LEUCADIA WASTEWATER DISTRICT | LEADERS IN ENVIRONMENTAL PROTECTION

LEUCADIA WASTEWATER DISTRICT

Silica Exposure Program

3-23-2018

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I certify the Silica Exposure Program for the Leucadia Wastewater District (LWD) has been reviewed and revised as necessary.

Field Services Superintendent

3/23/2018
Date Certified

1.0 PROGRAM REVIEW AND CERTIFICATION

The Silica Exposure Program at the Leucadia Wastewater District (LWD) will be reviewed and revised as necessary to ensure the program is current.

2.0 PURPOSE

The purpose of this procedure is to standardize the method used by Field Services Staff (FS Staff) for limiting exposure to substances containing Silica. It is intended to ensure that safety, handling, and record keeping are accomplished in a consistent and efficient manner.

The procedure for handling and working with products that contain Silica was developed and instituted to:

- Standardize the proper method used by FS Staff when handling and working with substances containing silica.
- Ensure that all safety precautions are consistently followed to minimize all risk of handling substances that contain silica.

3.0 DEFINITION

What is Silica? Respirable crystalline silica is a basic component of soil, sand, granite, and many other minerals. It may become respirable (able to be breathed in) when very small particles, at least 100 times smaller than ordinary sand, are created when cutting, sawing, grinding, drilling,

and crushing stone, rock, concrete, brick, block, and mortar. It is also a hazard when mixing concrete, mortar, and similar materials on a project site.

- Regulated in CA under 8 CCR 1532.3 and 1530.1 for construction
- Regulated in CA under 8 CCR 5204 for general industry
- The above regulations were issued for CA in addition to the long existing 8 CCR 1530.1 for Crystalline Silica health hazard.

4.0 EFFECTS

What are the effects? Construction workers, maintenance personnel and others who inhale these very small crystalline silica particles are at increased risk of developing serious silica-related diseases, including: Silicosis, an incurable lung disease that can lead to disability and death; Lung cancer; Chronic obstructive pulmonary disease (COPD); and Kidney disease.

5.0 EXPOSURE LIMITS

- Action Level = 25 µg/m³ as 8-hour Time-Weighted Average (TWA).
- Permissible Exposure Limit = 50 µg/m³ as 8-hour TWA
- µg/m³ = Micrograms per Cubic Meter of Air
- Work not to exceed 4 hours.

6.0 SPECIFIED EXPOSURE CONTROL METHODS

Specified exposure control methods when working with materials containing crystalline silica.

- APF = Assigned Protection Factor.

Equipment/task	*Engineering and work practice control methods*	*Required Respiratory Protection Minimum APF* *< 4 hours/shift*	*Required Respiratory Protection Minimum APF* *> 4 hours/shift*
Mixing/setting concrete	Unconfined mixing of concrete for use in sewer manhole repair outdoors.	None	None

7.0 PROCEDURE OF OPERATION AND HANDLING

One of the most common exposures to Crystalline Silica is the mixing of dry concrete with water and similar activities.

A task that is commonly completed at LWD is the mixing of water and concrete. This task is primarily used by Field Staff when concrete is mixed with water to repair a sewer manhole. This process can generate the release of Silica particles into the air when the concrete bags are opened and then mixed with water. LWD Field Service staff may come into contact with silica when mixing concrete related to repairing sewer manholes.

By following best work practices, Field Services staff can help limit or eliminate exposure by wearing proper PPE and allowing dust from the mixing process to settle before allowing work to continue.

Alternate exposure control methods can include:

- ✓ Wet/dry method, training/preparation, handling, respiratory protection, hygiene practices, isolation, and material substitution.
- ✓ Usage of proper PPE to be used can include: protective glasses, nitrile gloves, and dust masks.
- ✓ Tools included in this process can include: water, concrete, trowel, and a mixing bucket.
- ✓ Bags of concrete to be stored in a cool dry place and handled accordingly to limit uncontrolled discharges of silica dust particles.
- ✓ Action level of exposure not to exceed 10 $\mu g/m^3$, work to be done outdoors, and scope of work not to exceed 4 hours.

Usage of these best work practices is to assure that LWD Field Staff are not being exposed above PEL for Crystalline Silica.

Field staff whenever feasible, shall try to restrict access to areas where silica-generating tasks will be performed. The "restricted access" requirement is intended to eliminate exposure of unprotected bystanders. The plan to be implemented by a "competent person."

8.0 REVIEW AND RESPONSIBILITIES

The Field Services Supervisor shall review and evaluate the effectiveness of this program at least annually and update it as necessary (See attachment A). This shall include a review of the work practices, equipment being used, and potential changes to limit Field Staff exposure.

The Field Services Supervisor shall make the written exposure control plan readily available for examination and copying, upon request, to each Field Service Tech covered by this section. Records shall be stored for 30 years past termination of employee.

THE FIELD SERVICES SUPERVISOR SHALL DESIGNATE A COMPETENT PERSON TO MAKE FREQUENT AND REGULAR INSPECTIONS OF JOB SITES, MATERIALS, AND EQUIPMENT TO IMPLEMENT THE WRITTEN EXPOSURE CONTROL PLAN.

ATTACHMENT A
Program Review and Certification Log

Silica Exposure Review and Certification Log		
Date	**Identify the Sections/Attachments Revised**	**Initial**
3/23/2018	Developed Program	TA