

## **Consolidated report**

### Emergency first response

#### Underground metalliferous mines

**March 2023 to September 2023**



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# Table of Contents

Emergency first response .....	1
Executive summary .....	4
Assessment criteria.....	5
Notices issued.....	9
Recommendations .....	10
Further information .....	10
Appendix A – Assessment criteria rating.....	11

## Executive summary

A crucial part of the NSW Resources Regulator’s Incident prevention strategy for mines and petroleum sites involves:

- targeted assessments and planned inspection programs - focusing on assessing an operation’s control of critical risks through evaluating the effectiveness of control measures in the mine’s safety management system
- priority programs - proactively assessing a topic that is an emerging risk across the industry, which is driven primarily from incident data as well as evolving industry trends. Although these topics may also be contained within the Regulator’s planned inspection programs, the aim of compliance priority programs is to gather further information and knowledge about how the industry is managing and controlling a specific issue.

The Regulator has developed a bowtie hazard management framework and standardised assessment checklist for each program plan. Under each program plan, the effectiveness of the safety management system at each mine site is assessed against a standard set of control supports and critical controls.

The emergency plan at underground metalliferous mines manages all aspects of an emergency response. In summary the emergency plan ensures:

- a system is in place for mine workers to be promptly located in an emergency
- provision of adequate rescue equipment
- provision of adequate number of people trained and able to effectively respond to an emergency
- provision of appropriate transportation for an injured worker and suitable means of exit to a place of safety for all workers at risk during an emergency
- that it triggers to activate the emergency plan and is suitable to the size, complexity and risks at the mine
- adequate consultation with external emergency services and regular testing of the emergency plan in accordance with published emergency guidance information.

An inspection program was developed to assess how mines are prepared to manage an emergency.

Explanatory notes on the assessment system are listed in Appendix A.

For the **12** underground metalliferous mines, there were **156** individual assessment findings and of those **35** assessment findings required enforcement action will be taken. The assessment program was conducted between March 2023 and September 2023.

There were **17** compliance notices in total issued to **10** of the **12** sites in relation to this assessment program.

The types of compliance notices issued consisted of **4** WHS(MPS)A s23 notices of concern, **12** WHSA s191 improvement notices and **1** WHSA s195 prohibition notice.

# Assessment criteria

Critical controls were identified by the Regulator for the emergency plan assessment. The programmed assessment consisted of criteria review questions assigned to each criteria type.

A tabulation of the criteria type and criteria review questions for emergency first response of underground metalliferous mines is provided in Table 1.

Table 1. Assessment criteria review questions for the criteria type for emergency first response - underground metalliferous mines.

Criteria type	Criteria number	Criteria
Implementation	1	Response arrangements for each scenario in the emergency plan have been identified
	2	How have you tested each trigger action response plan (TARP)/pre-incident plan?
	4	Consultation preparation plan. WHS(MPS)Regs 2022 Sec 92
	8	What systems are in place to notify onsite emergency teams of an incident and what arrangements are in place to transport teams and equipment to the incident?
Operational control	3	Equipment and personal protection equipment (PPE) has been obtained for fire, first aid, hazardous chemical, rescue incidents. Maintenance and servicing arrangements are documented and implemented.
	5	Adequate numbers of workers have been identified in a risk assessment or other planning tool to be part of the on-site response team to ensure coverage for the duration of emergency operations.
	7	Have triggers to notify emergency services been identified and discussed during the consultation process (s92 of Regs)?
	9	What arrangements are in place for an escalating situation to integrate with or handover to emergency services?
Training and competency	6	<p>A schedule of training requirements, skills, competencies and qualifications (needs analysis) and a skills maintenance/exercising program for response crews has been developed.</p> <p>6.1 Firefighting</p> <p>6.2 Rescue (GLR, RCR, vertical, aquatic)</p> <p>6.3 First aid</p> <p>6.4 Hazmat (if applicable)</p>

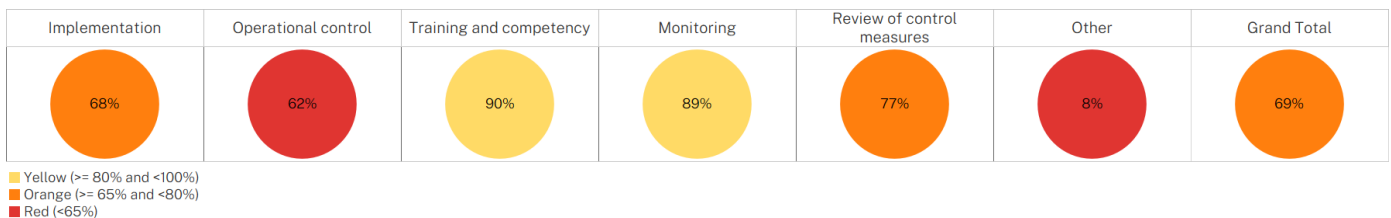
Criteria type	Criteria number	Criteria
Monitoring	10	When was the plan last tested as per s96 (Response Teams and/or IMT)? <ul style="list-style-type: none"> <li>with emergency service agencies?</li> <li>to a level that exceeded the mines capacity (as per sub plan to activate EMPLAN)?</li> <li>desktop or scenario?</li> </ul> 10.1 What did the tests conducted in previous years involve? 10.2 How was this method selected?
	11	What type of review of emergency response is carried out following activation of the emergency plan or publication of incident reports by the Regulator?
Review of control measures	12	What changes to the plan, training, equipment, or procedures have occurred as a result of this (after action review/lessons learned/continuous improvement)?
Other	13	Other matters identified during the inspection.

Overall, the findings were:

- 12 site assessments were reviewed for this report at underground metalliferous mines
- 156 individual findings for the criteria 1 to 13
- 33 findings with enforcement action were recorded
- 17 compliance notices in total were issued to 10 of the 12 sites assessed, consisting of:
  - 4 WHS(MPS)A s23 notices of concern
  - 12 WHSA s191 improvement notices
  - One WHSA s195 prohibition notice

The overall assessment findings by criteria type is **69%** (Figure 1):

Figure 1. Summary assessment findings overall results by criteria type



The lowest scoring criteria type – operational control was assessed at **62%** compliance.

The highest scoring criteria type – training and competency was assessed at **90%** compliance.

The overall assessment findings for the 5 assessed criteria type and the criteria questions are detailed in Figure 2 to Figure 6:

Figure 2. Summary assessment findings overall results by criteria type – Implementation

Implementation	01	Response arrangements for each scenario in the Emergency Plan have been identified	100%
	02	How have you tested each TARP/Pre Incident Plan	50%
	04	Consultation preparing plan. WHS(MPS)Regs 2022 Sec 92	31%
	08	What system are in place to notify onsite emergency teams of an incident and what arrangements are in place to transport teams and equipment to the incident.	90%
	Total		68%

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)

Figure 3. Summary assessment findings overall results by criteria type – Operational control

Operational control	03	Equipment and PPE has been obtained Fire, First Aid, Hazchem, Rescue incidents Maintenance & servicing arrangements are documented and implemented	94%
	05	Adequate numbers of workers have been identified in a risk assessment or other planning tool to be part of the on-site response team to ensure coverage for the duration of emergency operations	46%
	07	Have triggers to notify emergency services been identified and discussed during the consultation process (s92 of Regs).	38%
	09	What arrangements are in place for an escalating situation to integrate with or handover to emergency services	71%
	Total		62%

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)

Figure 4. Summary assessment findings overall results by criteria type – Training and competency

Training and competency	06	A schedule of training requirements, skills, competencies and qualifications (needs analysis) and a skills maintenance/exercising program for response crews is has been developed.	
		6.1 Firefighting 6.2 Rescue (GLR, RCR, Vertical, Aquatic) 6.3 First Aid 6.4 Hazmat (if applicable)	

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)

Figure 5. Summary assessment findings overall results by criteria type – Monitoring

Monitoring	10	When was the plan last tested as per s96 (Response Teams and/or IMT) <ul style="list-style-type: none"> <li>• with emergency service agencies</li> <li>• to a level that exceeded the mines capacity (as per sub plan to activate EMPLAN)</li> <li>• Desktop or scenario</li> </ul> 10.1 What did the tests conducted in previous years involve? 10.2 How was this method selected?	
	11	What type of review of emergency response is carried out following activation of the emergency plan or publication of incident reports by the Regulator?	
	Total		

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)

Figure 6. Summary assessment findings overall results by criteria type – Review of control measures

Review of control measures	12	What changes to the plan, training, equipment, or procedures have occurred as a result of this (After Action Review/Lessons Learned/Continuous improvement).	
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- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)

The overall analysis of assessment findings ratings were assessed to be documented and implemented assessed at **59%**.

Implemented but not documented assessed at **9%**.

Documented and not implemented was found to be **13%**.

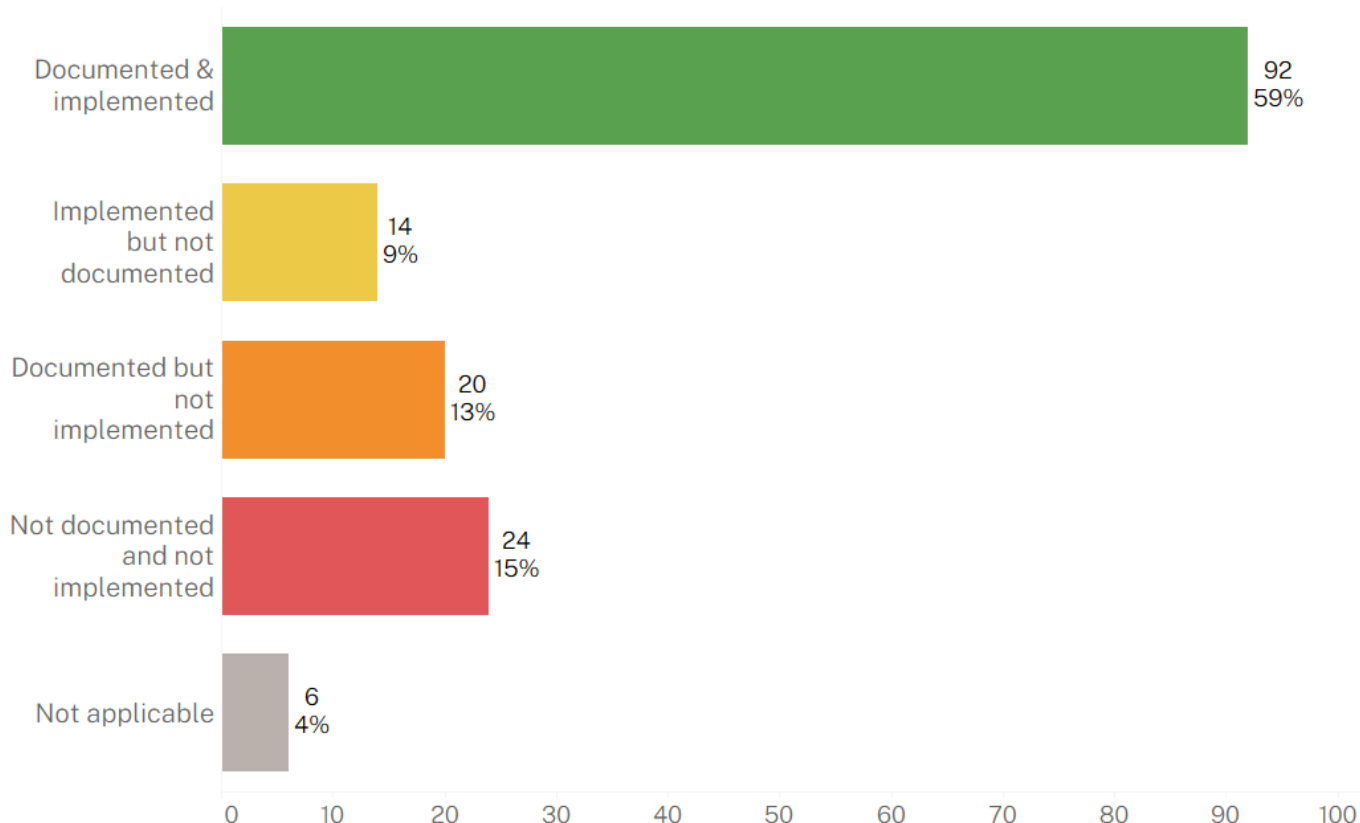
Not documented and not implemented was found to be **15%**.

Not applicable was **4%**.

The analysis of the overall assessment findings ratings is summarised in Figure 7:



Figure 7. Overall assessment findings ratings



## Notices issued

There were **17** compliance notices in total issued to **10** underground metalliferous mines in relation to the assessment program.

The compliance notices issued for emergency first response were reviewed and Table 2 lists the notices issued by type and number.

Table 2: Notices issued for the planned inspection program – explosives control plan -stage 1 -metalliferous mines and quarries

NOTICE TYPE	TOTAL ISSUED	NUMBER OF SITES
s.23 notice of concerns	4	3
s.191 improvement notice	12	6
s. 195 prohibition notice	1	1
<b>Total</b>	<b>17</b>	<b>10</b>

**Note: some mines were issued multiple notices**

# Recommendations

Based on the findings outlined in the report, in particular criteria question findings assessed as **65%** or less (red colour category), and with respect to the numbers and types of compliance notices issued during the program:

Underground metalliferous mine operators should review the following recommendations:

- Review the **implementation** of the emergency plan considering the findings:
  - Criteria question No.02 assessed as **50%**: have you tested each TARP/pre-incident plan,
  - Criteria question No.04 assessed as **31%**: consultation preparing the emergency plan.
  - Ensure the emergency plan is reviewed and updated annually.
- Review the **operational control** of the emergency plan considering the findings:
  - Criteria question No.05 assessed as **46%**: have adequate numbers of workers been identified in a risk assessment or other planning tool to be part of the on-site response team to ensure coverage for the duration of emergency operations, how is this availability tracked on a shift by shift basis to ensure coverage.
  - Criteria question No.07 assessed as **38%**: have triggers to notify emergency services been identified and discussed during the consultation process.
- Review of **compliance notices** and the common issues identified during the emergency first response assessment:
  - Review operational inspection and maintenance systems for refuge chambers
  - Consult with external emergency services and implement recommendations identified during emergency plan testing and external emergency services consultation
  - Review the Emergency Services information package requirements as per Fire and Rescue NSW Guidelines.

# Further information

For more information on safety assessment programs, the findings outlined in this report, or other mine safety information, please contact the NSW Resources Regulator:

CONTACT TYPE	CONTACT DETAILS
Email	<a href="mailto:cau@regional.nsw.gov.au">cau@regional.nsw.gov.au</a>
Incident reporting	To report an incident or injury call 1300 814 609 or log in to the <a href="#">Regulator Portal</a>
Website	<a href="http://www.resourcesregulator.nsw.gov.au">www.resourcesregulator.nsw.gov.au</a>
Address	NSW Resources Regulator 516 High Street Maitland NSW 2320

## Appendix A – Assessment criteria rating

Each assessed criteria is rated from 1 through 4 based on evidence supporting the expected control supports identified at the mine site:

Evidence supporting expected control supports

Expected control supports	Rating	Evidence supporting rating / comments				
	<table border="1"> <tr> <td>4</td> <td>3</td> </tr> <tr> <td>2</td> <td>1</td> </tr> </table>	4	3	2	1	
4	3					
2	1					

Assessment findings results are calculated based on the total points allocated to the assessed ratings as a percentage of the maximum possible points for each criteria group, and any findings rated as ‘Not applicable’ were excluded from the calculation.

Criteria assessed ratings and points

Assessed as	Rating	Points
Documented & implemented	4	4
Implemented but not documented	3	2
Documented but not implemented	2	1
Not documented and not implemented	1	0
Not applicable		

Findings results (points) with colours assigned as follows:

- Green (=100%)
- Yellow (>= 80% and <100%)
- Orange (>= 65% and <80%)
- Red (<65%)