

Reducing DPM without increasing Ventilation

D Rose¹, M S Donmez or tba² N Kruger, ³ Ian Marshall or tba, ⁴ D Leonis or tba ⁵ M McGrath or tba⁶ G Lucas or tba⁷

1. Business Development Manager, Pinssar, Brisbane, QLD, 4102, Australia
drose@pinssar.com.au
2. Underground Production Manager, Esan, Balya mine, Balikesir, Türkiye.
Mahmut.Donmez@esan.com.tr
3. Risk Manager - Health, Safety, Environment and Quality, South Africa Energy Coal.
navarre.kruger@seritiza.com
4. Principal Hygiene, BMA Broadmeadow mine, Moranbah, QLD, Australia.
ian.marshall1@bhp.com
5. Senior Mining Engineer, Sibanye Stillwater, Nye, Montana, USA.
domingo.leonis@sibanyestillwater.com
6. Mechanical Engineering Manager, Glencore Oaky North mine, Tieri, QLD 4709, Australia.
michael.mcgrath@glencore.com.au
7. Senior Mining Engineer, Lundin Gold, Fruta del Norte Mine, Yantzaza, Ecuador.
geovanni.lucas@lundingold.com

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ABSTRACT: REDUCING DPM WITHOUT INCREASING VENTILATION

As the awareness of the risks associated with diesel particulate matter (DPM) increases, so too does the focus from regulators and government jurisdictions to reduce Occupational Exposure Limits (OEL's).

In mines throughout the world, the risk owners for air quality are the Mine Managers and the Ventilation Engineers. Traditionally, the expectation across the underground mining industry is that the responsibility for DPM mitigation primarily starts with the Ventilation Engineers – with a “dilution is the solution” mentality.

For various reasons, the Ventilation Engineer(s) may not have the additional ventilation capacity to provide the air required to adequately deal with the emissions in their mine and therefore are looking for additional tools to work in parallel with the ventilation.

This paper explores some real-life examples and case studies of mines on multiple continents using an array of controls to successfully reduce their DPM levels. These examples demonstrate how mitigating DPM is not the sole responsibility of the Ventilation Engineer(s), but is an all-inclusive process, driven by the site based DPM Committee. The mines in the examples have shown world leading methodologies and have not only aimed to be under the industry OEL but have strived for as low as reasonably practicable (ALARP) / as low as reasonably achievable (ALARA) to benefit the health of their workers.

The examples and case studies in this paper include demonstrations of how these mines used Continuous DPM monitoring to manage their controls, by implementing trigger action response plans (TARP). The paper also demonstrates how mines have used the data from Continuous DPM Monitoring to validate their on-site trials of mitigating technologies, including before and after implementations.

The examples will also show how some mines have introduced “soft” controls to reduce their DPM, which have been more about behavioural actions, rather than introducing technologies.