Safety programs are most effective when they are designed to meet the specific and individual needs of each company. This safety program does not constitute a complete and comprehensive safety program. The intent of this safety program is to encourage the development of individual company specific programs by providing a sample format and suggested wording for program components.

This safety program is not intended to be an exhaustive treatment of the subject, and should not be interpreted as precluding other procedures, which would enhance the safety and health of your place of work or project sites.

Midwest Builders’ Casualty makes no guarantee, warranty or assurance, expressed or implied, that these procedures will insure compliance or are in compliance with requirements of any OSHA regulations or any other laws or regulations dealing with safety and health as it pertains to employees, or the safety and health regulations as it pertains to hazardous substances and/or the work environment.
Respirable Crystalline Silica Exposure Control Plan

Tips and Considerations

Applicability
The sample Silica Exposure Control Plan serves as the required Written Exposure Control Plan (Plan) and applies to general industry workplaces, including concrete products, stone cutting, foundries, dental laboratories, pottery ready-mix concrete, and structural clay products containing crystalline silica. Hydraulic fracturing operations in the oil and gas industry are also impacted by the rule. These activities can expose workers to silica dust, which can penetrate deep into the lungs and cause disabling and sometimes fatal lung diseases, including silicosis and lung cancer, as well as kidney disease.

For general industry activities that generate silica dust, housekeeping practices, exposure and work practice controls, medical surveillance, recordkeeping, and worker training are covered under the Occupational Safety and Health Administration’s (OSHA) workplace safety rule for respirable crystalline silica (RCS) at 29 CFR 1910.1053. This Plan is developed in accordance with the requirements in 29 CFR 1910.1053(f)(2).

The sample Plan does not apply to tasks that involve low exposures and where worker exposure remains below 25 micrograms per cubic meter (µg/m³) for an 8-hour time-weighted average (TWA) under foreseeable conditions.


Regulatory requirements
Plan elements. This sample Plan incorporates the following elements required by OSHA:

- A description of the tasks in the workplace that involve exposure to RCS;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to RCS for each task;
- A description of the housekeeping measures used to limit employee exposure to RCS; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to RCS and their level of exposure, including exposures generated by other employers or sole proprietors.

The employer’s Plan can also include anything else deemed important about keeping employees safe from RCS at the specific worksite.

Specified exposure control methods (29 CFR 1926.1153(c)). General industry employers are allowed to use Table 1 of the RCS construction rule if the task performed is indistinguishable from those listed. Table 1 lists engineering and work practice controls and respiratory protection
for 18 specific tasks. Employers that follow Table 1 correctly are not required to measure worker exposure to silica and are not subject to the permissible exposure limit (PEL).

**PEL (29 CFR 1910.1053(c)).** Employers must ensure that no employee is exposed to an airborne concentration of 50 µg/m³.

**Exposure assessment (29 CFR 1910.1053(d)).** For tasks not listed on Table 1, or if employers do not fully implement the exposure controls identified, the employers must assess employee exposure if above the action level (AL)—25 µg/m³—following either a “performance option” or “scheduled monitoring option.” If exposures exceed the PEL, employers must repeat monitoring within 3 months. If exposures are above the AL and below the PEL, employers must repeat monitoring within 6 months. Employers must reassess as needed whenever there are changes in production, equipment, process, personnel, or work practices.

**Methods of analysis (29 CFR 1910.1053(d)(5)).** All required monitoring samples must be evaluated by a laboratory that analyzes air samples for RCS in accordance with Appendix A.

**Employee notification (29 CFR 1910.1053(d)(6)).** Within 15 days of completing an exposure assessment, each affected employee must be individually notified of the results of the assessment.

**Regulated areas (29 CFR 1910.1053(e)).** Employers must establish a regulated area wherever an employee’s exposure to airborne concentrations of RCS is, or can reasonably be expected to be, in excess of the PEL. The regulated areas must be demarcated from the rest of the workplace in a manner that minimizes the number of employees exposed to RCS within the regulated area. Signs must be posted at all entrances to regulated areas with the language specified in 29 CFR 1910.1053(j)(2). Access to regulated areas must be limited to:

- Persons authorized and required by work duties to be in the area;
- Any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring procedures;
- Any person authorized by the Occupational Safety and Health Act or regulations issued under it.

Each employee and the employee’s designated representative entering the regulated area must be provided the appropriate respiratory protection and required to use the respirator while in the area.

**Medical exams (29 CFR 1926.1153(i)).** Employers must make medical surveillance available to all employees who will be required to use a respirator for 30 days or more per year. Medical examinations and procedures must be performed by a physician or other licensed health care professional (PLHCP).

An initial (baseline) medical examination must be performed within 30 days of initial assignment—unless the employee had a similar examination within the past 3 years. The examination must consist of:

- A medical history, with emphasis on past, present, and anticipated exposure to RCS dust and other agents affecting the respiratory system;
• Any history of respiratory system dysfunction, including signs and symptoms of respiratory disease, history of tuberculosis, and smoking status and history;
• A physical examination with special emphasis on the respiratory system;
• 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 (in.) and no more than 16 x 17 in.) or digital radiography systems), interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a National Institute for Occupational Safety and Health (NIOSH)-certified B Reader;
• A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV₁) and FEV₁/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;
• Testing for latent tuberculosis infection; and
• Any other tests deemed appropriate by the PLHCP.

The medical examinations that include these procedures must be conducted at least every 3 years or more frequently if recommended by the PLHCP.

The examining PLHCP must have a copy of the RCS standard and the following information:
• A description of the employee’s former, current, and anticipated duties as they relate to the employee’s exposure to RCS;
• A description of any personal protective equipment (PPE) used, including how long the employee used or will use that PPE; and
• Information from medical examinations previously provided.

The PLHCP will provide the employee with the results of the medical examination with a written medical report within 30 days.

The PLHCP will provide the employer with a written medical opinion within 30 days of the examination.

Employers must make available medical examinations that include the aforementioned procedures at least every 3 years, or more frequently if recommended by the PLHCP.

**Communication of hazards to employees (29 CFR 1910.1053(j)).** Each covered employee must be trained, under OSHA’s HazCom Standard (29 CFR 1910.1200) on the hazards of RCS-containing products and have access to labels and safety data sheets (SDSs). The employer must ensure that at least the following hazards are addressed: cancer, lung effects, immune system effects, and kidney effects.

Workers must also be trained on:
• Health hazards associated with exposure to RCS;
• Specific tasks in the workplace that could result in exposures;
• Specific measures the employer has implemented to protect employees from exposure, including engineering and work practice controls, and respirators to be used;
• Contents of the OSHA RCS rule; and
• Purpose and description of the medical surveillance program.

**Signs (29 CFR 1910.1053(j)(2)).** Signs must be posted at all entrances to regulated areas that bear the following:

DANGER

RESPIRABLE CRYSTALLINE SILICA
Recordkeeping (29 CFR 1910.1053(k)):

**Air monitoring data.** Accurate records of all employee exposure to RCS assessment measurements must be maintained. The record must include at least:

- The date of measurement for each sample that is taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Identity of laboratory that performed analysis;
- Type of PPE, such as respirators, used by the employees monitored; and
- Name, Social Security number (SSN), and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

**Objective data.** An accurate record of all objective data relied on must be maintained. This record must include at least:

- The crystalline silica-containing material;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the data were based.

The objective data must be maintained and made available in accordance with 29 CFR 1910.1020 (Access to employee exposure and medical records).

**Medical surveillance.** Accurate records for each employee covered by medical surveillance must be maintained and must include the following information about the employee:

- Name and SSN;
- A copy of PLHCP’s and specialist’s written medical opinions; and
- A copy of the information provided to the PLHCPs and specialists.

The employee exposure and medical records must be maintained for at least 30 years. In addition, medical surveillance records must be kept for at least 30 years after an employee leaves the company, and employee training records must be kept for 1 year after an employee leaves the company.

All records must be made available to OSHA on request. Exposure records must also be available to affected and former employees, and medical records must be available to the employee or to anyone having the consent of the employee. If the company goes out of business, the records must be transferred to the successor employer. If there is no successor employer, affected current employees must be notified of their right to access their records at least 3 months before the company goes out of business.

**Housekeeping (29 CFR 1910.1053(h)).** Dry sweeping and dry brushing must not be permitted where it could contribute to employee exposure to RCS, unless wet sweeping, high-efficiency particulate air (HEPA)-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.
Compressed air must not be permitted to be used to clean clothing or surfaces, 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.

**Written Exposure Control Plan (29 CFR 1910.1053(f)(2)).** The employer is required to establish and implement a Plan that contains at least the following elements:

- A description of the tasks in the workplace that involve exposure to RCS;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to RCS for each task; and
- A description of the housekeeping measures used to limit employee exposure to RCS.

The effectiveness of the Plan must be reviewed and evaluated at least annually and updated as necessary and must be readily available for examination and copying, upon request, to each employee affected, their designated representatives, and OSHA.

**State regulatory requirements**

This Plan is based on federal requirements and/or best practices. Some states have laws and regulations that are stricter than federal requirements and may affect how you customize this Plan.
[Company/Facility Name]
Respirable Crystalline Silica Exposure Control Plan
# Respirable Crystalline Silica Exposure Control Plan

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Authority and scope
Regulation: 29 CFR 1910.1053 Respirable crystalline silica (RCS) in general industry [replace with the state regulation if applicable]

Scope: This Written Exposure Control Plan (Plan) describes the hazards associated with projects involving potential exposure to airborne concentrations of silica and the issues to be addressed during these projects.

Policy statement
It is the policy of [company name] to protect workers on our worksites from the hazards associated with RCS. This organization will ensure that no employee is exposed to an airborne concentration of RCS in excess of 50 micrograms per cubic meter (µg/m³) of air as an 8-hour time-weighted average (TWA).

Contact with silica-containing materials will be restricted to only those workers who have been properly trained. We will provide sufficient training and communications so that this policy is effectively implemented.

[Administrator name] will ensure that exposure to RCS is conducted in accordance with the Occupational Safety and Health Administration (OSHA) requirements.
**PLAN ADMINISTRATION**

**Program contact information**

<table>
<thead>
<tr>
<th>Function</th>
<th>Name/Department</th>
<th>Contact information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan administrator</td>
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<tr>
<td>Supervisor/Manager</td>
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</tbody>
</table>

**Plan administrator.** The plan administrator will:

- Ensure that the materials (e.g., tools, equipment, personal protective equipment (PPE)) and other resources (i.e., worker training materials) required to fully implement and maintain this RCS exposure control plan (ECP) are readily available where and when they are required.
- For activities covered in Table 1 of 29 CFR 1926.1153, ensure for each task that engineering and work practice controls and required respiratory protection are fully implemented.
- Provide a job-specific ECP for each project, which outlines in detail the work methods and practices that will be followed on each site. Considerations will include:
  - Availability and delivery of all required tools/equipment;
  - Scope and nature of grinding work to be conducted;
  - Control methods to be used;
  - Level of respiratory protection required; and
  - Coordination plan.
- Conduct a periodic review of the effectiveness of the ECP. This would include a review of the available dust-control technologies to ensure these are selected and used when practical.
- Initiate a sampling of worker exposure to concrete dust when there are nonstandard work practices for which the control methods to be used have not been proven to be adequately protective.
- Ensure that all required tools, equipment, and PPE are readily available and used as required by the ECP.
- Ensure supervisors and workers are educated and trained to an acceptable level of competency.
- Maintain records of training, fit-test results, crew talks, and inspections (equipment, PPE, work methods/practices).
- Coordinate the work with the prime contractor and other employers to ensure a safe work environment.

**Supervisors.** Supervisors will:

- Obtain a copy of the ECP from the administrator, and make it available at the worksite.
- Select, implement, and document the appropriate site-specific control measures.
- Provide adequate instruction to workers on the hazards of working with silica-containing materials (e.g., concrete) and on the precautions specified in the job-specific plan covering hazards at the location.
- Ensure that workers are using the proper respirators and have been fit-tested and that the results are recorded.
- Mark off the regulated area to ensure the risk to workers is minimized and adequately controlled.
**Employees.** Workers will:

- Attend required training.
- Know the hazards of exposure to RCS.
- Know which tasks could result in exposure to RCS.
- Use assigned PPE in an effective and safe manner.
- Follow established work procedures as directed by the supervisor.
- Report any unsafe conditions to the supervisor.
- Know how to report exposure incidents.

**Plan review and update**

This Plan will be reviewed at least annually by the administrator to ensure the program’s effectiveness, and it will be updated as needed.
DEFINITIONS

*Action level*—A concentration of airborne RCS of 25 µg/m³, calculated as an 8-hour TWA.

*Employee exposure*—The exposure to airborne RCS that will occur if the employee is not using a respirator.

*HEPA filter*—A filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.

*Objective data*—Information, such as air monitoring data from industrywide surveys or calculations based on the composition of a substance, demonstrating employee exposure to RCS 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.

*Physician or other licensed health care professional (PLHCP)*—An individual who’s 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 healthcare services required.

*Regulated area*—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 permissible exposure level (PEL).

*Respirable crystalline silica (RCS)*—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.
HAZARD ASSESSMENT

[Administrator] will develop and implement the ECP. This ECP describes the hazards associated with work activities and tasks involving potential exposure to airborne concentrations of silica and the issues to be addressed during these activities. These activities include, but are not limited to: [adjust to your worksites’ tasks]

- Abrasive blasting of steel using grit containing silica.
- Handheld power saws used to cut concrete, asphalt, concrete masonry block, Sheetrock, gypsum fiber roof board, or any other product containing quartz.
- Walk-behind saws used to cut concrete or asphalt.
- Jackhammers and handheld powered chipping tools used to demolish or modify concrete, concrete masonry block, or any other structural component or product containing quartz.
- Chipping tools used to demolish concrete, concrete masonry block, or any other structural component or product containing quartz.
- Handheld grinders or cutoff wheels used for mortar removal or cutting/grinding of concrete, concrete masonry block, Sheetrock, gypsum fiber roof board, or any other structural component or product containing quartz.
- Hand or power tool sanding of painted surfaces. Current latex paint products contain quartz, and the painted substrate (Sheetrock, concrete masonry block, concrete) contains quartz.
- Ball mills or crushing equipment used to size products containing quartz.
- All housekeeping operations associated with the activities described above.

[Administrator] must also:

- Identify workers at risk of exposure.
- Conduct inspections and periodic reassessment or when change occurs. Examples of change may include a new site configuration, wind direction, introduction of new products, new controls, etc.
- Identify regulated areas, and ensure warning signs are posted at all entrances to the regulated areas.
- Ensure employees who work in proximity to silica-related operations are aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

Health risks

Silica exposure usually results from the inhalation of airborne crystalline silica dust. It is the respirable fraction of the dust, which is small enough to get deep into the lung, that is of concern. Crystalline silica dust can cause a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs’ ability to extract oxygen from the air. This damage is permanent, but symptoms of the disease may not appear for many years.

A worker may develop any of three types of silicosis, depending on the airborne levels of silica dust encountered and the duration of exposure:

- Chronic silicosis develops after 10 or more years of exposure to RCS at relatively low airborne levels.
- Accelerated silicosis develops 5 to 10 years after initial exposure to RCS at high airborne levels.
• Acute silicosis develops within a few weeks to a few years after exposure to very high airborne levels of RCS. Initially, workers with silicosis may have no symptoms; however, as the disease progresses, a worker may experience:
  • Shortness of breath
  • Severe cough
  • Weakness
These symptoms can worsen over time and lead to death. Exposure to silica has also been linked to other diseases, including bronchitis, tuberculosis, chronic obstructive pulmonary disease (COPD), kidney disease, and lung cancer. Silica is classified as a human carcinogen (Group I) by the International Agency for Research on Cancer (IARC).
EXPOSURE ASSESSMENT

[Administrator] will conduct an exposure assessment of all work areas and work tasks. If not following 29 CFR 1926.1153 Table 1 requirements or performing an activity with potential airborne silica exposure not identified in Table 1, the exposure assessment must contain elements listed below.

- An exposure assessment is required when employees may be exposed to airborne silica at or above the action level in order to determine the extent to which employees are exposed and the appropriate exposure controls required.

- An initial determination of exposure will be made at the beginning of operations. The determination will consist of the collection of personal air samples representative of a full shift, including at least one sample for each job classification in each work area, either for each shift, or for the shift with the highest exposure level.

- During the initial determination, until such time that actual airborne concentrations are determined, workers will be protected by respiratory protection based on task-specific anticipated airborne concentrations of silica.

- During the initial determination, and in addition to the levels of respiratory protection required, workers will be provided with protective clothing and equipment, hygiene facilities, and training.

- Whenever a change in equipment, process, controls, or personnel occurs, or a new task has been initiated, an additional exposure assessment is required.

- When an assessment determines that exposure has occurred above the action level but below the PEL, additional monitoring will be required at least every 6 months. Additional monitoring will continue until such time that the monitoring results fall below the action level on two separate occasions at least 7 days apart.

- When monitoring yields results above the PEL, quarterly monitoring is required. In addition, the quarterly monitoring may be suspended when additional monitoring results fall below the action level on two separate occasions at least 7 days apart.

- Where the administrator can clearly demonstrate, in the absence of air-monitoring data, that a work activity will not create airborne silica concentrations in excess of the action level, air monitoring may be unwarranted. Where a negative initial determination is reached without air monitoring, the competent person must develop a written explanation as to why exposures are not expected to exceed the action level.
REGULATED AREAS

We have established regulated areas where airborne concentrations of RCS are in excess, or likely to be in excess, of the PEL.

Following is a list of silica dust-regulated areas at the facility:

<table>
<thead>
<tr>
<th>Regulated area</th>
<th>Location</th>
<th>PPE</th>
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Access to regulated areas is limited to authorized persons or to persons authorized by law or regulation.

All workers within the regulated area will be equipped with and required to use selected respirators for identified tasks.

In all cases, the respiratory protection and protective clothing specified for the regulated area will be used until final clearance sampling results indicate clearance has been achieved.

**Warning signs**

Warning signs will be displayed at each entrance to the regulated area. In addition, warning signs will be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area. The warning signs will display the following information:

**DANGER**

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

All employees working in and contiguous to regulated areas will be trained to understand the warning signs. Signs will include foreign languages, pictographs, and graphics if necessary. See the Training section for more information.
EXPOSURE CONTROL METHODS
Effective control measures must be taken to eliminate or reduce the risk to workers from the hazards of RCS. The following hierarchy of control measures must be followed:

- Elimination and substitution;
- Engineering and work practice controls; and
- PPE.

Elimination and substitution
Reasonable efforts must be taken to identify all practical approaches to eliminate exposure by substituting silica-containing products. However, we recognize that substituting non-silica-containing products is not feasible for many of our activities. So, engineering, administrative, and personal protective controls may be required.

Engineering controls
Describe the engineering controls that will be or have been implemented at your worksite.)
Selecting an appropriate control measure depends on the specifics of the project. In some cases, local exhaust ventilation (LEV) is more effective at controlling exposure than wetting methods. In a different application, wetting may be more effective than LEV. However, using LEV may reduce the amount of final cleaning required, as the silica dust is captured.
Our dust control systems may employ three well-established techniques:

- LEV
- Wet dust suppression (WDS)
- Restricting or isolating the work activity with barriers or full enclosures (This may be the only option where LEV or WDS is not practical or effective.)

LEV—Safe work practices
When LEV is used in our work, the following systems and safe work practices must be followed:

- Vacuum attachment systems to capture and control the dust at its source whenever possible;
- Dust control systems (used regularly and well-maintained);
- Tools and equipment operated as recommended by manufacturers;
- Good housekeeping work practices (For example, use vacuums with HEPA filters, or use wet sweeping.); and
- Train workers and supervisors on how to properly use and maintain the equipment.

Wet dust control—Safe work practices
When water spray systems are used, these safe work practices must be followed:

- Pneumatic tools will be used instead of electric-powered tools if water is the method of control.
- Pressure and flow rate of water will be controlled in accordance with tool manufacturers’ specifications.
- When sawing concrete or masonry, use only saws that provide water to the blade.
- Wet slurry will be cleaned from work surfaces when the work is completed, using a wet vacuum or wet sweeping.

Barriers and enclosures—Safe work practices
When barriers or enclosures are used in our work, these safe work practices must be followed:
• The administrator will determine the type and design of barrier or enclosure (based on the work activity and the work area) and ensure it is constructed in accordance with the work plan. Barriers may be a simple hazard-flagging ribbon or more restrictive hoarding.

• Commercially available negative air units will be used when constructing a full enclosure.

**General safe work practices**
The safe work practices must be followed:

• Procedures for housekeeping, regulated areas, personal hygiene, worker training, and supervision will be established.

• As part of the project planning, areas will be assessed when silica dust may be generated, and a plan to eliminate or control the dust at the source will be established.

• Warning signs will be posted to warn workers about the hazards of silica and to specify any protective equipment required.

• Work that generates silica dust will be conducted after hours when access to other unprotected workers cannot be restricted.

*[Describe the work practices that will be or have been implemented at your worksite.]*

**PPE**
Respiratory protection must be used for the following conditions:

• During periods when employee exposure to airborne silica exceeds the PEL;

• For work operations where engineering and work-practice controls are not sufficient to reduce employee exposure to or below the PEL;

• When working in a regulated area;

• During periods when an employee requests a respirator;

• During periods when respirators are required to provide interim protection while conducting initial exposure assessments; and

• Employees must be provided, at no cost, protective work clothing and equipment, including cotton coveralls or similar full-body clothing, gloves, hats, shoes or disposable shoe coverlets, face shields, vented goggles, or other appropriate PPE.

**Respirator use**

• Respiratory protection will be selected based on guidance in 29 CFR 1926.1153 Table 1 or based on the administrator’s assessment of the potential airborne exposure that may be created by the means and methods of work (high-energy operations with high-airborne dust generation or low-energy operations with low-dust generation).

• All workers working in a regulated area will wear appropriate respiratory protection.

• All workers who wear respirators will do so in adherence with our respirator program.

• Respiratory protection will be selected based on the site-specific risk assessment.

• Only National Institute for Occupational Safety and Health (NIOSH)-approved respirators will be used.

• Workers who wear respirators will be clean-shaven. Filtering face piece respirators give little or no protection to workers with beards, and even a minor growth of stubble can severely reduce the effectiveness of respiratory protection.

• All workers who wear respirators will be fit-tested.

• Workers will be properly trained in the use of respirators, and a high standard of supervision, inspection, and maintenance will be followed.
**Protective clothing**
Workers will wear protective clothing as specified in our task-specific safe work procedures to prevent contamination of worker clothing. Workers will not use compressed air to clean themselves, their clothing, or their equipment.

**Housekeeping**
Workers are not permitted to dry sweep or dry brush to remove any silica dust in work areas. Use wet sweeping or HEPA-filtered vacuum to prevent airborne silica dust.
MEDICAL SURVEILLANCE

[Company name] will institute medical surveillance for any employees required by this ECP to wear a respirator 30 or more days per year.

Medical surveillance recordkeeping
An accurate record of all RCS exposure measurements will be maintained for 30 years. The records for each employee subject to medical surveillance will be maintained for the duration of employment, plus 30 years. All employee training records will be kept for 1 year beyond the last date of employment by the employee. All records will be made available on request to the regulatory agency, NIOSH, affected employees, former employees, and their designated representatives.

Medical surveillance records will be kept by the administrator or designee at [insert location].
HYGIENE FACILITIES AND PRACTICES

*Change rooms*
Change rooms are available for employees who work in areas where there is a potential for exposure to RCS. The change rooms are equipped with two separate storage areas to prevent contamination of the employee’s street clothes from protective work clothing and equipment.

*Showers*
 Employees who work in areas where they are exposed to RCS will shower at the end of the work shift.

*Contaminated clothing or equipment*
Employees will not leave the workplace wearing any clothing or equipment worn during the work shift.

Employees must:
- Wash their hands and faces before eating, drinking, or smoking.
- Remove protective work clothing or equipment.

*Smoking*
Employees must not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.
TRAINING
All employees who anticipate working on projects or in tasks where they could be exposed to airborne silica dust will be provided training.

Communication of RCS hazards
- Each employee will be provided training and demonstrate knowledge and understanding of the following:
  - Health hazards associated with exposure to RCS, including cancer, lung effects, immune system effects, and kidney effects;
  - Specific tasks that could result in exposure to RCS;
  - Specific measures that are required to protect employees from exposure to RCS, including engineering controls, work practices, and required use of respiratory protection;
  - The contents of the 29 CFR 1910.1053 standard; and
  - Purpose and description of the medical surveillance program.
- A written compliance program will be made available to all affected employees.
- In addition, notification to owners, contractors, and other personnel working in the area must be made.
- Each employee will have access to labels on containers of crystalline silica-containing materials and to safety data sheets (SDSs).
- Each employee will be trained to understand the requirements of regulated areas.

Training frequency. Each such employee will be trained for every new process, task, and new equipment used.

Smoking cessation assistance
Self-help smoking cessation program material is available to all employees who request such material.
RECORDKEEPING
Records must be kept of the following:
- All workers who are exposed to RCS dust while on the job;
- Worker education and training sessions;
- Respirator fit testing;
- Equipment maintenance and repair; and
- Worksite inspections/assessments.

These records will be kept [insert location] for [insert duration].
## APPENDIX A

### Table 1: Specified exposure control methods when working with materials containing crystalline silica (29 CFR 1926(c)(1))

<table>
<thead>
<tr>
<th>Equipment/Task</th>
<th>Engineering and work practice control methods</th>
<th>Required respiratory protection and minimum assigned protection factor (APF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>≤ 4 hours/shift</td>
</tr>
<tr>
<td>Stationary masonry saws</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool according to manufacturer's instructions to minimize dust emissions.</td>
<td>None</td>
</tr>
<tr>
<td>Handheld power saws (any blade diameter)</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions. · When used outdoors · When used indoors or in an enclosed area</td>
<td>None</td>
</tr>
<tr>
<td>Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches (in.) or less)</td>
<td>For tasks performed outdoors only: · Use saw equipped with commercially available dust collection system. · Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions. · Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99 percent or greater efficiency.</td>
<td>None</td>
</tr>
<tr>
<td>Walk-behind saws</td>
<td>Use saw equipped with integrated water delivery system that</td>
<td></td>
</tr>
<tr>
<td>Tool Type</td>
<td>Additional Requirements</td>
<td>APF 10</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Drivable saws</td>
<td>For tasks performed outdoors only:</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>· Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td>Rig-mounted core saws or drills</td>
<td>Use tool equipped with integrated water delivery system that supplies water to cutting surface.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td>Handheld and stand-mounted drills (including impact and rotary hammer drills)</td>
<td>Use drill equipped with commercially available shroud or cowling with dust collection system.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism.</td>
<td></td>
</tr>
<tr>
<td>Equipment Type</td>
<td>Recommendations</td>
<td>APF 10</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| Dowel drilling rigs for concrete                 | Use a HEPA-filtered vacuum when cleaning holes. For tasks performed outdoors only:  
  - Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism.  
  - Use a HEPA-filtered vacuum when cleaning holes. |       | APF 10 |
| 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.  
  * OR  
  Operate from within an enclosed cab, and use water for dust suppression on drill bit. | None  | None  |
| Jackhammers and handheld powered chipping tools   | Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.  
  - When used outdoors  
  - When used indoors or in an enclosed area  
  * OR  
  Use tool equipped with commercially available shroud and dust collection system.  
  Operate and maintain tool according to manufacturer's instructions to minimize dust emissions.  
  Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and | None  | APF 10 |

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<table>
<thead>
<tr>
<th>Task Description</th>
<th>Specification Details</th>
</tr>
</thead>
</table>
| Handheld grinders for mortar removal (i.e., tuck-pointing) | - Use grinder equipped with commercially available shroud and dust collection system.  
  - Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.  
  - Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99 percent or greater efficiency and a cyclonic preseparor or filter-cleaning mechanism. |
| Handheld grinders for uses other than mortar removal | - For tasks performed outdoors only.  
  - Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.  
  - Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.  
  - OR  
  - Use grinder equipped with commercially available shroud and dust collection system.  
  - Operate and maintain tool according to manufacturer’s instructions to minimize dust emissions.  
  - Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99 percent or greater efficiency and a cyclonic preseparor or filter-cleaning mechanism. |
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Equipment Use</th>
<th>Dust Control Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk-behind milling machines and floor grinders</td>
<td>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. <strong>OR</strong> Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool according to manufacturer's instructions to minimize dust emissions. Dust collector must provide the airflow recommended by the manufacturer, or greater, and have a filter with 99 percent or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Small drivable milling machines (less than half-lane)</td>
<td>Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Equipment Type</td>
<td>Operation Details</td>
<td>Additional Requirements</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Large drivable milling machines      | Operate and maintain machine to minimize dust emissions. 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 four inches in depth or less on any substrate:  
  - 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.  
  **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 |
<p>| 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 according to manufacturer’s instructions to minimize dust emissions. | None | None |</p>
<table>
<thead>
<tr>
<th>Activity</th>
<th>Suggested Control Measures</th>
<th>Dust Suppressant Use</th>
<th>Equipment Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or use a remote-control station.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Heavy equipment and utility vehicles for tasks such as grading and excavating, but not including demolishing, abrading, or fracturing silica-containing materials</td>
<td>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. OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
**TASK-SPECIFIC EXPOSURE CONTROL**

*List tasks and activities being performed on our worksite to identify activities where there could be an RCS exposure hazard.*

<table>
<thead>
<tr>
<th>Worker/Task</th>
<th>Control methods</th>
<th>PPE</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-held grinders</td>
<td>Vacuum dust collection system</td>
<td>No specific PPE controls required</td>
<td>The collection system should include a shroud or hood surrounding the grinding wheel as recommended by the tool manufacturer; a vacuum with enough suction to capture dust at the grinding point; a 1½- to 2-in.-diameter vacuum exhaust hose or a hose size that is recommended by the tool manufacturer; a HEPA filter in the vacuum exhaust; and a static pressure gauge, where available, to monitor performance.</td>
</tr>
</tbody>
</table>

*[Administrator]* will assess all work areas and work tasks that are not following 29 CFR 1926.1153 Table 1 requirements or performing an activity with potential airborne silica exposure not identified in Table 1. Administrator will identify required controls and PPE to be used.