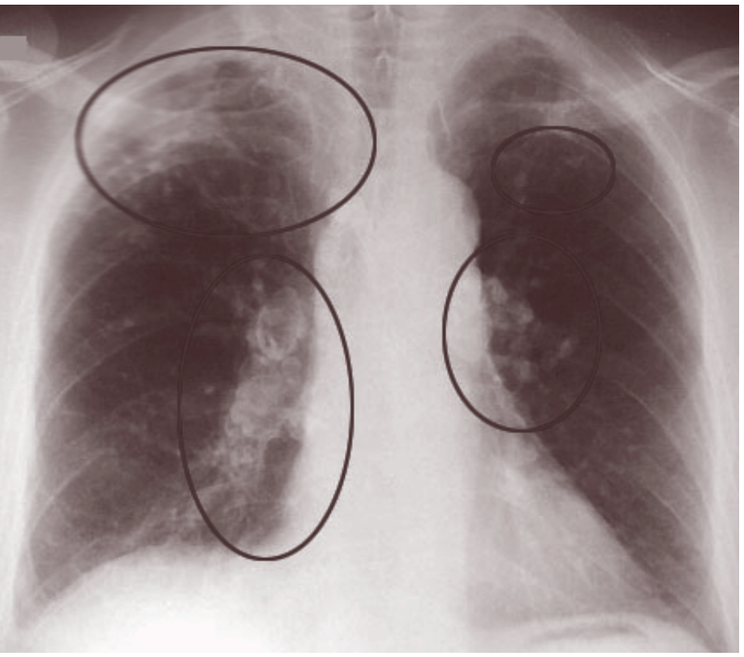
SILICA: How WEL are you managing the risk?

Dust is generated in many quarry processes, from overburden stripping through extraction of the target mineral resource, through processing and loading the end product. Silica is a naturally occurring mineral, which is very common on the earth's surface and occurs in its crystalline form in many different rock types.



Lung X-ray showing scarring caused by exposure to RCS

Breathing in dust of any sort is potentially harmful, and exposure to dust in the workplace must be controlled under the requirements of the Control of Substances Hazardous to Health Regulations 2002 (COSHH). Under COSHH there is a Workplace Exposure Limit or WEL for inhalable general dust of 10 mg/m^3, or 4 mg/m^3 for the finest or *respirable* dust, ie that which is in such small particles it can be breathed deep into the lungs. However, particular dusts, including respirable crystalline silica (RCS) carry a greater risk of ill health, due to the nature of their reaction with the body. These more harmful dusts have their own WELs. Since 2002 the WEL for RCS has been 0.3 mg/m^3.

If RCS enters the lungs, it causes a particular recognisable disease known as silicosis. Scar tissue develops which impairs lung function and leads to chronic bronchitis and shortness of breath. Silicosis normally develops over a long period and often only becomes apparent after retirement; however with intense daily exposure to RCS it can develop much more quickly.

Recent research has revealed that there is significant risk of developing silicosis even where RCS is controlled at the WEL. For this reason HSC is considering a recommendation from the Advisory Committee on Toxic Substances (ACTS) that the WEL be reduced to 0.1 mg/m^3. This change is likely to take effect in the autumn. If exposures to RCS are controlled to below 0.1 mg/m3 there should be a very low risk of developing silicosis. Once exposure is 0.1 mg/m^3 or greater, the risk increases significantly.

Silicosis is a completely preventable disease if control measures are properly designed, implemented and maintained. To control risk from RCS, employers must apply the principles of COSHH.*

In a quarry environment where silica is a constituent of the rock, practical control of RCS exposure will depend on establishing and maintaining management systems (eg to ensure dust from vehicle movements is minimised by maintaining road surfaces and sufficiently regular trips by water bowser), as well as suitably designed and maintained plant and equipment to contain dusty processes and remove dust from enclosed work areas. The use of personal protective equipment is a last resort – do not rely on this as the sole means of protecting workers from dust exposure.

To coincide with the new WEL later this year, HSE is publishing a series of silica information sheets, an addition to the existing series of *COSHH Essentials* guidance (www.coshh-essentials.org.uk). These have been developed in consultation with industry to provide practical guidance on workplace control measures for certain processes. HSE's guidance is similar to that being produced by Eurosil, which represents at European level the industries with an interest in processes and products containing silica. British quarry operators can implement either set of guidance to help them comply with COSHH.

A further important development at European level is the *European Social Dialogue Agreement* on silica, which representatives of the British quarry industry have been very significantly involved with. By signing up to the agreement, organisations commit to standards of control, recording and reporting. Actions detailed in the *European Social Dialogue Agreement* address employers' duties.

Inspectors will be using *COSHH essentials* in assessing compliance. If, on a quarry visit, they believe exposure to RCS has not been prevented, or where prevention was not reasonably practicable it was not being 'adequately controlled', they will consider enforcement action. 'Adequate control' for RCS means applying the principles of good practice for the control of exposure to RCS, eg implementing the guidance in *COSHH essentials*, **and** ensuring that the WEL is not exceeded.

Dust spillage should be contained and vacuumed, not swept with a broom

The QNJAC's guidance on *Occupational health management in the quarry industry*, published in 2004, (www.hse.gov.uk/aboutus/meetings/qnjac/qnjac-ohg.pdf) is likely to be revised soon to reflect changes to good industry practice in controlling exposure to silica and other health risks in quarrying.

---

* Further information is available in HSE's free leaflet, *COSHH a brief guide to the Regulations: What you need to know about the Control of Substances Hazardous to Health Regulations 2002 (COSHH)* Leaflet INDG136(rev3) HSE Books 2005 (single copy free or priced packs of 10 ISBN 0 7176 2982 1) Web version: www.hse.gov.uk/pubns/indg136.pdf.