Atmospheric contaminants (non-diesel exhaust emissions)

NSW RESOURCES REGULATOR

January 2018

NSW mining and extractives industry

What is an atmospheric contaminant?	Why is it a health hazard?	Exposure monitoring requirements	Health monitoring requirements
There are different forms of atmospheric contaminants **Dusts** Airborne solid particles **Fibres** Solid particles where the length is longer than the width **Fumes** Airborne solid particles condensed from a vaporous state **Mists** Airborne droplets of substance **Smoke**	Airborne dusts, including coal and crystalline silica are a major concern for the mining industry as they can cause miners dust lung disease (MDLD). The health impacts of dust depend on the particle size. → Inhalable dust - particles that are inhaled but are too large to reach the narrowest areas of the lungs. The body's natural defence systems typically expel these particles but they can irritate the upper respiratory tract. → respirable dust - particles that reach the upper lobes of the lung where the contaminant can become trapped in the narrow airways. The body's natural	In NSW mines no person is to be exposed to airborne dust that exceeds in total 3 mg/m3 (or 2.5 mg/m3 in the case of a coal mine) for respirable dust 10 mg/m3 for inhalable dust. Exposure standards for individual substances also must be satisfied within these overall limits. For example, the exposure standard for crystalline silica is 0.1 mg/m3. Sampling and analysis of airborne dusts should be undertaken with workers being fitted with personal monitoring devices. For coal mines, this sampling and analysis should be in accordance with, a licence, and at the locations and frequency as prescribed in schedule 6 of WHS (MPS) Regulation 2017. In addition, Order 42 under the *Coal Industry Act 2001* provides for Coal Services Pty Ltd to conduct dust monitoring at coal mines consistent with the provisions for sampling and analysis under the WHS (MPS) Regulation 2017.	Health monitoring should be undertaken by an occupational physician and includes: → demographic, medical and occupational history → records of personal exposure → completion of a standardised respiratory questionnaire → standardised respiratory function test (spirometry) → chest X-ray

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Particles generated from incomplete combustion of fuel **Vapour** Molecular dispersion of material, normally liquid at ambient temperature **Gas** Molecular dispersion of material, boils below ambient temperature	defence system causes scar tissue to develop and effects the ability of the lungs to expand and take in sufficient air or creates a 'blockage' in the alveoli, that restricts the transference of oxygen into the blood stream.	Short term exposure limits (STEL) STEL are limits that have been established for atmospheric contaminants that have been identified where higher exposures can be tolerated in small periods. The criteria for STEL is the exposure should not be more than 15 minutes, nor should the frequency of exposure exceed more than four times a day with a minimum of 60 minutes break between exposures. This exercise should only be conducted if a STEL has been established for your identified atmospheric contaminant. It would not be appropriate to assess a STEL for an atmospheric contaminant that does not have an established STEL. Time weighted average (TWA) is an exposure limit that has been established based on the average tolerance of exposure of the atmospheric contaminant within an eight-hour period, five days a week See Safe Work Australia airborne contaminants guidance.	

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Controls for atmospheric contaminants (non-diesel exhaust emissions)

What are the controls?

- → The hierarchy of controls, when applied to managing risks looks at firstly eliminating the need for the person to work near the dust.
- → Isolation controls would predominantly look at putting a barrier between the person and the dust.
- → Engineering controls either look at ways to withdraw dust from the atmosphere such as extraction fans/flumes and ventilation or introduce breathable atmosphere for the purpose of dilution such as ventilation.
- → Respiratory protective equipment as a control may be necessary in some circumstances but should be seen as a last resort. To be effective workers need training to ensure correct use and maximum effectiveness of the equipment.

What are the legislative obligations with regards to health records?

Health records with relation to atmospheric contaminants should be kept for 30 years.

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