

Health Indices for the NSW mining & extractives industry

Dust management

Introduction

It is important that potential dust hazards are identified and that everyone understands the nature and sources of risk, so that informed decisions can be made to eliminate or control them.

Lead indicators

The identification and use of both lead and (to a lesser extent) lag health indicators, are useful means to achieve this. Leading indicators are good management practice and so should form the basis of any monitoring and evaluation activities.

How to use this factsheet

Good practice leading indicator activities for the management of dust are presented overleaf. The approach promotes the use of OHS management system inputs rather than health exposure outcomes to help ensure that appropriate and pro-active steps towards health management are taken. However some activities may also provide health exposure data that can be used as a leading performance indicator (e.g. personal / exposure monitoring).

The activities are grouped according to 'stages' of system maturity and can be used as a guide to developing and implementing a continuous improvement program.

To demonstrate a progression through the stages, an organisation should be able to demonstrate that it is carrying out all the activities listed within the previous stage.

Why control dust?

Dusts, particularly those containing crystalline silica or coal particulate, pose a serious risk to the health and safety of those who are exposed to it, even at low exposure levels.

Risks from airborne contaminants

Respirable particles (<4.5 microns) are more readily transported into the lungs where they can become lodged and cause irritation and disease (*Leading practice sustainable development program for the mining industry Airborne contaminants, noise and vibration – Commonwealth of Australia, 2009*). Larger dust particulate of the inhalable fraction (<100 microns) can onset occupational asthma and irritate the eyes and throat and so should be similarly controlled.

Ensuring dusts, especially those in the respirable fraction (<4.5 microns) generated in your workplace are not at hazardous levels and/or that workers are not exceeding exposure standards during the course of their shift, is vital in keeping people healthy and safe at work.

How to manage dust

First consider how to eliminate hazardous sources of dust in your workplace. If this method is not reasonably practicable, then minimising hazardous dust exposure can also prove effective.

Substituting in, 'cleaner' plant and processes or modifying hazardous sources by design or engineering control(s) (e.g. extraction systems or by use of sprays) is the next most desirable option.

Finally, reduce the risks of hazardous dust in the workplace by means of administrative controls in combination with the proper use of personal breathing devices.

The following set of leading indicator activities (see over), sets out a number of good practice examples to help organisations achieve this.

Leading indicator activities - dust

<p>EMERGING</p> <p><i>A focus on implementing a compliant approach by information sharing, hazard identification and risk assessment.</i></p>	<ul style="list-style-type: none"> • Ensured that most (e.g. 60%) exposed workers have undergone specific silica or coal dust hazard awareness training at induction. • Has begun the identification and recording of silica or coal dust hazard sources onsite, in consultation with workers. • Has risk assessed most (e.g. 60%) of the identified sources of silica or coal dust at the operation using an appropriate risk assessment tool and in consultation with workers. • Has undertaken preliminary atmospheric monitoring to establish the extent of the silica or coal dust hazard at identified areas on the site. • Can demonstrate that most (e.g. 60%) of personnel likely to be exposed to a dust hazard have been trained in the correct selection and fitting of respiratory protectors. • Has made provision for 'dust free' areas in which to eat, shower and rest.
<p>TRANSITIONAL</p> <p><i>A focus on monitoring activities and stakeholder engagement with implementation of combination controls.</i></p>	<ul style="list-style-type: none"> • Can demonstrate the use of combination controls (PPE plus another higher control) for nearly all (e.g. 85%) of silica dust hazards. • Has consulted with contractors to ensure that nearly all (e.g. 85%) are managing silica or coal dust hazards, to a standard applied by the organisation itself. • Has implemented a dust control plan (or elements thereof), that has been consulted on and that includes a policy. • Periodically conducts exposure monitoring (personal) for those working near or with sources of hazardous silica or coal dust sources. • Periodically conducts targeted lung function testing of nearly all (e.g. 85%) workers most at risk. The results are recorded and given to those exposed.
<p>PROGRESSIVE</p> <p><i>A focus on Health Management System integration. This stage is characterised by implementation of higher order controls and regular reviews of the system's success. Ongoing learning and continuous improvement is the goal.</i></p>	<ul style="list-style-type: none"> • Has implemented higher order controls (including elimination) for all silica or coal dust hazards assessed as high risk. • Has a pre-employment medical program (including Spirometry and chest x-rays) to establish lung function baselines for its personnel. • Has comprehensively mapped all hazardous dust sources in their operation and has incorporated this into their awareness training and risk management planning for continuous improvement. • Holds periodic re-instruction to all exposed workers on the correct fitting, selection and maintenance of respiratory protectors. • Ensures the necessary supervision to maintain robust compliance to sign posted respiratory protector zones. • Maintains all necessary records, including exposure monitoring and awareness training (e.g. tool box talks), as per the recommendations in the Australian standard. • Periodically conducts scheduled external audits of their measures for managing dust hazards.

Further information

Health Management Plan: A guide to the development and implementation of a health management plan in the NSW mining and extractives industry can be accessed at: www.resourcesandenergy.nsw.gov.au/miners-and-explorers/safety-and-health/publications/health-management

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing in May 2011. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry & Investment NSW or the user's independent adviser.