



Impala Platinum



Impala Platinum

3rd Mine Dust Conference 2026 Presentation: **10 Points** Mining
Industry Actionable Dust Control and Management Strategy

Thapelo Chakane
(Adoption Team Manager)

Date: 06th of Aug 2026
Milderstrift R28,
Silverstar Casino Hotel



MINERALS COUNCIL
SOUTH AFRICA



10 POINTS Mining Industry Actionable Dust Control and Management Strategy

What Informed the strategy?



These inputs collectively shaped a practical, collaborative and forward-looking strategy for safer and healthier mining workplaces.

1

MULTIDISCIPLINARY APPROACH & LEADERSHIP



Adopt a Multidisciplinary approach to
address dust exposures, risks and controls.



WHAT IS MULTIDISCIPLINARY APPROACH?

Brings together different
disciplines to effectively
manage dust exposure
risks in the workplace.



CONTINUOUS & ACTIVE ENGAGEMENT

Engage through a Dust
Management Committee to
review results, control
performance and take
remedial actions.



ASSIGN OWNERSHIP & REPORTING

Clear ownership and
reporting across key
disciplines ensure
accountability and
effective controls.



A DUST MANAGEMENT COMMITTEE

Established to identify
hazards, determine critical
controls and drive continuous
improvement.



ONE TEAM. ONE GOAL. SAFER WORKPLACES. HEALTHIER FUTURES.

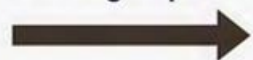


2 DUST CRITICAL CONTROL MANAGEMENT



Dust CCM helps in systemic identification of dust risks, understand exposure, and confirm controls effectiveness.

Planning steps



Implementation steps



Feedback loop



1

PLAN

Plan the process

2

IDENTIFY

Identify material unwanted events (MUEs)

3

IDENTIFY

Identify controls

4

SELECT

Select the critical controls

5

DEFINE

Define performance and reporting

6

ASSIGN

Assign accountability

7

IMPLEMENT

Site-specific implementation

9

RESPOND

Response to inadequate critical control performance

OUTPUT:
Control-Based
Risk
Management



Why it is important

VALIDATE & CONTROL

- ✓ Identify significant dust sources and failure pathways.
- ✓ Determine which controls are critical to prevent harmful exposure.
- ✓ Monitor and verify that controls continue to perform.



ADDRESS RISK AT SOURCE

- ✓ Identify material unwanted events (MUEs) at the source.
- ✓ Apply controls as close to the source as possible.



INTEGRATE CCM INTO OPERATIONS

- ✓ Make Dust CCM part of everyday mining activities.
- ✓ Integrate into H&S systems, processes and routines.
- ✓ Drive continuous improvement.



ONE TEAM. ONE GOAL.

SAFER WORKPLACES. HEALTHIER FUTURES.



MINERALS COUNCIL
SOUTH AFRICA

3 LEADING PRACTICE ADOPTION

MOSH LEADING PRACTICE ADOPTION SYSTEM

PROVEN PRACTICE. MEASURABLE IMPACT. SAFER MINES.

TECHNICAL DETAILS



- Technical criteria
- Proven & tested
- Fit-for-purpose
- Operationally effective

BEHAVIOUR COMMUNICATION



- Build awareness
- Drive acceptance
- Encourage participation

LEADERSHIP BEHAVIOUR



- Visible leadership
- Resource commitment
- Accountability for adoption

TOGETHER, DRIVING SAFETY EXCELLENCE ACROSS OUR INDUSTRY

PEOPLE FACTORS MATTER

Perception

Experience

Norms



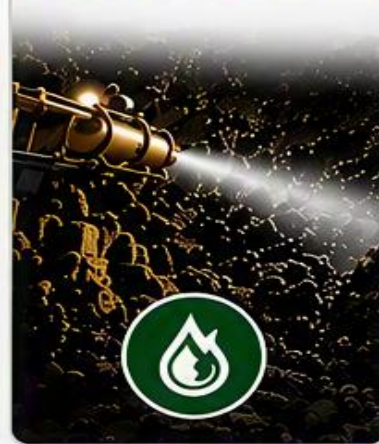
People-controlled change drives sustainable implementation and long-term success.

8-MOSH DUST LEADING PRACTICE

1 REAL-TIME DUST MONITORS ON CM



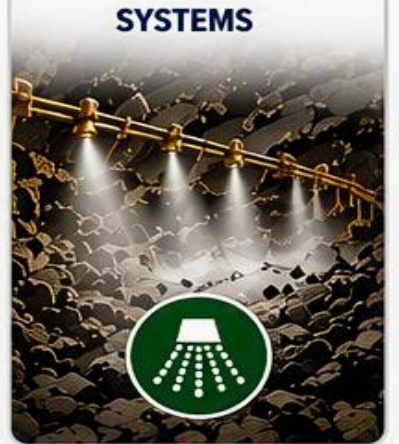
2 IN-STOPES ATOMISER FOR DUST SUPPRESSION



3 CONVEYOR BELT TRANSFER POINT FOGGING SYSTEM



4 FOGGER DUST SUPPRESSION SYSTEMS



5 MULTI-STAGE FILTRATION SYSTEMS



6 FOOTWALL & SIDEWALL TREATMENT



7 SCRABER WINCH COVERS



8 CONTINUOUS REAL-TIME MONITORS



STRONGER CONTRCLS. SMARTER SYSTEMS. SAFER MINES.



MINERALS COUNCIL
SOUTH AFRICA

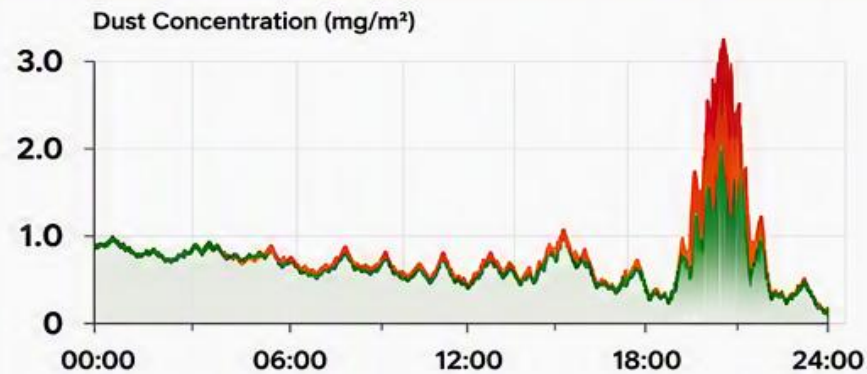


4. CONTROL PERFORMANCE MONITORING & RESPONSE

Proactive monitoring. Timely response. Safer workplaces.



CONTINUOUS REAL-TIME MONITORING (CRTM) OF DUST ENGINEERING CONTROLS



DUST CONCENTRATION



1.61 mg/m³



EARLY
DETECTION



PERFORMANCE
WARNING



30+
Data Points



Data
Pipeline



EMPOWERING
OWNERS & EMPLOYEES



DEFINE & DOCUMENT CONTROL PERFORMANCE REQUIREMENTS

Define and document control performance requirements and identify activities that impact control performance.



DEFINE VERIFICATION ACTIVITIES

Establish Control Performance Evaluation & Monitoring system.



CONTINUOUS REAL TIME MONITORING (CRTM)

of dust engineering controls is useful for early detection & warning of deteriorating control performance, thus empowering control owners to take prompt corrective action and for employees to withdraw from hazardous environmental/workplaces.



INVESTIGATE & LEARN

All instances of control underperformance and control unavailability shall be formally investigated to **identify root causes** and **capture learnings** for continual improvement of dust risk management.



MINERALS COUNCIL
SOUTH AFRICA



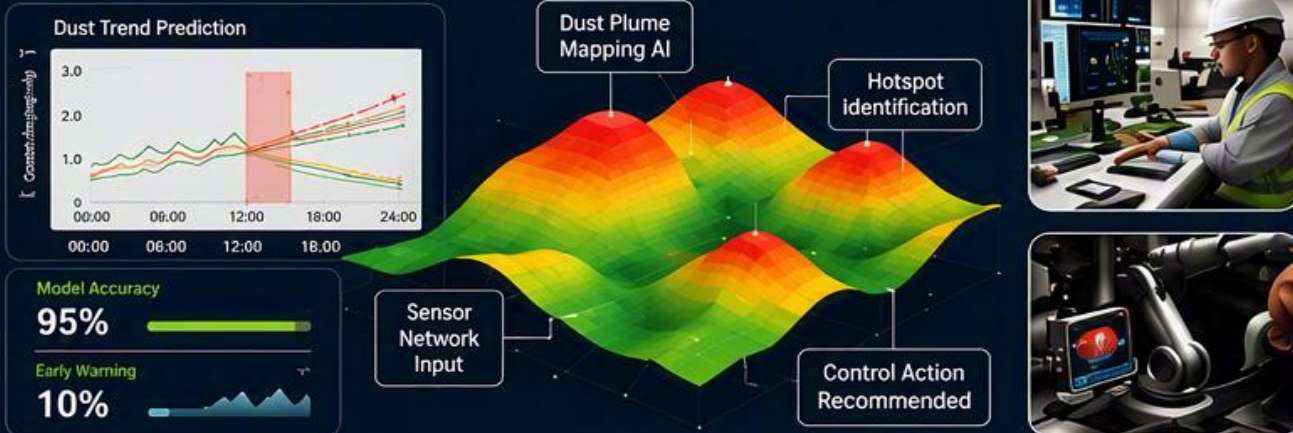
5. CONTROL DIGITALIZATION, AUTOMATION & INNOVATION

Smarter systems. Stronger controls. Safer mines.



PREDICTIVE DUST MODELS & AI SAMPLE ANALYSIS IN ACTION

An advanced interactive interface



AUTOMATION & AUTONOMOUS MITIGATION

Reduced Human Intervention by Intelligent agents,
and Autonomous Dust Mitigation.



Improved Reliability
Consistent control
performance



Operational Consistency
Stable processes,
less variability



Reduced Overheads
Lower training needs
and manual errors



MINIMIZING RELIANCE ON HUMAN INTERVENTION

for dust controls is critical as manual actions are not always verifiable and often requires extensive training and supervision which may compromise the control efficiency and effectiveness in some instances.



AUTOMATION OF KEY DUST CONTROL SYSTEMS

This can be achieved by automation of key dust control systems to improve reliability, operational consistency and promotion of innovations that reduce overheads in training and manual errors.



LEVERAGE EMERGING TECHNOLOGIES

Leverage opportunities on emerging technologies, e.g. machine learning and artificial intelligence to reduce reliance on human intervention.



MINERALS COUNCIL
SOUTH AFRICA



Better Data. Smarter Decisions, Healthier Workplaces.



DATA TO DECISIONS IN REAL TIME



AGILE. MOBILE. RESPONSIVE.

Right information. Right time. Right action.



INSTANT ALERTS
Push notifications for high dust events



QUICK RESPONSE
Acknowledge, assign & act on the go



ACTION TRACKING
Monitor progress and closure in real time



6. STRENGTHENING QUALITATIVE DUST MEASUREMENT & DATA REPORTING



Ensure **improved quality** of dust measurements [to be representative], data sets and **effective reporting** strategies to relevant parties or departments to enable timely action in case of high dust levels.



Ensure Risk Owners have access to appropriate, accurate real-time data to support **informed decision making**.



Implement robust and high-quality dust measurement systems which utilize **real time monitoring** to enable prompt and well-informed decision making.



This will support streamlined data reporting processes, **agile and risk-based decision making** and leveraging on **dashboards and data analytics** for executive oversight and swift response where necessary.



MINERALS COUNCIL
SOUTH AFRICA



7. RESEARCH, DEVELOPMENT & LEARNING

Driving Innovation for Effective Dust Control



RESEARCH

Explore. Understand.
Generate Knowledge.



INNOVATION

Develop. Test.
Improve.



KNOWLEDGE SHARING

Collaborate. Learn.
Make an Impact.



RESEARCH & INNOVATION

Continuously identify, facilitate and disseminate research on mine dust and airborne pollutants.

Promote collaborative research with industry, academia and research institutions.



KNOWLEDGE TRANSLATION

Evaluate, adopt and implement research outcomes to improve dust control strategies and occupational health performance.

Translate scientific findings into practical workplace solutions.



LEARNING & COLLABORATION

Promote a culture of learning through facilitation and participation in industry forums, workshops and technical conferences.

Strengthen engagement through Leading Practice Community of Practice Adoption (COPA) meetings and MOSH Dust Days of Learning.

“Turning research into practical solutions for safer, healthier mines.”



MINERALS COUNCIL
SOUTH AFRICA



8. RISK AND CRITICAL CONTROL MANAGEMENT TRAINING

EMPOWER PEOPLE. MANAGE RISK. PROTECT LIVES.

WELL TRAINED.
WELL EQUIPPED.
RISK UNDER CONTROL.



TRAINING OF RELEVANT PERSONNEL

Training of relevant mining personnel in the principles of Risk Management and the Critical Control Management Process.



ENHANCE UNDERSTANDING

Enhance understanding of risk management concepts (ICMM, ISO 31000, etc.) to equip them for the development of strong dust risk strategies and alternatives, and document these as business cases.



UNDERSTAND THE PROCESS

It will further enhance their understanding of the various processes and steps that make up the critical control management process.



BUILD CAPABILITY. REDUCE RISK.

Competent people make better decisions, apply controls effectively and drive a culture of safety excellence.



MINERALS COUNCIL
SOUTH AFRICA



9. OEM ENGAGEMENT /

STRONG PARTNERSHIPS. SMARTER SOLUTIONS.
CLEANER AIR. SAFER MINES.



TOGETHER WE INNOVATE.
TOGETHER WE IMPROVE.



IDENTIFY. SELECT. IMPROVE.

Robust engagements with Original Equipment Manufacturers (OEM) of Dust Control Systems is crucial for identification, selection, and continuous improvement of dust controls.



INNOVATE. PILOT. COLLABORATE.

Active participation and input into product R&D on aspects of technology design for dust control and technology piloting process (transparent).



VERIFY. VALIDATE. ASSURE.

Such engagements can also assist in the verification of dust control performance prior to procurement – ensuring better decisions, reduced risk and improved occupational health.



IMPLEMENT & IMPACT.

Deploy effective solutions that deliver measurable impact – improving air quality, protecting people – ensuring compliance and driving operational excellence.



MINERALS COUNCIL
SOUTH AFRICA



10. QUALITY ASSURANCE, REVIEW & CONTINUOUS IMPROVEMENT

MEASURE. ASSURE. IMPROVE. **ACHIEVE ZERO HARM.**

1 ASSESS & REVIEW



Develop a system to assess the performance to critical control management processes and to review the effectiveness and efficiency of dust critical controls.



2 ASSURE & VALIDATE



Dust critical control management assurance protocols to provide reliable rating of current dust CCM implementation and provide credible opinion on the reasons behind current performance.



3 DRIVE CONTINUOUS IMPROVEMENT



Use insights and feedback to drive continuous improvement of dust controls and achieve sustainable outcomes.



MINERALS COUNCIL
SOUTH AFRICA

1 THE CALL TO ACTION



UNIVERSAL ADOPTION: Empowering every mining house to fully adopt this comprehensive dust control framework.



OPERATIONAL INTEGRATION: Moving beyond high-level strategy to secure full, seamless deployment across all localized operations.

2 SUSTAINING OUR MOMENTUM

The MOSH Dust Team remains committed to actively championing and embedding this strategy across the industry through key platforms:



3 A UNIFIED SUPPORT ECOSYSTEM



EXECUTIVE MANDATE: Proudly endorsed and supported by both the CEOZHLF and the GEE Committee.



STRATEGIC ADVOCACY: Accelerating corporate awareness and active engagement across all EXCO and Operations Management divisions via highly targeted, impactful messaging.



Good Dust Control.
Safe Operations.
Sustainable Mining.



MINERALS COUNCIL
SOUTH AFRICA

THANK YOU

TOGETHER WE CAN ELIMINATE HARMFUL DUST EXPOSURE

The MOSH Dust Team remains committed to supporting industry-wide adoption, operational integration, and sustained implementation of effective dust control practices.



PROTECT PEOPLE

Safer today,
healthier tomorrow.



CONTROL DUST

Effective controls,
real results.



IMPROVE HEALTH OUTCOMES

Reduce exposure,
protect lives.



SUSTAIN PERFORMANCE

Good for people,
good for business.

Together, we can create healthier workplaces and a dust-free future for South African mining.



Learn more about the MOSH Dust Strategy

www.mosh.co.za



T +27 11 498 7100



E info@mineralscouncil.org.za



W www.mineralscouncil.org.za



7th Floor Rosebank Towers, 19 Biermann Ave, Rosebank, Johannesburg, 2196



MINERALS COUNCIL
SOUTH AFRICA