

Airborne Contaminants PHMP Development Journey

SOUTH WALKER CREEK MINE
Nov 2025



**AIRBORNE DUST AND
OTHER AIRBORNE
CONTAMINANTS**

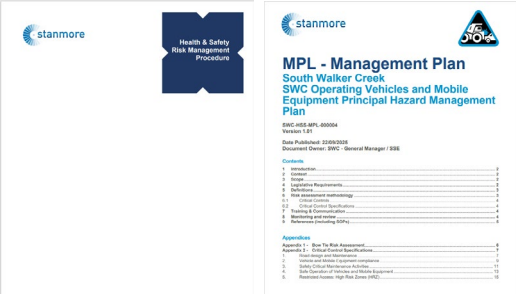


- South Walker Creek Risk Journey
- Method followed to analyse and assess the risk
- Critical control identification and selection
- Verification process to evaluate critical controls
- PHMP linkage with other SHMS documents

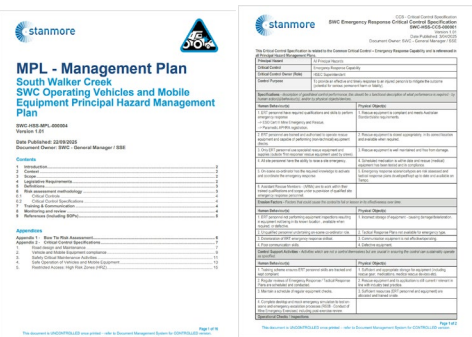
South Walker Creek Risk Journey



South Walker Creek transitioned to Stanmore - May 2022



Development of Stanmore Risk Management and Critical Control Framework



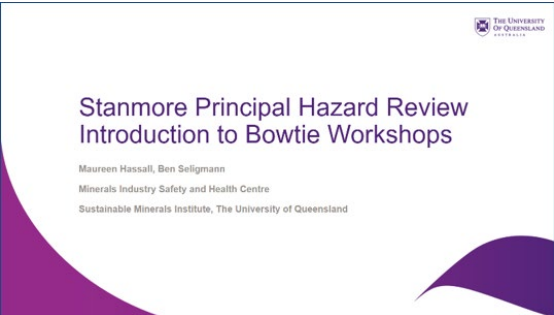
PHMPs developed with Critical Control Specifications



Revised risk matrix and risk appetite (14-7 Principal Hazards)

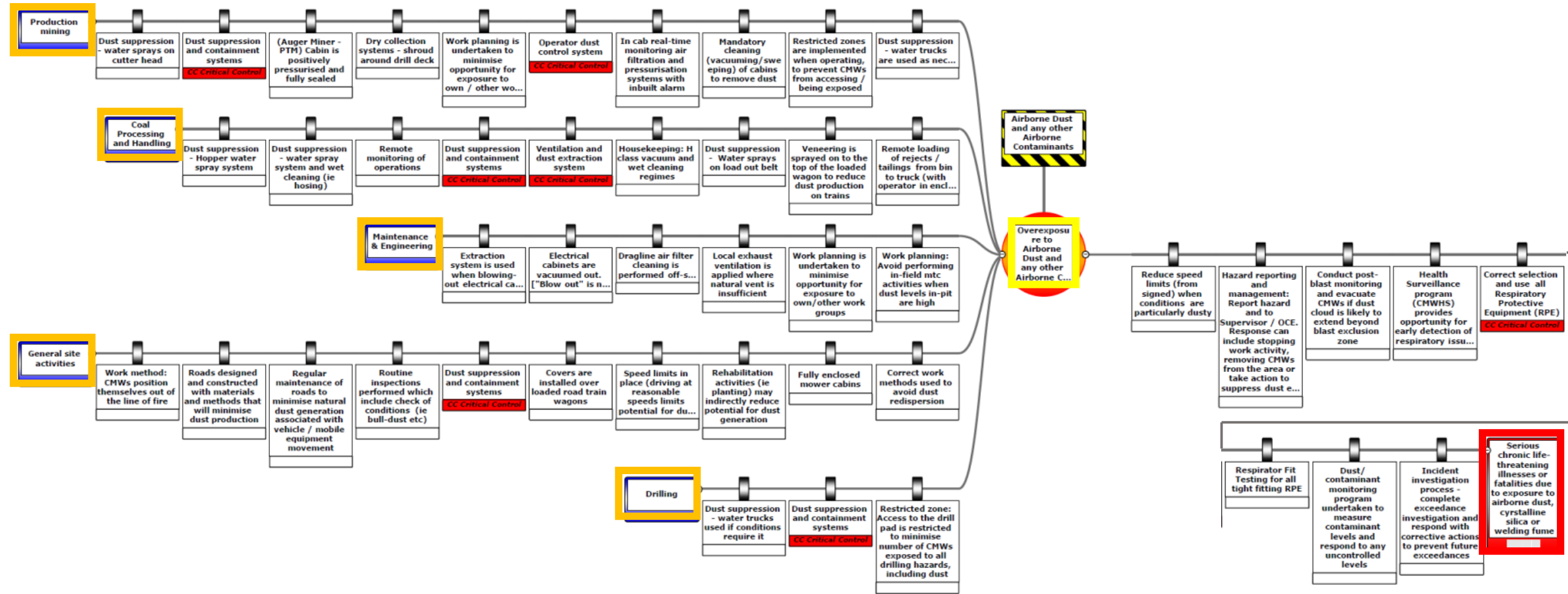


Engaged MISHC – UQ to facilitate bow tie workshops
Feb-June 24



Airborne Contaminants Bow Tie Risk Assessment

February 2025





AIRBORNE DUST AND OTHER AIRBORNE CONTAMINANTS

Critical Controls

- | | | |
|----------|---|---|
| 1 | Dust suppression and containment systems | ✓ Dust suppression and containment systems are installed and maintained to minimise and / or contain dust |
| 2 | Operator cabin dust control system | ✓ Equipment operator cabins are designed, installed and maintained to prevent the entry of airborne dust particles |
| 3 | Ventilation and dust extraction system | ✓ Ventilation and extraction systems are installed, maintained and functioning to remove airborne dust / contaminants |
| 4 | Respiratory Protection Equipment (RPE) | ✓ CMWs are adequately protected from airborne dust / contaminants through the proper selection, fit and use of RPE |

Critical Control Specifications

2. Operator cabin dust control installed and operating as intended

Principal Hazard	Airborne Contaminants	
Risk Owner (Role)	HSEC Manager	
Critical Control	Operator cabin dust control system.	
Critical Control Owner (Role)	Truck Shovel Superintendent	
Control Purpose	To ensure equipment operator cabins are designed, installed and maintained to prevent the ingress of respirable airborne dust particles.	
Specifications - description of good/ideal control performance; this should be a functional description of what performance is required - by human action(s)/behaviour(s), and/or by physical objects/devices.		
Human Behaviour(s)		Physical Object(s)
1. Operator cabin dust control system designed and installed correctly.		1. Operator cabin dust control system.
2. Operator inspects cabin dust control system and acts to report/rectify defects.		2. Operator cabin dust control system inspection instruction.
3. Maintenance worker completes inspection/testing on cabin dust control systems and rectifies issues.		3. Cabin dust control system maintenance strategies in place.
Erosion Factors - Factors that could cause the control to fail or lessen in its effectiveness over time.		
Human Behaviour(s)		Physical Object(s)
1. Poor design/installation cabin dust control system.		1. Operator cabin dust control system not fit for purpose.
2. Operator lacks understanding of cabin filtration system limits and fails to recognise indicators of unserviceability, reducing the effectiveness of exposure control over time.		2. Cabin dust control systems inspection instructions not provided.
3. Inadequate maintenance inspection/testing of operator cabin dust control system or issues/defects not rectified.		3. Maintenance strategies not established / implemented, or identified defects are not appropriately actioned.
Control Support Activities - Activities which are not a control themselves but are crucial in ensuring the control can sustainably operate as specified.		
Human Behaviour(s)		Physical Object(s)
1. Inspections completed by competent, authorised operators.		1. Training package / authorisation.
2. Maintenance inspection/testing completed by competent maintainers as planned.		2. BiStrainer learning management system.
Verification Requirements		
Completed by	Complete the following	Frequency
Control Owner	Task compliance Review all FRCOs completed in the last 3 months. 1. Were FRCOs conducted in accordance with expected standard (notes/photos/ corrective actions included)? 2. Were identified actions from FRCOs completed within the required timeframes? 3. Were FRCOs completed across the range of controls to adequately cover the risk in the period? 4. Were all scheduled FRCOs for the review period completed on time? 5. Are FRCO verifications adequately distributed across all the different work locations? If no, complete FRCO in location not covered.	Quarterly

- High level details of the Critical Control – Risk Owner, Control Owner, control name and purpose

- Specifications for good/ideal control performance in relation to Human Behaviour and Physical Objects

- Erosion factors that could cause the control to fail or lessen effectiveness

- Control Support Activities

- Verification Requirements

Critical Control Verification Example – Operator Checks

Operator cabin dust control system installed and operating as intended



TMP - Template
SWC Equipment pre-start and inspection sheet
SWC-PDN-TMP-000001
Version 2
Date Published: 2/06/2025
Document Owner: SWC - Production Mining Manager

COMPLETE BEFORE OPERATING Equipment Pre-Start and Inspection Sheet

Equipment ID: _____ Machine SMU: _____ End SMU hours: _____
Inspected By: _____ Date: _____

CHPP ONLY
HIGH IMPACT GLASS
REMOTE E-STOP
SELF RESCUER

Status Key:	✓ = Checked and Compliant	X = Defect	Do not operate. Notify Supervisor.	Operate only after consulting with Supervisor or maintenance personnel.
1	Steering			
2	Service Brake			
3	Warning System			
4	Fire Extinguisher			
5	Operator Seat			
6	BreathSafe Operability			
17	Fuel Leaks			
18	Water Leaks			
19	Major Oil Leaks			
20	Main Access			
21	Gauges			
31	Minor Oil Leak			
32	Wipers/Washers			
33	Fuel Level			
7	Two Way Radio			
8	Emergency Steering			
9	Emergency Brakes			
10	Fire Suppression			
11	Park Brake			
12	Seat Belt			
22	Air Conditioner			
23	Pin Retainer			
24	Ladders and Handrails			
25	Mirrors			
26	Tracks/Undercarriage			
34	Damage			
35	Grease Lines			
36	Air Lines			
13	Drive Lights			
14	Clearance Lights			
15	Work Light			
16	Horn			
27	Tyre Condition			
28	Green valve caps			
29	DSS Connected & Working			
30	Fridge Working			
37	Housekeeping			
38	Passenger Seat			

* Green valve caps are only required for Nitrogen filled tyres

Comments/Defects:	Defect Rectified	Name	Date
	Yes No		
	Yes No		
	Yes No		

Operator's Signature: _____ STAN 005/2 - PAYNE PRINT & SIGN

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Operator checks during pre-start

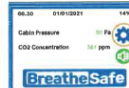
Performing Plant Inspections

INSPECTION PRESSURISED CAB

Note: Columns are to be initialised by the person undertaking the inspection – do not tick.
For additional information consult Manufacturer or refer to OEM manuals in the AMT.

LEGEND FOR COLUMNS:
1 – Defect found and repaired
2 – Defect found and recorded, machine still OK
3 – OK
4 – Not applicable

CARRIED OUT BY: _____ CHECKED & RECORDED BY: Mark VC
Print Name: _____
Signed: _____
Date: 23-7-25 Date: 23/07/25

CHECK	1	2	3	4	Initials
RUNNING CHECKS Start the engine to turn on the pressuriser. Ensure all windows and doors are closed correctly. Initiate the System Test – Set Max fan speed. Record pressure below.					
 Press Settings.					
 Press "System Check - Set Max" box.					
 Record/photograph the cabin pressure result (Max Fan Speed).					
Cabin pressure at max fan speed: <u>110</u> Pa					
SPEC INPRESS TL with Auto Pressure Control (5400 RPM) the cabin pressure requirement is 250 Pa (New HEPA Filter). INPRESS TL Single Speed Pressuriser Motor (4000 RPM) the cabin pressure requirement is 150 Pa (New HEPA Filter).					
If the above pressure is not achieved leave the unit on full speed and investigate for external leaks outside the cabin: e.g. A/C outlets, drains, window & door seals, locks & hinges etc. Use leak detector to assist & seal any leaks.					
Continue the sealing and testing procedure as above until a SPEC is achieved.					
PLEASE clean the cabin regularly - Use a HEPA type vacuum and do not use a brush or compressed air: Troubleshooting - If the display indicates below 50 pascals or low pressure alarm is activated, please check the following: Double-check door(s) are fully closed. Double-check window(s) are fully closed. Double-check for any signs of damage: door, window seals or missing panels. If the display indicates below 20 pascals, please check the following: Monitor the % (v) output to BreatheSafe cabin pressure display (i.e. 100 % means fresh air filter is completely dust loaded or a significant cabin pressure leak that the pressuriser and damper are unable to maintain).					
Make sure the fan is not running at 100% to achieve 50Pa. If this is the case, then there is a sealing issue. Investigate and get the fan running below 50%. Check operation of the Turbo Pre-Cleaner and ensure the spinning rotor is in good working order.					

Maintenance worker checks during scheduled maintenance

Critical Control Verification Example – Operator Checks



 PRINCIPAL HAZARDS & CRITICAL CONTROLS	 PRINCIPAL HAZARDS & CRITICAL CONTROLS
<div><ul style="list-style-type: none">• Road design and maintenance• Vehicle and mobile equipment compliance• Safety critical maintenance activities• Safe operation of vehicles and mobile equipment• Restricted access: High Risk Zones (HRZ)</div>	<div><ul style="list-style-type: none">• Selection and use of lifting equipment• Set up of work area and lifting equipment• Barricading and segregation</div>
<div><ul style="list-style-type: none">• Geotechnical design criteria• Mine plan execution• Monitoring and response• Separation and segregation</div>	<div><ul style="list-style-type: none">• De-energisation / isolation and barricading / segregation to control access• Atmospheric monitoring and response actions• Stand-by person• Confined Space Rescue Plan</div>
<div><ul style="list-style-type: none">• Magazine design, construction and management• Explosives equipment and vehicles selected and maintained to design standard• Blast design and execution• Bench set-up and loading executed to site requirements• Exclusion zones designed and managed</div>	<div><ul style="list-style-type: none">• Dust suppression and containment systems• Operator cabin dust control system• Ventilation and dust extraction system• Respiratory Protection Equipment (RPE)</div>
<div><p>Common Critical Control</p><ul style="list-style-type: none">• Emergency Response Capability - providing effective and timely response to injured person/s</div>	<div><ul style="list-style-type: none">• Hazardous area management• Fire detection, alarm, suppression and notification systems• Segregation of hazardous substances / dangerous goods (flammable / explosive)</div>

STAN071

To ensure that the critical controls are implemented and operating as intended and the overall risk to CMWs is managed to an acceptable level.



LEADING SAFETY PROGRAM



Supervisor

Completes Fatal Risk Control Observations (FRCOs) for the Critical Controls (in-field / behavioural checks).



Control Owner

Completes Critical Control Verifications (CCVs) periodically (Superintendent level checking FRCO completion and Systems).



Risk Owner

Completes Annual Risk and Control Review (Manager level – checking FRCOs, Systems, Incidents, Learnings, Industry Alerts).

Critical Control Verification Example – Supervisor Checks



Operator cabin dust control system installed and operating as intended



Supervisor

Role: Supervisor	Fatal Risk Control Observation (FRCO) 1 Can the CMW identify the system components to prevent the ingress of dust into the cabin? (pressurised cabins with Hepa filters/door seals/doors closed) 2. Can CMW explain the checks that were conducted during prestart inspections to ensure system/s are operating effectively? 3. Can CMWs describe warning / alarm systems in place and action/s to take in response to warnings / alarms?
----------------------------	--

If the answer to any of the questions is no, work must stop, and actions put in place to rectify.



Critical Control Verification Example – Control Owner Checks

Operator cabin dust control system installed and operating as intended



Verification Requirements		
Completed by	Complete the following	Frequency
Control Owner	Task compliance Review all FRCOs completed in the last 3 months. 1. Were FRCOs conducted in accordance with expected standard (notes/photos/corrective actions included)? 2. Were identified actions from FRCOs completed within the required timeframes? 3. Were FRCOs completed across the range of controls to adequately cover the risk in the period? 4. Were all scheduled FRCOs for the review period completed on time? 5. Are FRCO verifications adequately distributed across all the different work locations? If no, complete FRCO in location not covered.	Quarterly
Control Owner	System compliance Review and verify: 1. Confirm there is a maintenance strategy in the Maintenance Management System for dust control systems (mobile equipment/draglines/drills). 2. Confirm scheduled maintenance is being completed within the planned tolerance. 3. Confirm that any defects identified with appropriate and timely remediation actions identified.	6 monthly

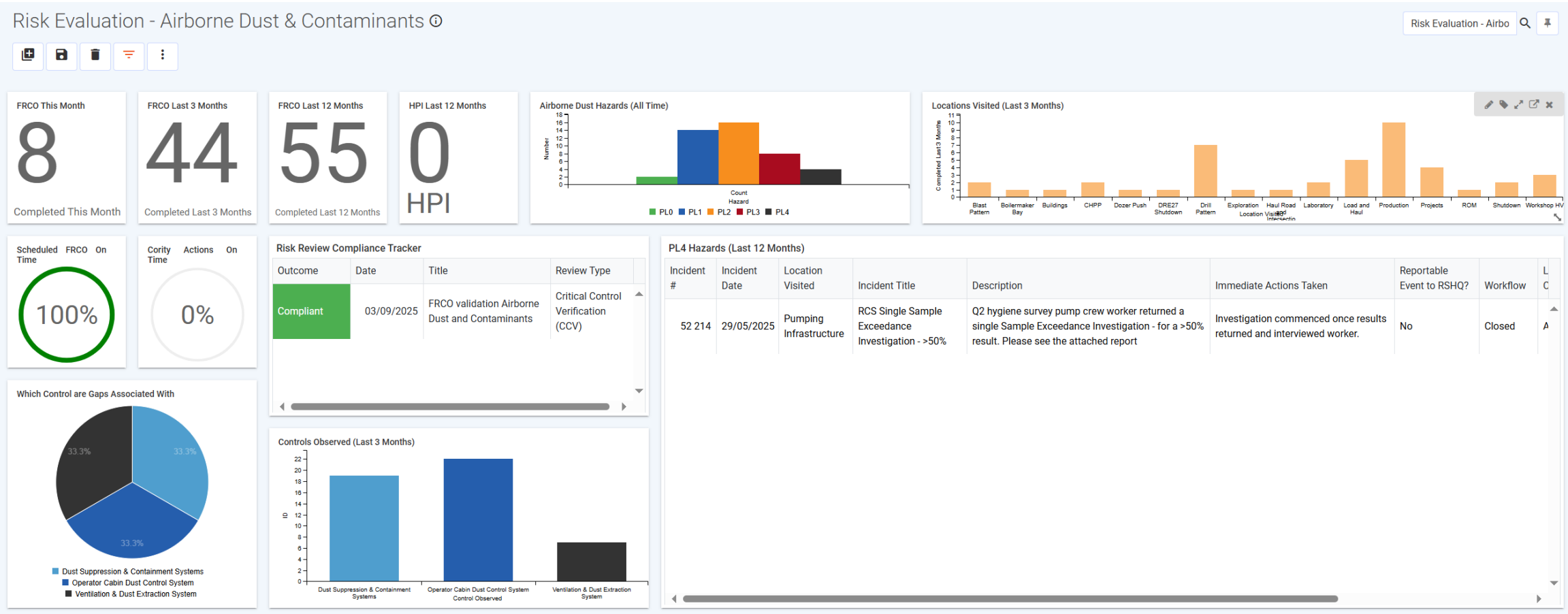
Risk Review Compliance Tracker			
Outcome	Date	Title	Review Type
Compliant	23/10/2025	CCV 6M System compliance for ventilation and dust extraction control	Critical Control Verification (1
Compliant	22/10/2025	Perform 6M System Compliance - Correct selection and use of Respiratory Protective Equipment (RPE)	Critical Control Verification (1
Partially Compliant	21/10/2025	Perform 3M FRCO Compliance Operator Cabin Dust Control in Cority (airborne contaminants)	Critical Control Verification (1

Critical Control Verification Example – Risk Owner Checks

Operator cabin dust control system installed and operating as intended



Risk Dashboards support the verification of all critical controls associated with the hazard



How does the PHMP link with other SHMS documents?





MPL - Management Plan

South Walker Creek

SWC Airborne Dust and Contaminants

Principal Hazard Management Plan

SWC-HSS-MPL-000007
Version 1.02

Date Published: 17/10/2025
Document Owner: SWC - General Manager / SSE

Contents

- 1 Introduction.....2
- 2 Context.....2
- 3 Scope.....2
- 4 Legislative Requirements.....2
- 5 Definitions.....3
- 6 Risk assessment methodology.....3
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- 6.2 Critical Control Specifications.....4
- 7 Training & Communication.....4
- 8 Monitoring and review.....4
- 9 References (including SOP's).....4

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Respiratory Protection Fit Testing Standard

SWC-HSS-RP-000008 Version Number: 1.01
Document uncontrolled when downloaded or printed

Date Published: 20/10/2025

Respiratory Protection Fit Testing Standard
Page 1 of 11



Occupational Hygiene Management Standard

SWC-HSS-OH-000005 Version Number: 1.02
Document uncontrolled when downloaded or printed

Date Published: 20/10/2024

Occupational Hygiene Management Standard
Page 1 of 11



PLN - Plan

South Walker Creek

SWC Dust Management Plan

SWC-HSS-PLN-000142
Version 1.02

Date Published: 23/07/2025
Document Owner: SWC - HSE and Training Manager

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- 4.2 Risk Owner.....3
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- 4.5 Open Cut Examiners (OCE).....4
- 4.6 Mine Planning.....4
- 4.7 Coal Mine Worker (CMW).....4
- 4.8 Occupational Hygiene.....4
- 4.9 Senior Health Advisor.....5
- 4.10 Appointed Medical Advisor (AMA).....5
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- 6 Risk Assessment.....5
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- 8 Monitoring.....5
- 9 Implementation.....5
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- 9.13 Tailings dams.....10
- 9.14 Crushing and Screening.....10
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HEALTH RISK ASSESSMENT & EXPOSURE MONITORING PLAN

Stanmore
South Walker Creek
0205-004
May 2023

Author	Alison McElroy MACH	Version	V1
Reviewed	Jacques Jooste RCH MACH	Report issued	12 May 2023
Approved	Jacques Jooste RCH (S276), MACH		



SOP - Standard Operating Procedure

South Walker Creek

SWC Personal Protective Equipment

SWC-HSS-SOP-000006
Version 1.04

Date Published: 16/09/2026
Document Owner: SWC - HSE and Training Manager

Contents

- 1 Legislative Requirements.....2
- 2 Key Hazards.....2
- 3 General.....2
- 4 Personal Protective Equipment (PPE).....2
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- 7 Grinding and Disc Cutting.....4
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- Appendix 2 - Designated Hot Work Area - Main Workshop.....8
- Appendix 3 - Designated Hot Work Area - CHPP.....9

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SOP - Standard Operating Procedure

South Walker Creek

SWC Cutting and Welding

SWC-HSS-SOP-000020
Version 6

Date Published: 22/05/2025
Document Owner: SWC - Maintenance and Engineering Manager

Contents

- 1 Key Hazards.....2
- 2 General.....2
- 3 Personal Protective Equipment (PPE).....2
- 4 Restricted Hazardous Hot Work.....3
- 5 Electrical Working (Welding).....3
- 5.1 Electric Working in Wet Conditions – Increased Risk of Electric Shock.....4
- 6 Grinding and Disc Cutting.....4
- 6.1 Cutting, Grinding, Heating, Dry-Airless/LPG and Airless Grouting, Lancing.....4
- 7 Thermal Lancing.....4
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SWC - EXCAVATOR AND SHOVEL COMPLIANCE FORM

Minimum Requirements	Pass	Fail	NA	Comments
Park Brake Alarm Check function of audible and/or visual alarms for when the park brake is applied whilst the vehicle is in motion.	☐	☐	☐	
Warning Device Mobile equipment must be fitted with manually operated audible warning device e.g., Horn. Equipment fitted with air-corns must also be fitted with a secondary horn (electric). An automatically operating (warning) alarm must be fitted and operational.	☐	☐	☐	
Two-way radio As a minimum mobile equipment must have a site standard, programmed, and operational two-way radio, permanently fitted to the equipment.	☐	☐	☐	
Inverters Installed Inverters on vehicles and mobile equipment must be functionally tested, locked out whilst operating on site, with labels stating they are prohibited from use on site without ESM approval.	☐	☐	☐	
Lights, Indicators and Lighting Internal cab lighting must be effective for safe operation including emergency lights, stop and controls. External lights (headlights, taillights, and indicators) must be clearly visible, adequate, and operational. Lenses must be clean and capable to perform their intended function.	☐	☐	☐	
Instrumentation, Metering and Gauges Instrumentation, metering, and gauges are clearly visible, adequate and operational.	☐	☐	☐	
Hydraulic Function Immobiliser Confirm operation of hydraulic function immobiliser (where fitted) is operating as per the OEM specification.	☐	☐	☐	
Air Conditioning System Equipment with enclosed cabins must have Air Conditioning Systems that are operational and effective.	☐	☐	☐	
Cabin Dust Control As per R20 Dust control in surface coal mines. The cabin dust control system must reduce the operator's exposure to respirable silica and dust, ensuring: - A fresh air supply filtered through HEPA H13 media.	☐	☐	☐	

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COMPLETE BEFORE OPERATING

Equipment Pre-Start and Inspection Sheet

SWC Equipment pre-start and inspection sheet
SWC-PSI-000001
Version 1.0
May 2023

Date Published: 20/10/2025
Document Owner: SWC - Production Mining Manager

Equipment ID	Minimum Risk	End (SWC) Hours	Operator's Signature
1	1	1	
2	2	2	
3	3	3	
4	4	4	
5	5	5	
6	6	6	
7	7	7	
8	8	8	
9	9	9	
10	10	10	
11	11	11	
12	12	12	
13	13	13	
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Operator's Signature: _____

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QUESTIONS?



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