# APPENDIX A: Toolbox Talk – Respirable Crystalline Silica in Quarries

***MYTH: 'I don't work with harmful substances'.***

***REALITY: Most businesses work with substances that can be hazardous to health. It is important to understand the risks in your workplace.***

### What is Silica and why is it an issue?

Silica is one of the most abundant minerals in the earth's crust and forms the major component of most rocks and soils.

Crystalline silica is an aggressive, lung damaging dust when it is able to penetrate deep into the lung in sufficient quantity, whereas the non-crystalline form does not cause such lung damage. Respirable crystalline silica or "RCS" is the respirable dust fraction of crystalline silica that can penetrate deep into the lungs. Respirable dusts are often referred to as "invisible dusts" because they are too small to be seen with the naked eye.

***MYTH: 'It's natural so it can't be harmful'.***

***REALITY: Natural materials can be harmful. Respirable crystalline silica can cause lung disease.***

### What should you be concerned about?

Breathing in large amounts of very fine dust of any sort can be potentially harmful; however, particular dusts, like RCS can carry a greater health risk. RCS dust can penetrate deep into the lungs.

The body's natural defence mechanisms may eliminate most of the respirable dust inhaled. However, in case of prolonged exposure to excessive levels of RCS dust, it becomes difficult to clear from the lungs and an accumulation can, in the long term, lead to serious and irreversible lung disease, predominately silicosis.

Early symptoms for silicosis include shortness of breath, a dry cough and a general feeling of ill health. As the disease progresses the symptoms may become more severe and can lead to permanent disablement and early death.

### How can you monitor exposure?

The legal exposure standard for RCS in Australia is 0.05mg/m$^3$ on an 8 hour shift adjusted time weighted average. It is the duty of the person conducting the business or undertaking (the PCBU) to ensure that workers are not exposed to concentrations above this exposure standard.

Personal exposure monitoring is the most common method for quantifying the level of RCS exposure to workers on site. It samples the air the worker breathes as they conduct their work, typically over a full shift, or a representative sample thereof.

An exposure monitoring program should be developed for workers or workgroups that have been identified as having an RCS exposure risk.

Discuss the nature of the RCS risk in your workplace.

Exercise: Identify tasks that can generate RCS in your workplace:

1. _____

2. _____

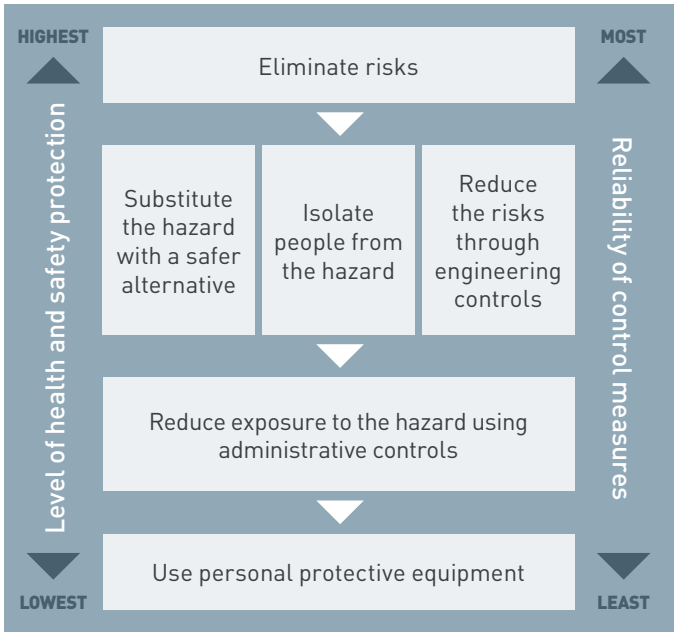
3. _____

4. _____

### How can RCS be controlled in Quarries?

It is important that RCS exposure in your workplace is reduced and maintained at a safe level and is as low as reasonably practicable.

The *Hierarchy of Control* is a system used to control hazards in the workplace. The best control measure involves eliminating the risk - that is removing the risk from the workplace.
If that is not possible you must minimise risks, so far as is reasonably practicable.




When selecting the appropriate control, it is important that the control specifically addresses RCS generating sources. It may be that more than one control is needed to reduce the risk and what is a suitable control for one site is not suitable for others.

Examples of the kinds of controls that can be used to mitigate RCS in quarries are:

- Keep doors and windows closed in vehicle cabins at all times;
- Enclosing dust generating plant, i.e. crushers and conveyers;
- Reduce fall height to stockpiles through transfer chutes;
- Isolate workers in a ventilated control room where possible;
- Provide well maintained air conditioning with a fitted dust filtration system in vehicles and workspaces;
- Wet processing methods and wetting down of stockpiles;
- Seal or regularly water down roadways to prevent wheel generated dust;
- Scheduling specific tasks when dust generation is at a minimum; i.e. during maintenance tasks; and
- Apply good housekeeping practices by using vacuum or wet cleaning methods.

**WATER can keep RCS out of the air, and out of your lungs**

**EXTRACTION VENTILATION AND VACUUMS can capture the dust right where it starts**

**RESPIRATORS can protect your lungs from dangerous dust**

***MYTH: 'of course its safe – we've always done it this way'.***

***REALITY: Some diseases take years to develop, maybe it's time to change?***

Exercise: What controls are in place in your workplace to manage the risk of RCS exposure?

1.

2.

3.

4.