatment;
- b. Any recommended limitations on the employee's use of respirators;
- c. Any recommended limitations on the employee's exposure to respirable crystalline silica; and
- d. A statement that the employee should be examined by a specialist (pursuant to Section 10.7) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

11.6 PLHCP's Written Medical Opinion for the Employer

11.6.1 A written medical opinion will be obtained from the PLHCP within 30 days of the medical examination. The written opinion will contain only the following:

- a. The date of the examination;
- b. A statement that the examination has met the requirements of California Code of Regulations, Title 8, Section 1532.3; and
- c. Any recommended limitations on the employee's use of respirators.

11.6.2 If the employee provides written authorization, the written opinion will also contain either, or both, of the following:

- a. Any recommended limitations on the employee's exposure to respirable crystalline silica; and
- b. A statement that the employee should be examined by a specialist (pursuant to Section 10.7) if the chest X-ray provided in accordance with this section is classified as a 1/0 or higher by the B Reader or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

11.6.3 Each employee will receive a copy of the written medical opinion described in Sections 11.6.1 and 11.6.2 within 30 days of each medical examination performed.

11.7 Additional Examinations

11.7.1 If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, a medical examination by a specialist will be made available within 30 days after receiving the PLHCP's written opinion.

11.7.2 The examining specialist will be provided with all of the information that Don H. Mahaffey Drilling Co. is obligated to provide to the PLHCP in accordance with Section 11.4.

11.7.3 The specialist will be required to explain to the employee the results of the medical examination and provide each employee with a written medical report within 30 days of the examination. The written report will meet the requirements of Section 11.5 (except Section 10.5(d)).

11.7.4 A written opinion from the specialist will be obtained within 30 days of the medical examination. The written opinion will meet the requirements of Section 11.6 (except Section 11.6.1(b) and 11.6.2(b)).

12 COMMUNICATION OF RESPIRABLE CRYSTALLINE SILICA HAZARDS TO EMPLOYEES

Respirable crystalline silica will be included in the Hazard Communication program. Each employee will have access to labels on containers of crystalline silica and safety data sheets.

13 EMPLOYEE INFORMATION AND TRAINING

13.1 Employees will be trained in accordance with the provisions of the Hazard Communication program. The following hazards, at a minimum, will be addressed:

- a. Cancer;
- b. Lung effects;
- c. Immune system effects; and
- d. Kidney effects.

13.2 Each employee covered by this program will be able to demonstrate knowledge and understanding of at least the following:

- a. The health hazards associated with exposure to respirable crystalline silica;
- b. Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
- c. Specific measures that have been implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices and respirators to be used;
- d. The contents of this program;
- e. The identity of the competent person designated in accordance with Section 10.4; and
- f. The purpose, and a description, of the medical surveillance program required by Section 11.

13.3 A copy of California Code of Regulations, Title 8, Section 1532.3 and this program will be made readily available without cost to each employee covered by this program.

14 RECORDKEEPING

14.1 Air Monitoring Data

- 14.1.1 An accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica, as prescribed in Section 6.2 will be maintained.
- 14.1.2 This record will include at least the following information:
- a. The date of measurement for each sample taken;
 - b. The task monitored;
 - c. Sampling and analytical methods used;
 - d. Number, duration and results of samples taken;
 - e. Identity of the laboratory that performed the analysis;
 - f. Type of personal protective equipment worn by the employees monitored; and
 - g. Name, social security number and job classification of all employees represented by the monitoring indicating which employees were actually monitored.
- 14.1.3 Exposure records will be maintained and made available in accordance with California Code of Regulations, Title 8, Section 3204.

14.2 Objective Data

- 14.2.1 An accurate record of all objective data relied upon to comply with the requirements of this program will be made and maintained.
- 14.2.2 This record will include at least the following information:
- a. The crystalline silica-containing material in question;
 - b. The source of the objective data;
 - c. The testing protocol and results of testing;
 - d. A description of the process, task or activity on which the object data were based; and
 - e. Other data relevant to the process, task, activity, material or exposures on which the objective data were based.
- 14.2.3 Objective data will be maintained and made available in accordance with California Code of Regulations, Title 8, Section 3204.

14.3 Medical Surveillance

- 14.3.1 An accurate record for each employee covered by medical surveillance under Section 11 will be made and maintained.
- 14.3.2 The record will include the following information about the employee:
 - a. Name and social security number;
 - b. A copy of the PLHCPs' and specialists' written medical opinions; and
 - c. A copy of the information provided to the PLHCPs and specialists.
- 14.3.3 Medical records will be maintained and made available in accordance with California Code of Regulations, Title 8, Section 3204.

APPENDIX 1 – DEFINITIONS

Action level – A concentration of airborne respirable crystalline silica of 25 µg/m³, calculated as an 8-hour TWA.

Chief – The Chief of the Division of Occupational Safety and Health, or designee.

Director – The Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Competent person – An individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in Section 10.

Employee exposure – The exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air (HEPA) filter – A filter that is at least 99.97% efficient in removing monodispersed particles of 0.3 micrometers in diameter.

Objective data – 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 high exposure potential than the processes, types of material, control methods, work practices and environmental conditions in the employer's current operations.

Physician or other licensed health care professional (PLHCP) – 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 Section 11.

Respirable crystalline silica – Quartz, cristobalite and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable particle-size selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

Specialist – An American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

APPENDIX 2 – CRYSTALLINE SILICA EXPOSURE CONTROL PLAN

Task	Engineering Controls	Work Practices	Respiratory Protection	Date Implemented

Housekeeping Practices

Work Access Control Measures



APPENDIX 3 – METHODS OF SAMPLE ANALYSIS

This appendix specifies the procedures for analyzing air samples for respirable crystalline silica, as well as the quality control procedures that employers must ensure that laboratories use when performing an analysis required under 29 CFR 1926.1153 (d)(2)(v). Employers must ensure that such a laboratory:

1. Evaluates all samples using the procedures specified in one of the following analytical methods: OSHA ID-142; NMAM 7500; NMAM 7602; NMAM 7603; MSHA P-2; or MSHA P-7;
2. Is accredited to ANS/ISO/IEC Standard 17025:2005 with respect to crystalline silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs;
3. Uses the most current National Institute of Standards and Technology (NIST) or NIST traceable standards for instrument calibration or instrument calibration verification;
4. Implements an internal quality control (QC) program that evaluates analytical uncertainty and provides employers with estimates of sampling and analytical error;
5. Characterizes the sample material by identifying polymorphs of respirable crystalline silica present, identifies the presence of any interfering compounds that might affect the analysis, and makes any corrections necessary in order to obtain accurate sample analysis; and
6. Analyzes quantitatively for crystalline silica only after confirming that the sample matrix is free of uncorrectable analytical interferences, corrects for analytical interferences, and uses a method that meets the following performance specifications:
 - 6.1 Each day that samples are analyzed, performs instrument calibration checks with standards that bracket the sample concentrations;
 - 6.2 Uses five or more calibration standard levels to prepare calibration curves and ensures that standards are distributed through the calibration range in a manner that accurately reflects the underlying calibration curve; and
 - 6.3 Optimizes methods and instruments to obtain a quantitative limit of detection that represents a value no higher than 25 percent of the PEL based on sample air volume.

APPENDIX 4 – CARCINOGEN REPORT OF USE

Carcinogen Report of Use

Note: A copy of this report should be mailed to the following address:

Occupational Carcinogen Control Unit
 Division of Occupational Safety and Health
 Post Office Box 420603
 San Francisco, California 94142

An initial report for regulated carcinogen use should be reported in writing the Chief of the Division within 15 calendar days of initial use.

If there is any change to reported information, changes should be reported in writing within 15 calendar days of such change.

Company Information	
Company Name	
Company Address	
If applicable: Name of Collective Bargaining Units or Other Representatives of Affect Employees	
If applicable: Address of Collective Bargaining Units or Other Representatives of Affect Employees	

Carcinogen Use Information		
Location of Process or Operation that Involves Carcinogen Use	Number of Employees Engaged in Process or Operation	Description of Process or Operation

Carcinogen Use Information		
Location of Process or Operation that Involves Carcinogen Use	Number of Employees Engaged in Process or Operation	Description of Process or Operation

Changes in Carcinogen Use/Process/Procedure (If applicable)		
Location of Process or Operation that Involves Carcinogen Use	Number of Employees Engaged in Process or Operation	Description of Process or Operation

Report Information	
Report Completed By	
Date	
Position	