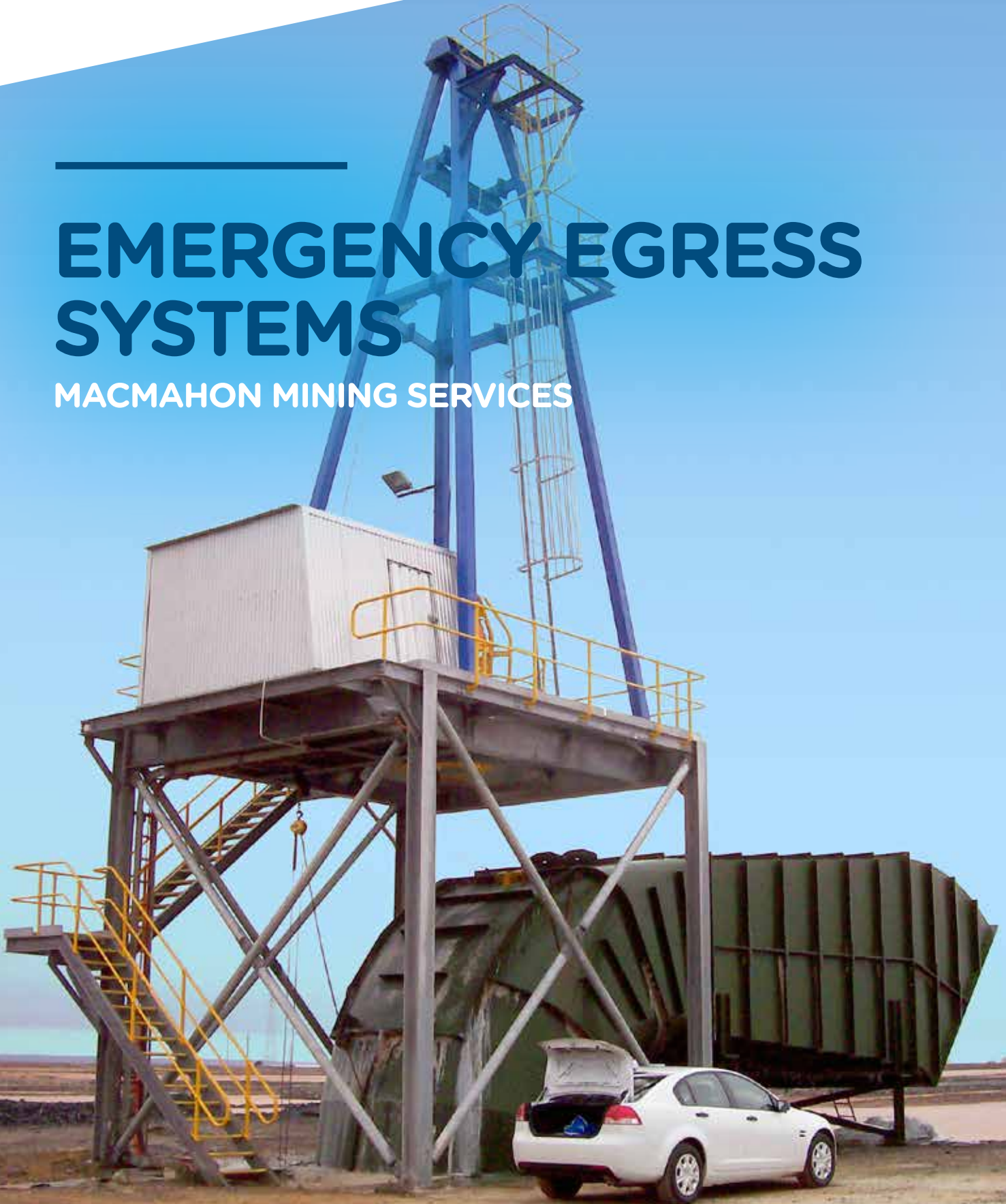




MACMAHON

EMERGENCY EGRESS SYSTEMS

MACMAHON MINING SERVICES



MACMAHON'S ENGINEERING CAPABILITIES PROVIDE CLIENTS TAILORED MINING SOLUTIONS FOR PROJECTS BOTH ABOVE AND BELOW GROUND.



Macmahon Engineering has the in-house capability to design, supply, and construct the emergency egress systems typically used in underground mining projects.

With a comprehensive understanding of the technical and practical aspects of mine shaft hoisting applications, Macmahon can deliver fit-for-purpose emergency egress systems for its clients.

Macmahon's experienced, practical engineers and draftspersons are able to design customised solutions with a 'made to order' approach for each project. With complete 3D modelling capability, Macmahon uses the latest versions of Inventor, Solid Edge, AutoCad and Microstation drafting software for all drawing requirements. The Company's design engineers use SpaceGass for structural analysis and ANSYS for Finite Element Analysis (FEA). Macmahon's design office and workshop facilities operate with a quality management system that complies with the requirements of AS/NZS ISO 9001:2008.

The winders used in Macmahon's emergency egress systems meet stringent safety standards and are approved for use in all states across Australia. Macmahon employs a team of experienced engineers, with extensive experience in the design, construction, commissioning and servicing of emergency egress and other winding equipment. The Company's experienced construction teams are totally supported by the Macmahon Safety Management System.

Macmahon can provide complete support from safety administration, training and inductions, through to hands on guidance assessing the risk and safety of all tasks undertaken throughout the project execution phase.

Macmahon's Engineering capabilities complement the Company's range of underground mining services. From raise drilling and shaft sinking, through to specialised ground support and mine development, Macmahon has the ability to deliver large-scale projects, while also offering its specialised capabilities separately.

Past and present projects include:

Macmahon delivered the design, supply, installation and commissioning of an Emergency Egress System, complete with headframe, winder and conveyance for the following projects.

RASP MINE (NSW)

Broken Hill Operations

- 4.8m diameter – 400m deep vent shaft
- 5 person "Torpedo" Gig
- Tuff Torquer 610 winder
- Hoisting speed 1.2m/sec
- Headframe straddled the ventilation duct on surface

PROMINENT HILL (SA) Oz Minerals

- 5.1m diameter shaft – depth of 291m
- 5 Person "Torpedo" Gig
- Tuff Torquer 450 winder
- Hoisting speed – 0.7 m/sec

LONG VICTOR MINE (WA)

Lightning Nickel

- 4.0m diameter shaft – depth of 384m
- 5 Person "Torpedo" Gig
- Tuff Torquer 450 winder.
- Hoisting speed – 0.8 m/sec

COSMOS MINE (WA) Xstrata

- 3.0m diameter shaft – depth of 400m
- 5 Person "Torpedo" Gig
- Tuff Torquer 450 winder
- Hoisting speed – 0.7 m/sec

BETA HUNT MINE (WA)

Consolidated Minerals

- 4.0m shaft – depth of 613m
- 5 Person "Torpedo" Gig
- Tuff Torquer 450 winder
- Hoisting speed – 0.65 m/sec
- Headframe straddled the ventilation duct on surface

BENDIGO (VIC) Bendigo Mining

- Mobile egress system for use at various mine shafts – depth of 820m
- 4 Person "Torpedo" Gig
- Tuff Torquer 610 winder
- Hoisting speed 0.8 m/sec

Other projects:

- **WOODCUTTERS MINE** Normandy
- **NORTH GOONYELLA MINE** White Mining
- **PEAK GOLD MINES** New Gold
- **RIDGEWAY MINE** Newcrest Mining
- **DARTBROOK MINE** BHP
- **NEW OCCIDENTAL MINE** Rio Tinto