

Site Specific Silica Control Program

This program is designed to comply with the new OSHA Silica Standard (29 CFR 1926.1153) or the equivalent state standard. The purpose of this program is to minimize exposures to respirable crystalline silica (silica) on our jobsites. The hierarchy of controls will be used to ensure that worker exposures will not exceed the OSHA permissible exposure level (PEL) of 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). This program will focus on engineering controls, work practices and personal protective equipment (PPE).

The first step in this program is identifying all tasks on this jobsite which have the potential to expose workers to silica. These tasks are listed on Site Specific Job Hazard Analysis (Attachment # 1).

Refer to the Silica Compliance Flowchart (Attachment #2).

Use Table 1 (Attachment #3) to outline the procedures and engineering controls designed to minimize silica exposure. Use this information to fill out the job specific Written Exposure Control Plan (Attachment #4).

If working on a task not included in Table 1 or cannot fully comply with Table 1, use alternative control methods to minimize silica exposure. Initial employee air monitoring must be performed for employees on each shift, each task, and in each work area. AL = $25(\mu\text{g}/\text{m}^3)$, PEL = $50(\mu\text{g}/\text{m}^3)$

- If below the AL– No further testing needed
- If in between the AL and PEL – testing shall be repeated within 6 months
- If above the PEL – testing shall be repeated within 3 months

Competent Person (See: Written Exposure Control Plan)

The job of the competent person will be to help implement this written plan, monitor controls and ensure controls are properly maintained and used correctly.

Housekeeping (See: Written Exposure Control Plan)

Dry sweeping and compressed air will NOT be used to clean up silica dust. To the extent feasible, all dust will be collected using HEPA vacuums or, alternatively, wet sweeping.

Restricted Areas (See: Written Exposure Control Plan)

Any area that exceeds the OSHA action level for silica will be restricted to only those workers performing silica-related tasks. All other workers will be restricted from the area by a combination of warning signs, barriers and the competent person.

Respirators

Respirators will be required whenever silica exposures are possible even after engineering and work practice controls have been implemented. All employees have been FIT tested and cardio-pulmonary function tested. Respirator use will follow OSHA's Respirator Standard (29 CFR 1910.134).

Medical Surveillance

Medical exams will be offered to any worker who is expected to be required to wear a respirator for more than 30 days during the in the coming year, unless they provide proof they have had a silica exam in the past 3 years. This is part of the Employee Training.

Personal Hygiene

Good personal hygiene shall be used when working in proximity to dust from concrete and masonry materials. No smoking of tobacco products. Implement appropriate methods of cleaning up before eating and appropriate methods of cleaning clothes. Use a HEPA vacuum to clean clothes after each shift and/or leaving the regulated work area.

Training

See attachment for Employee Training along with employee sign-on sheet for all employees who have been trained. Employer shall conduct periodic training which includes re-training on all of these topics annually.

*hard & soft demolition
structural demolition & earthwork
specialty projects*



Recordkeeping

Per 29 CFR 1926.1153 G), records will be kept of air sampling data, objective data and medical surveillance. Employees will have access to these records as per 29 CFR 1910.20.

Appendices:

TWA Air Monitoring Results

Written Exposure Control Plan

Job Name: _____ Competent Person: _____

Material: _____ Tasks: _____

Engineering Controls, PPE, & Work Practices used to limit exposure:

Housekeeping measures:

Procedures to restrict access to work area:

Other considerations:

STOMPER COMPANY, INC.

SILICA
COMPLIANCE
FLOWCHART

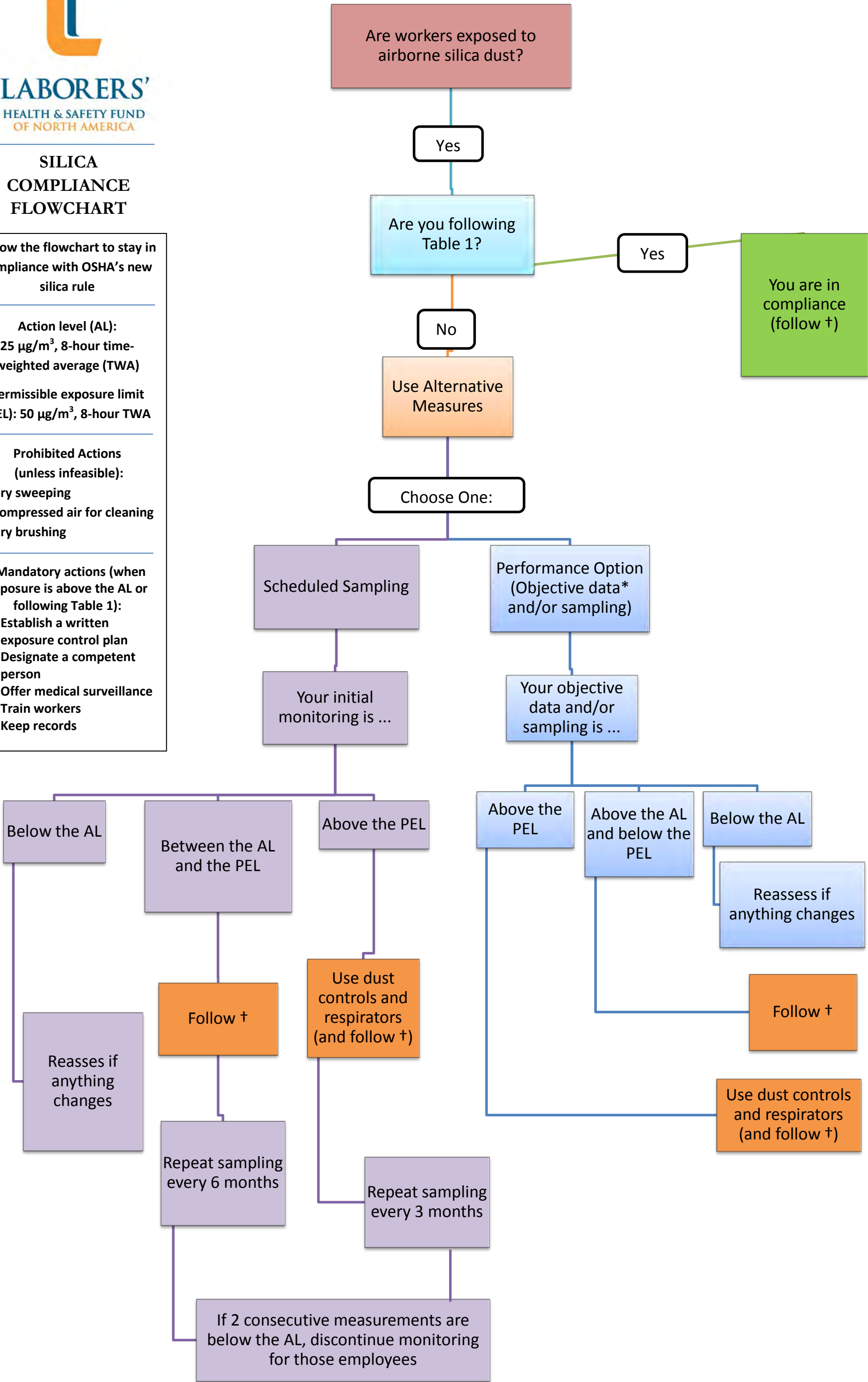
Follow the flowchart to stay in compliance with OSHA’s new silica rule

Action level (AL):
25 µg/m³, 8-hour time-weighted average (TWA)

Permissible exposure limit (PEL): 50 µg/m³, 8-hour TWA

- Prohibited Actions (unless infeasible):
1. Dry sweeping
 2. Compressed air for cleaning
 3. Dry brushing

- †Mandatory actions (when exposure is above the AL or following Table 1):
1. Establish a written exposure control plan
 2. Designate a competent person
 3. Offer medical surveillance
 4. Train workers
 5. Keep records



*Objective Data: Information from industry-wide surveys demonstrating employee exposure to respirable crystalline silica associated with a process, task or activity. The data must reflect workplace conditions resembling work practices and environmental conditions in the employer’s current operations.

TWA Air Monitoring

Task	Date	Job Location	Engineering Controls	Testing Result ug/m3	Testing Lab	Testing Company	Other Notes	Re-Test Date
Concrete breaking w/ heavy equipment	3/25/2019	Google Vault	Ventilation, external water source at point of impact, regulated area	1.2ug/m3	Forensic Analytical	Stomper Company, Inc.	Challenging project, still well below AL	Not necessary
Interior soft demolition	10/10/2017	Tesla - Dumbarton Circle	Ventilation, external water	Silica: <9ug/m3 (ND) Dust: 0.72 & 1.6mg/m3	Forensic Analytical	Stomper Company, Inc.	No silica in testing cartridges, dust very minimal as well	Not necessary
Concrete chipping with hand tools Table 1 - Task (x)	5/4/2020	Bakar Bio	Shroud with HEPA vacuum attached	Silica: 20ug/m3 Dust: 0.36mg/m3	Forensic Analytical	Stomper Company, Inc.	Results are without adjustment made for APF10 respirators	Not necessary

1. Silica Action Level: 25ug/m3 --- Silica PEL: 50ug/m3 --- Dust PEL: 15mg/m3.

2. If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

3. Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

4. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

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

TABLE 1
SPECIFIED EXPOSURE CONTROL METHODS
(29 CFR 1926.1153)

EQUIPMENT/TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS	REQUIRED RESPIRATORY PROTECTION AND MINIMUM APF	
		≤ 4 HOURS/SHIFT	> 4 HOURS/SHIFT
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade	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:		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	APF 10	APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: <ul style="list-style-type: none"> • 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:		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	APF 10	APF 10
(v) Drivable saws	For tasks performed outdoors only: <ul style="list-style-type: none"> • 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 tool equipped with integrated water delivery system that supplies water to cutting surface. 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 cowl 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: <ul style="list-style-type: none"> • 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; <u>OR</u> 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 tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	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:		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	APF 10	APF 10
(xi) Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder 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 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
(xii) 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 in accordance with manufacturer's instructions to minimize dust emissions.		
	OR Use grinder 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 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	APF 10
(xiii) Walk-behind milling machines and floor grinders	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.	None	None
	OR Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% 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.	None	None
(xiv) Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None

(xv) Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only: <ul style="list-style-type: 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
	For cuts of four inches in depth or less on any substrate: <ul style="list-style-type: 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.	None	None
	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

DEPARTMENT OF INDUSTRIAL RELATIONS
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Juliann Sum, Chief

November 08, 2017

Christopher Lee
1183 Holman Road
Oakland, CA 94610

Dear Mr. Lee,

This letter is in response to your inquiry regarding title 8 section 1532.3 "Occupational Exposures to Respirable Crystalline Silica." You requested information on water delivery systems during jackhammering discussed in table 1 of section 1523.3.

Your specific question is the following:

Under Table 1, construction task "x" - Jackhammers and handheld powered chipping tools, it states that an employer should use a tool with water delivery system that supplies a continuous stream or spray of water at the point of impact

In the federal OSHA publication "Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction" (page 17) it states that "The water delivery system is not required to be integrated or mounted on the tool; it can be assembled and installed by the employer. However, it must deliver a continuous stream or spray of water at the point of impact."

Will Cal/OSHA accept the federal guidance in that the water delivery system need not be integrated or mounted on the tool, rather assembled and installed by the employer so that a continuous stream or spray of water at the point of impact is delivered?

Cal/OSHA Response:

Like the federal regulation, there is no requirement in title 8 section 1532.3 that water systems be integrated or mounted on jackhammers and handheld powered chipping tools.

Sincerely,

Eric Berg

Deputy Chief

Cal/OSHA Research and Standards

Employee Training

Silica (Silicon Dioxide)

Most commonly found in sand, gravel, concrete, cement, masonry, bricks, mortar, grout, asphalt, wall texture, joint compound, and sheetrock.

Health Effects

Silicosis (previously known as Miner's Rot, Grinder's Asthma, or Potter's Rot)

Shortness of breath, cough, fatigue, rapid breathing, loss of appetite, chest pain, fever, darkening of the skin, heart failure, susceptibility of tuberculosis

Non-malignant diseases such as chronic bronchitis

Also can cause lung cancer, kidney disease, and congestive heart failure

Where exposures can occur

Daily demolition activities such as: chipping, grinding, or breaking of any cementitious material. Demolition of sheetrock or gypsum board.

Methods to Prevent Exposure

Using dust collection shrouds on hand tools, use of water on debris and misting the air to reduce airborne particulates, adequate ventilation in the work area, setting up a regulated work, PPE – specifically respirators

Competent Person

This person will be designated at the start of each job. The competent person is a person who is capable of identifying existing and foreseeable respirable silica hazards in the workplace. They have the authorization to take prompt corrective measures to eliminate or minimize them. They must also have the knowledge and ability necessary to implement job-specific safety measures and work practices.



Record Keeping

All employees have the right to access the job specific Exposure Control Plan and both the historical and current air monitoring results.

Medical Surveillance

Stomper will make medical surveillance available at no cost to you if you are required to use a respirator for 30 days or more in a year.

This includes an initial (baseline) medical examination, at no cost to the employee, within 30 days after assignment. This includes a medical and work history, physical examination, chest x-ray, pulmonary function test, and tuberculosis infection test with the potential of any other tests deemed necessary by a licensed doctor.

This includes the availability of periodic medical examinations every 3 years.

On the Job Site

Testing Levels

(AL) Action Level: 25mg/m 8-hour TWA

(PEL) Permissible Exposure Level: 50mg/m 8-hour TWA

Exposure Assessment

Use OSHA Table 1 to assess on a per task/per job basis. The employer is not required to assess the exposures of employees engaged in tasks where the employer has fully implemented the engineering controls, work practices, and respiratory protection as prescribed in Table 1.

If working tasks outside of Table 1:

Employee monitoring must be performed:

- Initially
- Every 3 months if > PEL
- Every 6 months if > AL
- Discontinue if < AL

Results of the exposure assessments must be posted within 5 working days and if above the PEL, corrective actions must be listed.

Written Exposure Control Plan must include:

- Description of tasks
- Engineering controls
- Work practices
- Respiratory protection
- Housekeeping measures

Regulated Areas

Must be demarcated when reasonably expected to be in excess of the PEL. This gets complicated on sites with multiple trades working together.



House Keeping

Dry sweeping or dry brushing is not allowed unless wet sweeping or HEPA vacuuming is not feasible.

Record Keeping

- | | |
|--|--|
| • Date of sample taken | • Laboratory used |
| • Task performed | • PPE used |
| • Sampling methods used | • Name, SSN, classification of employees sampled |
| • Number, duration, and results of samples | |

These records must be made available to the employees and kept for 30 years