



A proactive partner

With the new Workplace Exposure Limits only months away from being enforced, MST Global is giving miners a much-needed adoption blueprint.

By the end of the year, Australia's mining industry will face one of the most significant occupational hygiene shifts in decades – with Safe Work Australia officially transitioning from Workplace Exposure Standards (WES) to Workplace Exposure Limits (WEL), reinforcing a change that will make airborne contaminant thresholds enforceable limits rather than guidelines.

This will bring about a new operational reality for underground mine sites where real-time environmental visibility, proactive exposure management, and integrated digital safety systems will become essential to maintaining compliance and protecting workforce well-being.

Safe Work Australia's updated WEL framework introduces revised and, in many cases, stricter exposure limits for airborne contaminants. The reforms are intended to align Australia more closely with international occupational

health standards while addressing growing evidence around long-term exposure risks.

Key contaminants under increasing scrutiny in mining environments include respirable crystalline silica (RCS), diesel particulate matter (DPM), nitrogen dioxide, carbon monoxide, sulphur dioxide, as well as welding fumes and metal particulates.

The challenge is particularly acute for underground mines, where confined spaces, mobile diesel fleets, blasting activities, and variable ventilation conditions can rapidly elevate airborne contaminant concentrations.

Traditional approaches based on periodic sampling and reactive reporting are no longer sufficient and mining operators will increasingly need to implement continuous environmental monitoring, real-time visibility across underground networks, immediate alarm escalation,

integrated worker location awareness, data-driven ventilation optimisation, and automated compliance reporting.

This is where digital mining infrastructure becomes critical.

Adopting real-time environmental intelligence

Historically, occupational hygiene programs often relied on retrospective analysis, but the 2026 WEL changes shift the industry toward prevention-first operational models.

MST Global's underground digital infrastructure and environmental monitoring ecosystem positions mining companies to proactively manage the new exposure limit environment. Rather than treating occupational hygiene as a standalone function, MST enables mines to integrate environmental intelligence directly into operational decision-making.

MST's monitoring platform (HELIX IoT and Automation)



Through integrated tracking, MST provides live data that can correlate people's location to exposure.

enables continuous collection and transmission of environmental data underground, including gas concentrations, airflow conditions, dust and particulate monitoring, ventilation performance indicators, and equipment operating status.

This real-time visibility allows operators to identify developing hazards before exposure limits are exceeded, and instead of discovering problems after a shift ends, mines can intervene immediately.

However, the real value comes from operationalising the data.

Through integrated tracking, communication and automation platforms, MST solutions not only support investigations by providing live data that correlates people to location to exposure, but improves safety through prevention.

MST's solutions deliver data that helps mines:

- Trigger alerts when thresholds approach critical levels
- Automatically notify supervisors and control rooms
- Correlate environmental conditions with personnel locations
- Adjust ventilation controls easily and dynamically

- Improve evacuation readiness
- Build auditable compliance records.

As WEL requirements become more stringent, traceable and defensible data histories will become increasingly important for regulatory reporting and investigations.

The ventilation challenge

Ventilation remains one of the mining industry's largest operational costs, and one of its most important safety controls.

The new WEL environment will place even greater emphasis on mines to optimise ventilation performance while managing energy consumption and emissions.

To help with this, MST's integrated operational technology ecosystem supports ventilation-on-demand strategies, asset tracking, environmental sensor integration, worker location awareness, and automated operational workflow.

This enables mines to move toward more adaptive ventilation systems that respond dynamically to underground conditions, personnel movement, and equipment activity.

Diesel particulate matter

One of the most significant developments under the new WEL framework is the growing focus on diesel particulate matter.

This is relevant for decline development, longwall relocation

activities, heavy equipment operating zones, and ventilation-constrained headings.

But real-time environmental sensing combined with asset tracking can help mines better understand: where DPM concentrations are increasing, which assets are contributing most heavily, how ventilation effectiveness varies across zones, and which personnel may be exposed. These insights enable more targeted operational controls instead of broad, inefficient mitigation measures.

While the WEL transition formally takes effect on December 1, 2026, Safe Work Australia has made it clear that businesses should begin preparing now.

For mining operations, preparation should cover reviewing airborne contaminant exposure risks, evaluating current monitoring capabilities, identifying visibility gaps underground, assessing ventilation effectiveness, modernising environmental data collection, and integrating safety systems into operational workflows.

The mines that respond proactively will be better positioned to adapt smoothly as enforcement expectations evolve.

MST Global's solutions will help sites get there quicker – supporting them as they move toward smarter, safer, and more sustainable operations in a rapidly evolving regulatory landscape. **S**



MST's integrated operational technology ecosystem supports ventilation-on-demand strategies.

Images: MST Global