RESPIRABLE CRYSTALLINE SILICA PROGRAM
June 2018

A. **SCOPE**

The Respirable Crystalline Silica Program is established in accordance with 29 CFR 1910.1053 and 29 CFR 1926.1153, Respirable Crystalline Silica. It describes the program elements necessary to protect employees from the harmful effects of respirable crystalline silica exposure at all University of Nevada, Las Vegas (UNLV) properties.

B. **COMPLIANCE**

This program applies to all UNLV employees whose job assignments may expose them to respirable crystalline silica. If employee exposure to respirable crystalline silica remain below the action level (under any foreseeable condition), then the requirements of this program do not apply.

C. **TERMINOLOGY**

Requirements specific to either the general industry or construction OSHA Respirable Crystalline Silica standard will be identified by (General Industry) or (Construction), respectively, in this document. Definitions are provided in Section I.

D. **DUTIES AND RESPONSIBILITIES**

1. **Risk Management and Safety (RMS)**
   a. Establish the UNLV Respirable Crystalline Silica Program.
   b. Identify those who can collect samples and perform lab analysis.
   c. Identify physicians or licensed health care professional (PLHCP) and specialists who can provide examinations.
   d. Provide training as indicated in section G (1).
   e. Maintain training records for those completing RMS courses.
f. Provide assistance to departments, as needed:

i. Identifying exposure sources and control methods (Appendix A).

ii. Implementing the UNLV Respirable Crystalline Silica Program.

iii. Preparing the exposure control plan and completing the annual review. (Appendix B).

iv. Understanding requirements for air monitoring and medical evaluations.

v. Determining personal protective equipment (PPE) for the hazards encountered.

vi. Developing quizzes to determine employee understanding of department training topics in section G2.

(2) **Department Managers and Supervisors**

a. Implement the UNLV Respirable Crystalline Silica Program.

b. Have employees attend training indicated and complete respirator medical evaluations and fit testing.

c. Arrange for air sampling when required, and provide employees an opportunity to observe. Provide employees results of air sampling.

d. Assess possible exposure and identify/implement appropriate control methods and respiratory protection to protect employees from respirable crystalline silica (Appendix A).

e. Inform employees about tasks involving respirable crystalline silica and provide equipment to perform the job safely.

f. Provide access to product labels and safety data sheets (SDS) for the products containing silica.

g. Arrange medical evaluations for employees who are exposed above the action level for 30 or more days a year. (Appendix D).

h. Identify regulated areas, if needed, and follow the requirements in section H.
i. Designate a competent person to fulfill the duties and responsibilities identified in section D (3).


(3) **Department - Competent Person**

a. Prepare the Respirable Crystalline Silica Exposure Control Plan (Appendix B) and perform the annual review.

b. Determine appropriate PPE for the potential hazards encountered.

c. Perform regular inspections of job sites, materials and equipment (Appendix D). (Construction)

d. Maintain a file of exposure and medical evaluation data as specified in section H and provide exposure data to RMS, when requested.

e. Provide training and administer the quiz to department staff as specified in sections G2 and G3, respectively.

(4) **Employees**

a. Complete RMS and department specific training.

b. Complete medical evaluations and respirator fit testing, when required.

c. Perform job duties using the controls specified.

d. Use equipment properly and follow good housekeeping practices.

e. Perform equipment checks. Bring defective equipment to your supervisor’s attention for repair or replacement.

f. Wear PPE properly and inspect, clean, maintain and store PPE correctly.

(5) **PLHCP/Specialist**

a. Provide medical evaluations to exposed UNLV personnel.

b. Explain medical evaluations results to employees.
c. Issue written medical evaluation reports to employees within 30 days of each examination.

d. Provide written medical opinions to employee’s department within 30 days of the medical examination that include the information specified in 29CFR 1910.1053 (General Industry) and 29CFR 1926.1153. (Construction).

E. **RESPIRATOR REQUIREMENTS**

(1) Respirators will be used when exposures are at or above the PEL or as follows:

a. When installing or implementing engineering and work practice controls.

b. When controls are not sufficient to reduce exposures below the PEL.

c. During maintenance and repairs tasks and engineering and work practice controls are not feasible.

d. Employees are in a regulated area (General Industry).

e. Required by OSHA Standard 1926.1153, Table 1.

f. Tasks are not listed in Table 1, or when not able to fully implement the requirements of Table 1.

(2) When respirators are used, the requirements of 1910.134, Respiratory Protection, also apply.

F. **REGULATED AREA** (General industry)

(1) Control access to regulated areas.

(2) Grant access to those:

a. Required to perform work in the area.

b. Observing monitoring taking place.

c. Authorized by the department.

(3) Provide and require respirators to be used by those listed above while inside regulated areas.
G. **TRAINING**

(1) RMS respirable crystalline silica training topics.
   
a. Competent Person Training.
   
b. Health hazards from exposure.
   
c. UNLV Respirable Crystalline Silica Program.

(2) Department Training Topics.

   a. Materials/jobs that produce exposure to respirable crystalline silica.
   
   b. Specific measures implemented to protect employees.
      
      i. Engineering Controls.
      
      ii. Work Practice Controls.
      
      iii. Respirator Use.

   c. Care and proper storage of respirators.

   d. Information about the Medical Surveillance Program (Appendix C).

   e. The name of the competent person who would perform the duties shown in section D (3).

(3) Employees will be asked to complete a quiz to show understanding of the topics above.

H. **RECORD KEEPING**

(1) Objective Data.

   a. The respirable crystalline silica material in question.
b. The source of the objective data.

c. The testing protocol used and results of testing.

d. A description of the process, task or activity on which the objective data were based.

e. Other data relevant to the process, task, activity, material or exposure on which the objective data were based.

(2) Scheduled Air Monitoring Data.

a. Date of measurement for each sample that was 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 protective equipment used by the employees being monitored.

g. Name, social security number and job classifications of all employees being monitored.

(3) Medical Surveillance Program Data.

a. Name and social security numbers of employees receiving medical evaluations.

b. PLHCPs and specialists written medical opinion.

c. Information provided to PLHCPs and specialists.

(4) For the data shown above, maintain and make available in accordance with 1910.1020, Access to Employee Exposure and Medical Records.

I. DEFINITIONS

(1) Action Level – A concentration of airborne respirable crystalline silica of 25 micrograms per cubic meter of air, calculated as an 8-hour TWA.
(2) **Competent Person** – An individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities of the written exposure control plan.

(3) **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.

(4) **Permissible Exposure Limit (PEL)** - A concentration of airborne respirable crystalline silica in excess of 50 micrograms per cubic meter of air, calculated as an 8-hour TWA.

(5) **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 PEL. (General Industry)

(6) **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).

**J. APPENDICES**

(1) Appendix A – Exposure Sources and Control Methods
Silica Exposure Assessment

(2) Appendix B – Exposure Control Plan
Annual Review

(3) Appendix C – Medical Surveillance Program

(4) Appendix D – Job Site Inspection Worksheet
Appendix A

Exposure Sources & Control Methods

Exposure Sources

(1) Processes that may produce an exposure.
   a. Cutting, Sawing, Drilling, Crushing of:
      Brick, ceramic tiles, rock/stone products, and cement/concrete.
   b. Operations and processes that use large quantities of sand.
   c. Dental laboratory procedures. (General Industry)

(2) Products that may produce an exposure.
   a. Concrete products.
   b. Structural clay products.
   c. Cut stone & stone products.
   d. Paintings and coatings.
   e. Abrasive blasting.
   f. Glass products (General Industry)
   g. Pottery products (General Industry)

Control Methods

(1) Engineering Controls.
   a. Ventilation.
   b. Substitution.
   c. Enclosing, isolating or changing the process.

(2) Work Practice Controls.
   a. Job rotation.
   b. Wet methods.
   c. Personal hygiene.
   d. Housekeeping practices.
   e. Maintenance of equipment.
Appendix A

Silica Exposure Assessment

Is respirable crystalline silica present?

YES

Can §1926.153 Table 1 be used?

YES → Implement

NO

Replace or upgrade tools

Use substitute non-silica containing product

Use alternative controls to mitigate

Outsource job or task

Use engineering or work practice controls

Sampling Option

Below Action Level

Above Action Level & Below PEL

Above the PEL

Repeat sampling every 6 months

Repeat sampling every 3 months

Reassess as needed if anything changes

Objective Data Option

Available & Pertinent?

YES

Use Data

No; Select One:

Find Industry Results

Use Sampling Option

† Air monitoring data from industry-wide surveys/calculations based on employee exposure through products, materials, specific processes, tasks or activity

† Implement engineering & work practice controls to limit exposure

† Institute Respiratory Protection Program if necessary
RESPIRABLE CRystalline silica 
EXPOSURE CONTROL PLAN

Department: Maintenance          Date: 5/7/2018

Instructions: For each task with silica containing materials, show the type of work performed, engineering and work practice controls used, PPE required and housekeeping measures implemented.

Job Task: Demolishing concrete and tile floor inside a building using a jack hammer.

Controls: Jack hammer equipped with an appropriate shroud and vacuum dust control system, with flow rate recommended by the jack hammer manufacturer, a filter that is at least 99 percent efficient and a filter cleaning mechanism. Also, a portable fan will be used to exhaust air and prevent buildup of dust.

Ensure shroud & hoses are not damaged and do not become kinked or bent while working; activate filter cleaning at the frequency recommended by the manufacturer, replace bags as needed or prevent overfilling. Use jack hammer and vacuum controls according to manufacturer’s recommendations for reducing the release of visible dust. If visible dust increases, check controls and adjust as needed.

PPE: Use respirator with APF of 10 (N-95 filtering face piece) the entire time the task is being performed.

Housekeeping: Dust containing silica on work surfaces must be cleaned using wet methods or a HEPA filtered vacuum (beginning of shift, before breaks and lunch, and at the end of the shift). Do not use compressed air or dry sweeping methods for removing dirt and debris containing silica from work surfaces. Dispose of used vacuum bags in a container that is kept closed.

Restricting Access: Schedule work to so that only employees who are engaged in the task are present to limit possible exposure to others. Use caution tape or other means to inform others of the work taking place.

Special Considerations: Floor tile and mastic must be tested for asbestos. Ceramic tile must be tested for asbestos and lead before work begins. If asbestos or lead is confirmed, then proper removal must occur before this job begins.

(Signature – Competent Person) (Job Title – Competent Person)
Appendix B

Annual Review – Exposure Control Plan

Department: ________________________________ Date: ________________________________

Effectiveness of Controls:
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Changes Recommended/Instituted:
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(Signature – Competent Person) ___________________________ (Job Title – Competent Person) ___________________________
Appendix C

Respirable Crystalline Silica Medical Surveillance Program

- No cost to employee and provided at a reasonable time and place.
- Employees who are exposed above the action level for 30 or more days a year.
- Initial (baseline) examination with 30 days of being assigned to duties, unless:
  - Employee received a medical examination within the last three years.
  - Meets the requirements of 29 CFR 1910.1053 (General Industry) or 29 CFR 1926.1153 (Construction).
- Periodic exams every three years, or more frequently, if recommended by the physician or licensed health care professional (PHLCP).
- PLHCP will explain results to employees and provide a written report to employees with 30 days.
- PLHCP will provide written medical opinion to UNLV Department within 30 days.
- UNLV Department will ensure employees receive a copy of the written medical opinion within 30 days.
- If PLHCP indicates employees should be examined by a specialist:
  - UNLV Department shall ensure employee is seen by a specialist within 30 days of the opinion.
  - UNLV Department shall provide requested information to specialist.
- Specialist will explain results to employees and provide a written report within 30 days.
- Specialist will provide written medical opinion to UNLV Department within 30 days.
RESPIRABLE CRYSTALLINE SILICA
JOB SITE INSPECTION WORKSHEET

Department: ___________________________ Date of Review: ___________________________

Job Task Location/Work Being Done
1. ___________________________
2. ___________________________

Employees Completing Job Task
1. ___________________________ 2. ___________________________
3. ___________________________ 4. ___________________________

Job Materials/Process (grinding, cutting, etc.)
1. ___________________________
2. ___________________________

Engineering Controls, Work Practice Controls, Housekeeping & PPE Used
1. ___________________________
2. ___________________________

Safety Issues Identified & Resolved
1. ___________________________
2. ___________________________
3. ___________________________

(Signature – Competent Person) (Job Title – Competent Person)