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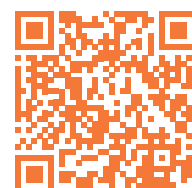
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CONTACT US
P (08) 6314 0301
F (08) 9481 7322
160 Beaufort Street, Perth, WA 6000.
PO Box 8023, Perth BC, WA 6849
E-mail the editor at
editorial@australianminingreview.com.au

GENERAL MANAGER
Trevor Pickett
0429 916 282
trevor@australianminingreview.com.au

ASSISTANT GENERAL MANAGER
Biliana Harman
biliana@australianminingreview.com.au

EDITOR
Colin Sandell-Hay
colin@australianminingreview.com.au

ACCOUNTS MANAGER
Teresa Sabatino
accounts@australianminingreview.com.au

JOURNALISTS
Tamra Carr, Kathleen Southway

RESEARCH
Jason Strydom, Wayne Dyson

AMR SALES TEAM COORDINATOR
Cal Christelow
cal@australianminingreview.com.au

SALES EXECUTIVES
Donna Orton, Monika Bhardwaj,
Quentin Roberts, Natasha Lill

PRODUCTION MANAGER
Jeremy Pickett
jeremy@australianminingreview.com.au

GRAPHIC DESIGNERS
Jeremy Pickett,
Rebecca Johnson

PRINTER
Australian Community Media

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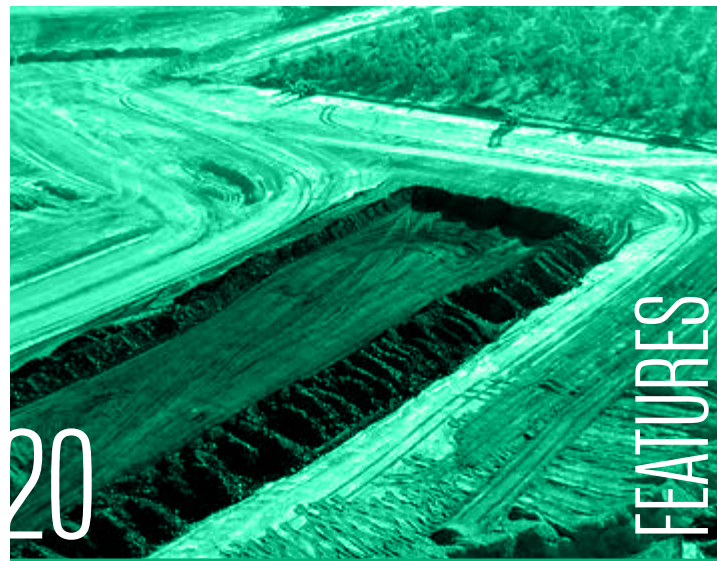
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Western Mines Intersects

Significant Cu-Zn Mineralisation At Mulga Tank

Western Mines Group Ltd (ASX:W-MG) has observed Cu-Zn mineralisation at shallow depths in the final hole of a successful ten-hole diamond drilling programme at the Mulga Tank Ni-Cu-PGE Project in Western Australia's Eastern Goldfields.

The drilling programme totalled 3,990m and was designed to test a wide range of geological and geophysical exploration targets around the Mulga Tank Ultramafic Complex.

The final hole MTD021 was drilled to test the up-dip component of the high conductance NW3 Conductor EM anomaly in the Panhandle area of the project.

The hole intersected significant Cu-Zn mineralisation within a black shale unit containing extensive banded sulphides (25-35% sulphide) between 110m to 134m depth.

Numerous spot pXRF readings in excess of 1% Cu were observed in two horizons down the hole. The hole did not test the main core of the modelled NW3 Conductor so this sulphide-rich unit may extend for considerable strike and depth.

"Whilst the last hole MTD021 was the only one of the programme not to fit our geological model it is certainly a very interesting result encountering significant Cu-Zn sulphide mineralisation at shallow depths," Managing Director, Caedmon Marriott, said.

"The core of the EM anomaly was not drilled and this sulphide unit could be quite extensive. The mineralisation is likely associated with late stage hydrothermal fluids around the complex or the geological environment possibly suggests nearby VMS-style mineralisation."

The company is methodically using a portable X-ray fluorescence (pXRF) device on site as part of its exploration and geochemical vectoring approach during the drilling programme. Spot pXRF readings for hole MTD021 were taken at 50cm intervals down the core.

Processed pXRF data is presented for hole MTD021 below. Numerous spot pXRF readings in excess of 1% Cu were observed in two horizons down the hole, with a mean average of 0.8% Cu for 8 readings between 110.5m and 113m and a mean average of 1.3% Cu for 8 readings between 128.5m and 130.5m. Anomalous Zn readings of up to 1.8% Zn were also observed associated with the Cu results. **AMR**



Panoramic Has Further Underground Drilling Success at Savannah

Panoramic Resources Limited (ASX:PAN) has identified the potential to significantly increase the Savannah Mineral Resource through ongoing infill underground Resource definition drilling at the Western Australian nickel project.

In the June quarter the company commenced a new underground drill programme to test and infill the poorly drilled area of the Savannah orebody located immediately below historical workings and above the 900 Fault.

The drill programme is being undertaken from a drill cuddy on the 1425 level that was recently developed as part of ongoing mine access to this area of the Savannah mine. The 1425 level and subsequent mine development in this area provides much improved drill angles (near perpendicular to strike) to evaluate this part of the Savannah orebody.

When completed this development is also ideally positioned to continue testing the orebody below the 900 Fault which currently contains a Mineral Resource of 14,900 nickel tonnes at an average grade of 1.65% nickel. Results for the second drill fan of three holes completed above the 900 Fault from the 1425 drill cuddy continue to return significantly thicker mineralisation intercepts than predicted by the current Savannah resource model.

In the second completed drill fan, the increased thicknesses are noticeable in all three drill holes with the highest grade reported in the third and deepest drill hole (KUD1943) as the orebody approaches the 900 Fault.

The significantly thicker mineralised intercepts returned by the first two completed drill fans above the 900 Fault, coupled with the flatter plunge on the mineralisation in-

dicated by KUD1943, will undoubtedly increase the current Mineral Resource in this area of the mine.

The results for the three drill holes completed on the second drill fan of the current program targeting above the 900 Fault are: § 28.9m @ 1.16% Ni, 0.74% Cu and 0.06% Co from 97.2m in KUD1931, including: o 19.1m @ 1.52% Ni, 0.84% Cu and 0.08% Co from 107.0m § 17.4m 1.02% Ni, 1.38% Cu and 0.05% Co from 117.4m in KUD1938m, including: o 7.6m @ 1.60% Ni, 1.85% Cu and 0.08% Co from 117.4m § 9.0m @ 2.95% Ni, 0.06% Cu and 0.15% Co from 162.0m in KUD1943.

The aim now remains to complete the program pattern of holes above the 900 Fault, followed by the update of the Mineral Resource and mine plan for this area during the calendar year. Once the drill program above the 900 Fault is completed the plan

is to then begin testing and upgrade the Savannah resource below the 900 Fault in 2023.

"The continued success of the drill programme to infill the poorly drilled area of the Savannah orebody immediately above the 900 Fault is very pleasing," Managing Director and CEO, Victor Rajasooriar, said.

"The results from the second completed drill fan in this area strongly support the recently reported returns from the first drill fan and together they show potential to increase our mineral inventory above the 900 Fault and support the planned opening of a new mining front in the Savannah orebody over the next 12 months to support the current mining operations at Savannah North.

"We look forward to announcing more drill results from these drill programs in due course." **AMR**

Petratherm Flying High With Thick Intervals of Rare Earths Uncovered At Comet

Petratherm Limited (ASX: PTR) has defined two REE mineralised zones within the saprolite clay profile which remain open in several directions with Batch 1 drill results from the Comet Project in the Northern Gawler Craton of South Australia.

The profile remains open in several directions, while numerous Total Rare Earth Oxide (TREO) intervals have been intersected with a highest TREO value of 3,600 ppm recorded.

REE mineralisation starts at relatively shallow depths in some areas ranging from six to nine metres and importantly extends to

much greater depths than previously reported. Multiple intercepts are recorded over a six to 15 metre interval and range up to 27 metres of vertical thickness.

Drilling was conducted on a 200-metre spaced grid with some 100-metre spaced and very limited closer spaced drilling in the south-eastern portion of the REE 1 Anomaly Area.

The 116 holes from Batch 1 total 3,933 metres with average hole depth of 33.9 metres. The drilling at this spacing has proved effective in locating higher-grade REE zones within the broader regionally anomalous area.

The confirmation of high TREOs forming discrete mineralised zones is very promising and will be the focus for future drill targeting.

It is postulated the mineralisation may be reflecting zones of primary REE enriched basement source rock below. This opens the potential for primary REE basement targets also in the fresh rock below.

REE 1 Anomaly - South Zone - A northwest trending zone extends approximately 1000 metres and has an approximate average width of 200 metres and remains open along trend. The discrete mineralised zone shows

some distinctive structural form particularly in the southern half and may be reflecting a zone of primary REE enriched basement rock below. It includes numerous thick intercepts from relatively shallow depths.

REE 1 Anomaly - Northeast Zone - A prominent zone with consistent higher concentrations of REEs extending over an approximate 1.5 kilometre by 1 kilometre area. It is open in several directions with some of the better intercepts occurring along the northern edge which remains open. **AMR**



Peregrine Swoops With Spectacular Gold Mineralisation Hits At Peninsula Prospect

Peregrine Gold Limited (ASX: PGD) has identified significant visible gold in drill core within a quartz-ironstone breccia vein at the Peninsula Prospect approximately 30 kilometres west of Newman, Western Australia.

A hand-held core drill, able to core 40mm diameter drill core, was utilised to drill two vertical holes adjacent to and beneath the visible gold observed at surface.

The two holes (A and B) were drilled approximately 1.5m apart, along strike and to a depth of approximately 50 centimetres and 23 centimetres respectively. Recoveries were 95% for Core A and 100% for Core B with Core A drilled on the west side of Core B.

Newman Gold Project
The Peninsula Prospect (E52/3850), part of the Newman Gold Project, identified by stream sediment and soil sampling in 2021 has confirmed the presence of several, possibly stacked north-westerly trending gold in soil anomalies.

The prospect is dominated by skeletal soil and spinifex cover with outcrop predominantly limited to creek systems or a dominant quartz-ironstone vein which transect the prospect.

The largest quartz-ironstone breccia vein mapped at the Peninsula prospect is located in the northern portion of the prospect and can be traced over a strike length of approximately 400 metres, trends approximately northwest-southeast, has an approximate

true thickness of 4.0 metres and has a moderate dip of approximately 50 degrees to the northeast.

Wall rock silicification of a possible fine-grained sediment up to a metre wide on both the hanging and footwall was observed. A close inspection of this vein in the main creek at the Peninsula prospect has identified visible gold over an approximately 2 metre x 3 metre area on the surface of the vein.

A horizontal quartz-ironstone-gold stringer was observed within the hanging wall silicified sediment.

"It is very rare for a green field exploration programme in WA to encounter mineralisation of this nature sitting undisturbed at sur-

face," Technical Director George Merhi said. "In addition to being a very impressive demonstration of the high-grade potential of this system it also highlights just how underexplored the area is.

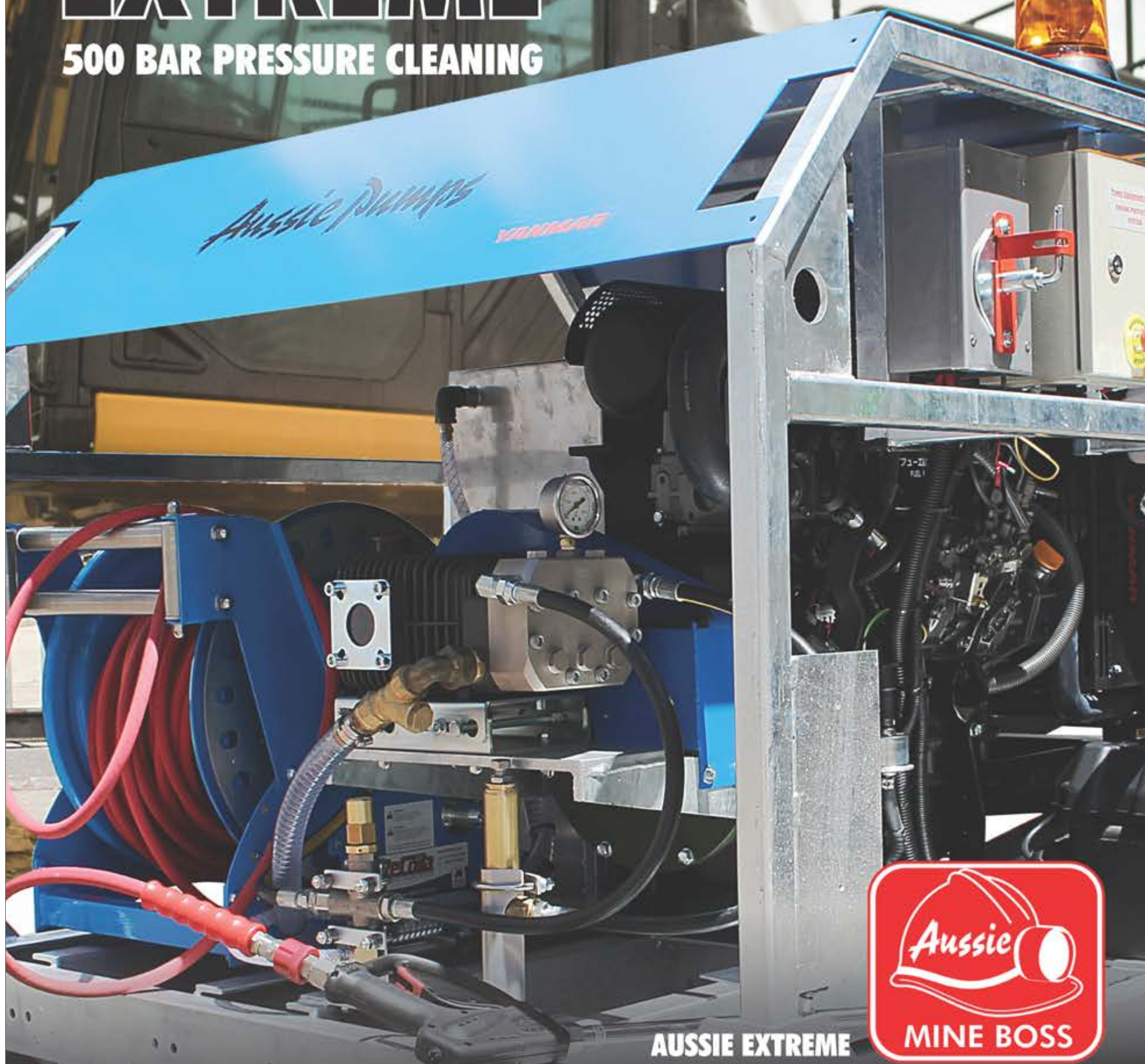
"Peninsula and the other Newman prospects due to be drilled have been uncovered as a result of systematic exploration over a small portion of our overall project area.

"In 2022 we have expanded this effort and look forward to updating the market on potentially new discoveries in this exciting district." **AMR**



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Aldoro Intersects Multiple 50m Pegmatite Intervals At Niobe

Aldoro Resources Limited's (ASX: ARN) initial extension drilling has exceeded expectations with multiple drill holes intersecting mica-rich pegmatite intervals exceeding 50 meters highlighted in its Phase II RC drilling programme at its Niobe Rb-Li project in Western Australia.

Drilling is testing the potential pegmatite mineralisation of the extension to the Breakaway area (Niobe flats and associated east-west structure) identified in late June during a ground reconnaissance visit in addition to infilling the existing hole spacings towards building a resource.

To date 33 RC holes have been completed

for 2,235m and range from 40 to 150m in depth with a total of 68 holes for 4,260m planned. Holes are planned over five pegmatite areas, Main, Northeast, Breakaway, Southeast and Niobe Flats. All holes have intersected pegmatites of various intervals from <1m to 50m with pegmatite-country rock zones up to 63m.

The programme has been dictated by the pegmatite intersections where many have been interpreted as flat lying sills or moderately steeply dipping dykes orientated to the northwest.

The best intersections were:

- Hole NBC0087 (Intercepts totalling 63m)
- 50m Pegmatite from 8m
 - 8m Pegmatite/Gabbro from 70m
 - 5m Pegmatite/Gabbro from 105m

- Hole NBC0098 (Intercepts totalling 56m)
- 2m Pegmatite from 3m
 - 2m Pegmatite from 13m
 - 1m Pegmatite/Gabbro from 36m
 - 48m Pegmatite from 46m
 - 3m Pegmatite from 100m

- Hole NBC0097 (Intercepts totalling 50m)
- 25m Pegmatite from 28m
 - 1m Pegmatite/Gabbro from 57m
 - 8m Pegmatite from 58m
 - 3m Pegmatite/Gabbro from 66m

- 10m Pegmatite from 69m
- 1m Pegmatite/Gabbro from 79m
- 2m Pegmatite from 87.

- Hole NBC0094 (Intercepts totalling 44m)
- 5m Pegmatite from 0m
 - 1m Pegmatite/Gabbro from 22m
 - 3m Pegmatite from 23m
 - 2m Pegmatite from 34m
 - 1m Pegmatite/Gabbro from 49m
 - 6m Pegmatite from 50m
 - 1m Pegmatite/Gabbro from 56m
 - 2m Pegmatite/Gabbro from 59m
 - 22m Pegmatite from 61m

AMR

Midas Defines Strong Newington Lithium Pegmatite Geochemistry

Midas Minerals Ltd (ASX: MM1) has obtained positive initial results of ongoing auger geochemistry at its Newington Lithium-Gold Project in Western Australia's Goldfields region.

Midas has received assay results for the first 412 auger geochemical samples over a strike of two km of the Kawana East pegmatite belt which extends for at least nine km.

Sampling was undertaken at 40m intervals on lines spaced at 80m. Numerous samples contain elevated lithium (Li), tantalum (Ta), tin (Sn), caesium (Cs), niobium (Nb), beryllium (Be) and rubidium (Rb). Peak values¹ included 495ppm Li₂O, 327ppm Ta₂O₅, 422ppm Nb₂O₅, 713ppm BeO and 1,126ppm Rb which are exceptionally high for geochemical samples.

The numerous anomalous values is due to the large number of small to very large pegmatites and pegmatoid outcrops and logged in shallow auger holes.

Midas is preparing reverse circulation (RC) drill sites at intervals over about 8km strike of the Kawana East pegmatite belt to obtain an understanding of variability of the orientation, size and mineralogy of the pegmatites. Drilling is expected to commence in August 2022.

"These results are an excellent start to our systematic exploration for LCT pegmatites at Newington," Managing Director, Mark Calderwood, said.

"The quantity of anomalous LCT pegmatite indicator elements is very impressive as are the number of pegmatite outcrops discovered to date.

"Drilling at Newington will enable Midas to gain an understanding of the mineralogy of the pegmatites below surface and we hope to gain an understanding of zonation of pegmatites along and across strike and internal zonation within some of the apparently large pegmatites.

"We expect to commence a reverse circulation drilling programme at Newington within the next few weeks."

Kawana East Pegmatite Belt

The Kawana area at Newington covers 30 sq. km. Midas' initial systematic work has commenced on the eight sq. km eastern pegmatite belt that follows the Copperhead fault over at least nine km strike. The northern section of the belt has been subject to limited LCT geochemistry and resulted in the discovery of significant lithium mineralisation, with rock-chip sample results up to 1.3% Li₂O from a highly weathered LCT pegmatite.

More recent mapping has identified hundreds of pegmatite outcrops and systematic auger drilling commenced in the south and is working north.

To date, Midas has reported assays for 412 auger geochemical samples covering 2km strike on a 40m by 80m grid. Of the 147 sam-

ples that were considered anomalous, 38 are considered highly anomalous, 72 were anomalous for multiple elements, whilst 37 were anomalous for a single element.

A further 25 samples were anomalous in Be, Nb or Rb and are indicative of less fractionated pegmatites. Sufficient outcrops and geochemical results are at hand to provide focus for Midas' initial drilling at Newington. The aim is to drill 50 RC holes over 8km strike to gain an understanding of the variability of the mineralisation and fractionation of the pegmatite belt to locate the areas most prospective for lithium LCT pegmatites.

Next Steps

Systematic auger geochemistry will continue to follow areas highlighted by ongoing reconnaissance rock chip sampling and mapping. RC drilling is expected to commence in August to provide valuable insight in the subsurface pegmatite mineralogy.

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COMMODITY PRICE TOP RISK FOR AUSTRALIAN MINING LEADERS

Commodity price risk again topped the list of the risks for the year ahead as seen by Australian miners, according to the latest KPMG Australia Mining Risk Report FY 2022/23.

The annual survey of Australian mining leaders showed commodity risk in first place for the third year in a row with two new risks, financial risks (decarbonising the supply chain) and competition for talent coming into second and third place respectively. Business impacts from decarbonisation of the value chain and concerns around attracting and retaining talent also jumped up the list. This reflects the change in focus away from the global COVID-19 pandemic which came in at number three in last year's report.

Top 5 risks

- 1. Commodity price risk
- 2. Financial risks – decarbonising the value chain
- 3. Competition for talent
- 4. Community relations and social licence to operate
- 5. Environmental risks including new regulations

Commodity prices, decarbonisation and ESG concerns

“Commodity prices are an ongoing concern for miners both in Australia and overseas,” said Nick Harridge, head of Mining and Metals at KPMG Australia. “It’s not a surprise to see resourcing talent and skills coming into the top three risks for the first time, together with concerns around decarbonisation and ESG matters.” Nick Harridge said the fact that environmen-

tal, community and decarbonisation risks were named as three of the top five risks this year reflected a lowering of concern around economic downturn (dropped to number ten in FY22) and global trade war (number three in FY21 and unplaced in FY22).

“The focus has shifted away from the geopolitical tensions of the past two years where the global pandemic and fears around possible fallout from a global trade war were top of mind for Australian mining leaders,” said Nick Harridge. “Interestingly, this year, three of the top five risks relate to decarbonisation and ESG concerns.”

He said that although community relations and social licence to operate had dropped from second place in FY21 to equal third place one year later in FY22, it was still a key area of management focus – particularly around workplace harassment issues.

“Social licence and environmental-focused risks, including regulatory concerns, are mainstream issues for miners across the sector. The importance of environmental risk for the sector is reflected in the fact it has jumped up one place from sixth last year to fifth this year.”

Commodity price risk held at number one in the eyes of Australian respondents, through a high price environment - one that is open to instability from rising geopolitical tensions, genuine conflict, or sector wide energy transition.

Supply chain risk continued to feature globally and in Australia, as miners and contractors become more accustomed to longer



lead times from global supply chains disrupted by the pandemic and other disruptive factors.

Focus on regulation and compliance risk

Caron Sugars, Head of Energy and Mining Risk Advisory at KPMG Australia called out the increasing focus on regulatory and compliance concerns as key factors in risk management and mitigation for the sector.

“Impacts related to decarbonising the value chain and environmental risks including new regulations underscore the operational challenges faced by mining and metals leaders,” said Caron Sugars. “They are operating in a heightened environment of intensifying regulatory requirements and stakeholder scrutiny particularly in the wake of COP26 last November.”

She said that both Australian and global mining leaders were looking for effective ways to manage risks such as a high carbon footprint. A majority of those surveyed (87 percent) see technology as a key part of the decarbonisation and ESG solution. Whilst a changing regulatory landscape is creating financial risk and intensifying the focus on robust ESG data, technology is expected to be a disruptor in the next three years – named by 46 percent – and also an opportunity.

Action on environmental risks including new regulation

“Mining companies are accustomed to dealing with environmental regulations and

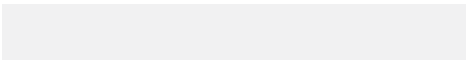
have done so for decades but now there is an evolution in the detail of reporting required by not just the communities in which miners operate but the broader society,” said Caron Sugars. “Setting and pursuing a successful ESG strategy is no longer a ‘nice to have’. It’s now a real compliance issue focused on rapid decarbonisation, safe and inclusive workplaces, and positive community impacts.”

Attraction and retention of talent

The skills crisis being seen across Australian business is also affecting the mining sector appearing as a struggle for talent risk in third place in this year’s report (a new entry) as well as ‘access and retention of employees’ in ninth place (falling one place from FY21).

“The concern is across the spectrum - about the availability of on the ground employees, about mining leaders, and about specialist skills such as engineering and ESG skills,” she said. “Miners must maintain a social licence to operate. That means they must deliver a safe workplace, and one that actively recognises the importance of the environment and cultural heritage.”

Caron Sugars said it was positive that mining leaders were looking to further invest in safe work practices and ensure a ‘safe to work’ culture at their sites and across all operations. **AMR**



Noongar Elder and Traditional Owner Barry Winmar performs the Welcome to Country ceremony.

Dozer Handover Holds Far Deeper Meaning For SX5 And WesTrac

Equipment handovers are common, albeit usually low-key affairs for leading Cat® dealer WesTrac. But a ceremony at WesTrac’s South Guildford facility on Thursday (4 Aug) held special meaning for the stakeholders involved.

Indigenous contracting business Civil Road & Rail SX5, part of the broader SX5 Group of companies, will use the new Cat D10T2 Dozer for mine rehabilitation services at Rio Tinto’s mine sites in the Pilbara.

According to SX5 directors Ralph and Cherie Keller, and co-director and Eastern Guruma senior elder Kenzie Smith, the act of rehabilitating the land has grown in significance over recent years.

“We’re making things green again, making Country feel better,” Ralph said. “In repairing Country, we’re helping repair the trust and relationships with the region’s Traditional Owners.”

As well as being among the Traditional Owners of the land, Kenzie Smith’s family have had a long history of helping modern enterprises utilise and rehabilitate the land.

The family once helped break horses and muster cattle on the stations in the region and was permitted to gather any stock left behind to sell themselves.

SX5 was the brand applied to those stray cattle before they were taken to market. That set the family on an entrepreneurial path that resulted in Kenzie helping to establish and run SX5’s contracting business.

WesTrac General Manager Cameron Callaway said miners, as well as their suppliers and service providers, understood the vital importance of engaging with the Traditional Owners on whose country they operate to ensure continual improvement in environmental, social and governance outcomes.

“The world needs miners to supply the mineral resources required for a more sustainable future, and that means we need to support sustainable mining initiatives,” Cameron said.

“Drawing on the knowledge of Traditional Owners and the expertise of knowledgeable, experienced Indigenous organisations such as SX5 is a key aspect of that, and it’s especially rewarding for WesTrac to be involved in projects such as this.”

The Cat D10T2 is a key part of that sustainability story, with onboard technologies to drive greater efficiency, productivity and fuel economy, as well as improved operator safety and comfort.

The D10T2 is also equipped with the build-

ing blocks to enable remote and semi-autonomous operations.

Ralph Keller says technology has been key to SX5’s success, and support from Indigenous Business Australia (IBA) has made it possible for the group to continue to purchase equipment with the latest machine control technologies. “What makes us different is that SX5 continues to reinvent itself every day,” he said.

“It’s all about technology. That’s how you achieve excellence and how you mitigate risk.”

IBA, a commercially focused Federal Government organisation, supports First Nations businesses with cashflow and performance bond guarantees to enable business growth. “Putting the regeneration of Country back in the hands of First Nations companies like SX5 is smart business and we’re so glad to support their efforts,” says Kirsty Moore, IBA’s Chief Executive Officer.

“IBA provides leasing opportunities to First Nations businesses so they can acquire critical capital equipment without tying up large amounts of cash that is needed to cover the operating costs of the business.

The new equipment has stepped up the production and quality of work that the

business has been able to achieve by using equipment that is purpose-built for the task.

“SX5 is a great example of a First Nations business transforming its opportunities to work with big business – all while restoring Country and being trained in new technology.”

Martin Roedhammer, Rio Tinto Manager Rehabilitation and Closure said: “We work hard to leave a lasting, positive legacy everywhere we work.

As part of this, we strive to generate opportunities for businesses to be part of our supply chain and deliver local economic benefits.

“Rio Tinto has worked with SX5 for more than seven years to support and develop the group’s capacity and understanding of our requirements and facilitate introductions across our Pilbara operations.

“A credit to SX5 is the business’ ability to think of ways to increase efficiency and get the best quality outcomes, trialling the use of chains to improve final surface finishes and modifying equipment to achieve improved vegetation establishment. “We look forward to a continued successful relationship with SX5 and witnessing them grow even more in the future.” **AMR**



Yinhawangha dancers, who come from the region around Rio Tinto’s West Angelas, perform as part of the ceremony.



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BUILDING A ROBUST FUTURE FOR AUSTRALIA WITH THE CRITICAL MINERALS IN OUR OWN BACKYARD

The heightened demand for critical minerals has pushed up the price of raw materials, potentially reversing the progress of clean energy technologies. The acute supply shortage has major implications on the financing needs across the world.

Global management consultancy, Partners in Performance, believes however, that Australia could play a key role in stabilising the global markets and supply chain for these critical minerals.

Australia clinched the top spot globally for mining investment with its attractive policy and mineral potential. The Fraser Institute's 2021 Investment Attractiveness Index has revealed that Western Australia has come in first place (from being fourth in 2020), while South Australia is ranked in the top ten globally.

According to Michael Huggins, Director and Head of Australia and New Zealand at Partners in Performance: "Australia can attest to sourcing for minerals in environmentally and socially responsible ways with its strong and efficient regulatory environment. Workers involved in the sector are also protected. This sets Australia apart from its competitors that may operate at a lower cost, but at the expense of the environment or its workforce." The Government reiterates this by working closely with states and territories in developing a national ethical certification scheme for critical minerals.

Huggins also acknowledged that Australia is home to the world's largest supply of four critical minerals — nickel, rutile, tantalum and zircon — and among top five in the world for its supply of cobalt, lithium, copper, antimony, niobium and vanadium, posi-



tioning the nation as the main contender in the critical minerals sector on a global scale. As the term 'critical minerals' suggests, these minerals are critical in the long-term goal toward cleaner energy in the manufacture of batteries, electric vehicles, solar panels, turbines to harness wind energy and consumer electronics.

The Australian Government's 2022 Critical Minerals Strategy will set the stage for Australia to develop a thriving and durable Australian critical minerals sector through a lens of sustainability, to meet global market demand. As part of this initiative, the mining sector must look at the application of clean technologies while adhering to ESG standards.

"As Australia positions itself in becoming the critical minerals powerhouse supporting

clean energy technologies, the growth and expansion of downstream processing is expected to be phenomenal with the creation of about 52,000 jobs in regional areas," added Huggins. "Apart from boosting the economy, it will breed a new generation of high-skill, high-tech jobs."

The Government clearly recognises the potential that Australia holds in the critical minerals mining sector. However, more investments, especially from smaller and mid-tier mining and exploration companies, to increase production and meet global supply chain demands will help Australia lead the way in critical minerals supply by 2030.

The AUD \$2 billion that has been set aside for this will give small and medium-sized mining companies access to increasing domestic production.

"Incentivising programs and encouraging mining companies to install or repurpose existing equipment or facilities to produce critical minerals, and, increasing the budget for research and development in the sector, would enhance Australia's role in stabilising the critical mineral supply chain market," said Huggins.

He continued: "These factors, riding on the backbone of Australia's reputation for environmentally and socially responsible governance, would propel Australia into being at the forefront of the critical minerals mining sector."

The commitment of local mining companies to greener production of critical minerals is evident in two recent projects involving Partners in Performance. These include an old mining site that has since transitioned to harnessing solar and wind energy, that now powers 70 per cent of its total energy needs, as well as a greenfield mining project that will be carbon net-zero when built.

Solutions such as these are crucial at a time when a growing number of organisations are considering alternative energy sources across all industries. Boards of Directors and CEOs, including those within the mining sector, acknowledge climate change as a source of material risk and a major corporate challenge.

Partners in Performance has worked with mining clients across the full value chain, from explorations through to capital projects, operations and closure. For more information on how Partners in Performance offers solutions to businesses in Australia and around the world achieve their energy transition goal, visit www.pip.global. **AMR**

Skills week boss says mining worker shortages could slow mineral exports

National Skills Week's Chairman Brian Wexham has expressed concerns that major worker shortage may severely impact Australia's mining industry.

Mr Wexham says mining is responsible for 10.4 percent of GDP between 2019 and 2020, making it the single largest contributor to the national economy.

Australia's minerals production remained robust in 2021, leading global production of iron ore and lithium, and ranking second in gold and cobalt. However, a near and medium-term labour shortage is looming that could slow mineral exports.

"The mining sector has been highly productive over recent years despite the headwinds of COVID-19, variable commodity prices and the strained relationship with our number one trading partner, China," Mr Wexham said.

"However, booming infrastructure spending in the eastern states has meant stiffer competition for skilled people who traditionally might have been lured to the more resource rich states for work. Two job categories that stand out especially in this space are motor mechanics and civil engineers.

"Motor mechanics are in short supply, due to smaller numbers from the training system, the closure until recently of international borders, and reduced geographic

mobility. This imbalance is forecast to grow, especially in the mining states of Qld, WA and the NT.

"Civil engineers are central to government investment programmes and will continue to be in demand given the long lead times on projects. A plateauing in higher education graduates has put more reliance on international migrants to perform this occupation."

Dr Gavin Lind, CEO of Australian Minerals & Energy Skills Alliance (AUSMESA) says there are hundreds of diverse career choices open across the mining and energy sector.

"Opportunities exist on remote sites, in city-based offices and high-tech control and management centres, in science as well as computer laboratories, in a mix of locations across Australia.

"You can make a career managing a team, rehabilitating mine sites, building robotics, piloting drones, engineering machinery, safeguarding native plants and animals, social and community responsibility and philanthropy, or tackling climate change. Workers can build skills to work anywhere around the world.

With so many jobs on offer there has never been a better time to consider a career in Australian mining.

"The minerals and energy sector is at the

forefront of technological advances that will reduce Australia's reliance on fuel, generate cleaner energy, minimise water use, and reduce carbon emissions, as well as social advances that will ensure that sustainable benefits and opportunities extend to First Nations people whose land they work on and to surrounding communities, and that women are strongly supported in the workforce."

Now in its 12 year, National Skills Week 2022 was held this year between August 22 to 28, inviting Australians to explore the Universe of Skills on offer through Vocational Education and Training.

A key objective of National Skills Week is to identify and highlight industries with the most in-demand jobs of the future as well as sectors forecast to see the biggest growth in coming years, to ensure Australians can gain the training and education they need to secure those jobs and maintain stable long-term employment.

Mr Wexham said it is critical that school leavers, job seekers, parents and career changers are informed of what the jobs of the future are, and what Australia's most critical skills shortages and jobs needs are.

"This will ensure our young people, yet to start careers, can gain training and skills in education which is going to secure them a job at the end of that training.

"Further, it will assist in funnelling Australia's labour market into the training opportunities which are most likely going to lead to their employment ie the most in-demand jobs of the future.

Held annually, the vision of National Skills Week is to raise awareness on the diversity of careers which can be realised through vocational education and training, the skills for an economically viable future, and the incredible range of new jobs and skills in demand for the future.

This year's Week will be centred around the theme of 'A Universe of Skills' encouraging people to go beyond their imagination to discover careers, pathways and opportunities in skills and Vocational Education that they may not know about, thought about or even imagined.

"National Skills Week plays a pivotal role in strengthening and communicating the key messages of industry and government in an environment shaped by the fluid nature of skills requirements and ever-evolving technologies," said Mr Wexham.

"This initiative is designed to achieve real, transformative outcomes for Australian people – to inspire people to undertake active, participative education and training that VET provides resulting in skills that can realise immediate rewards in jobs, success and contribute to building our economy."

AMR

Committed to Healthy and Safety

Recon is passionate about fresh quality food and prides itself on giving the best hospitality and service to customers and clients.

Recon Catering is regarded as a leader in contract catering and accommodation services, along with facilities management, for various mining, gas and offshore industries.

An integral service provider to a range of clients across Australia, and proudly 100% Australian owned and operated, the company is passionate about fresh quality food and prides itself on giving the best hospitality and service to customers and clients.

No location is an obstacle as Recon manages set-ups to shutdowns, including rolling camps. It remains focused on catering, accommodation, and all aspects involved, including waste management, janitorial services, wet mess management, village maintenance and aerodrome services.

With a proven track record with all our current clients, Recon Catering has established a reputable work ethic from its

management to the dedicated and qualified staff.

Recon Catering has been established with a fresh and capable approach to fulfill projects on time, on budget, with quality goods and services.

Due to low company overheads and a well-skilled workforce, Recon Catering has some distinct advantages over the competition.

It establishes long-term quality relationships with clients, through high end product delivery and a flexible adaptable attitude and culture throughout the company.

Recon Catering industry competence covers a broad variety of services delivered by experiences, safe, professional, and well-mannered staff, all selected through specific recruitment process and internal training.

The Vision
It is Recon Catering's aim to become

an industry recognised mid-tier service provider that delivers tailored facility management services with the flexibility to satisfy every client's personal needs.

Its teams are known for their open and proactive approach and committed to the principles of collaborative contracting. It understands that the delivery journey is as important as the final product.

Each Recon catering team is defined by the project they are delivering, and are chosen on a best-fit basis.

Recon Catering is fortunate to employ a pool of talented people, across all levels of staff from senior management to camp managers.

The core team specialises in key areas such as HACCAP, quality assurance, and environmental management.

Ongoing training and development

programs keep our staff skills at the forefront of the industry.

The Core Team
Nigel Stevens: Founder of Recon Catering, Nigel has more than 25 years' experience in the hospitality industry, working in remote areas.

Kristina Kolosova: The Operations Manager, Kristina has been in this position for four years. Highly experienced in HR and mining/defence OH&S, she brings a wealth of experience from her six-plus-years in hospitality administration.

Victor Fitzpatrick: The company's Executive Chef plays a pivotal role in the Recon Catering team and has been with Recon for three years. A chef for over 20 years, he has a passion for great food, which is passed on through the team. **AMR**

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Tombola Managing Director, Byron Miles.

Tombola Gold Ltd (ASX:TBA) has entered into a Binding Term Sheet with True North Copper Pty Ltd for the re-commissioning and short-term rental of the Great Australian Gold Production Plant owned located in the Cloncurry region in Queensland.

This development complements the company's regional expansion and fast-track production initiatives. Tombola will work toward the commencement of gold production at the Plant within the next 12 weeks, whilst the company completes the refurbishment of the Lorena facility.

The Binding Term Sheet requires Tombola to fund the cost of refurbishing the Plant, which is expected to cost up to \$500,000,

whilst True North is responsible for obtaining all authorities required, including environmental, and supplying the Senior Site Executive. The company will then lease the refurbished Plant from True North for a period of six months at a cost of \$110,000 (plus GST) per month and provide the operational personnel and meet the operational running costs of production. The parties can extend the arrangement for a further three months by mutual agreement.

The company is planning to process ore from the current mining operations at the Golden Mile for the production and sale of gold bullion to the Perth mint during the period of these arrangements.

"We are pleased to have entered a Binding

TOMBOLA

SIGNS AGREEMENT TO BRING FORWARD FIRST GOLD PRODUCTION

Term Sheet with True North as a further step in the process of fulfilling our promise to the market of becoming a meaningful gold producer this year. This initiative allows Tombola to continue to optimise its operations to secure a long future of gold processing in the Cloncurry region," Managing Director, Byron Miles, said.

Tombola Gold is a new Australian gold producer, with mining underway and expansion in progress as the Company fast tracks to first cash flow in 2022. Scoping Studies indicate potential for profitable operation.

The Mt Freda Complex consists of several gold mines including the Mt Freda Gold Project and Golden Mile Project, which are in

close proximity to core infrastructure in the area including roads and power, with the company already advanced in constructing its own gold processing plant on site. Tombola has a well defined expansion strategy of utilising near-term gold cashflows to drive resource expansion with LOM extensions and exploration focus.

The company also holds the Burra Project located in South Australia, a world class copper, gold and REE target, with a strategic tenement holding in a world-class domain. Burra covers 6,500 sq. km in the G2 Structural Corridor, which hosts Olympic Dam, Carrapeteena and Prominent Hill. The Company has secured a \$300,000 grant from South Australian Governments Accelerated Discovery Initiative. **AMR**

NRW's Golding Lands \$130M Broadlea Contract Extension



NRW Holdings Limited's (ASX:NWH) wholly-owned subsidiary, Golding Contractors Pty Ltd has executed an agreement with Broadlea Coal Management Pty Ltd to extend the current mining services at the Broadlea Mine in Queensland.

The award is valued at approximately \$130M and continues the strong relationship between Golding and Broadlea where Golding has provided the contract mining services as well as mining specific open cut pits to supplement Fitzroy Mining's underground operations on two prior occasions.

This contract extends the contract mining scope that Golding have been performing since October 2021. The scope of work includes assuming the statutory responsibility

for operation of the mine and maintaining and operating two fleets of equipment conducting both overburden removal and coal mining.

The work will be performed with a mix of existing Golding equipment and hired. This extends the mining services agreement to February 2024 with an option to further extend the agreement for another 12 months.

Broadlea is an open cut mine located ~7km north of Carborough Downs, sharing key surface infrastructure including the CHPP and train load out facilities. Fitzroy has periodically operated Broadlea as a satellite operation during periods of favourable market conditions. **AMR**

Chuwar Coal Mine Fully Rehabilitated and Surrendered

Chuwar Coal Mine, located just 5km from Ipswich, has become the first open-cut coal mine in Queensland to be fully rehabilitated and relinquished, with the Queensland Government accepting surrender of New Hope Group's Environmental Authority and Mining Leases for the site.

The Queensland Government critically assessed the project and concluded that all rehabilitation requirements had been met in full, deeming the site safe, stable, non-polluting, and able to support grazing.

The site was subject to open-cut coal mining throughout the 1980's. Chief Executive Officer, Rob Bishop said New Hope Group made the decision to backfill the voids, reshape and rehabilitate the area to meet community expectations.

"The extensive rehabilitation works were conducted between 2014 and 2017, with ongoing works undertaken over the past eight years," Mr Bishop said.

"The Chuwar Coal Mine site demonstrates New Hope Group's commitment to being a responsible operator and ensuring the rehabilitation of mined land to a safe and productive post mining land use."

For more than 16 years, New Hope Group

has championed one of Australia's most ambitious and practical land management programs. "Our progressive rehabilitation program at New Acland returns mined land to agricultural and conservation uses while contributing to the region's agribusiness industry," Mr Bishop said.

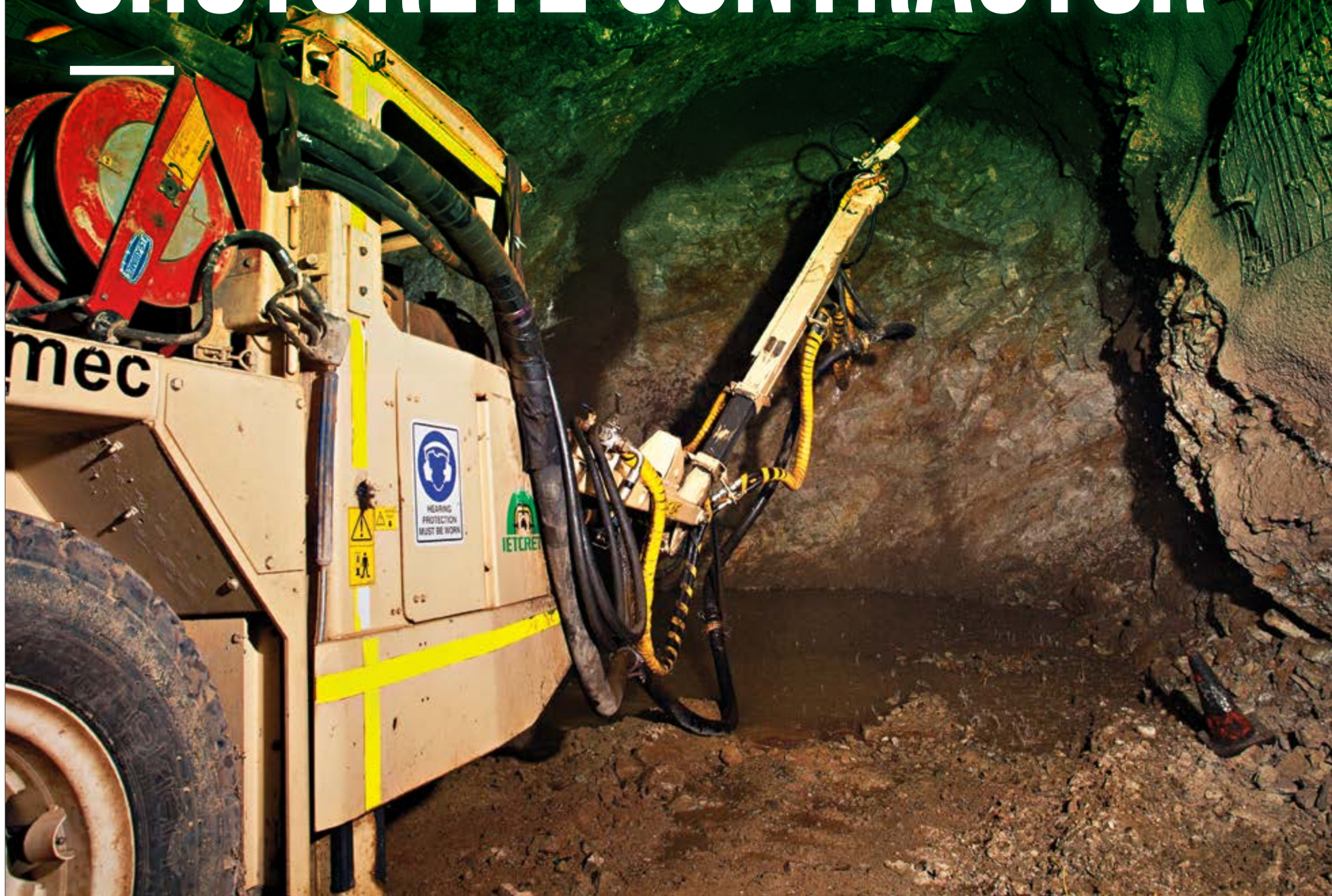
"To date, more than 740ha of land has been rehabilitated at New Acland. Our environmental credentials have also been formally recognised by the Queensland Government, who has formally ratified 349 hectares of progressively rehabilitated mined land.

"At the time of the Queensland Government's announcement, it was the largest single area of certified rehabilitation for an open cut coal mine in Queensland. "To put the size of the area in context, the certified, rehabilitated land at New Acland covers approximately 300 Suncorp Stadiums.

New Hope Group's progressive rehabilitation methods go above and beyond what the environmental regulator requires, which is some of the highest environmental standards in the world. The rehabilitation work at both Chuwar and New Acland are a clear and practical demonstration of the successful co-existence of mining and agriculture.

AMR

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LIEBHERR MINING

EXPANDS PERTH FACILITY FOR NEW TECHNOLOGIES



Liebherr-Australia has expanded their Perth mining facility, adding 47,000 sq. m of workshop, office, and build space to the complex. This increased footprint will facilitate the company's progress with their mining decarbonisation and technology projects. Perth is Liebherr-Australia's second largest branch after the company's Head Office Complex in Adelaide.

Liebherr-Australia's existing facility in Perth, now more than doubled in size with the acquisition of adjacent land and buildings.

Liebherr-Australia has announced the expansion of their Perth mining facility, which will strengthen the company's ability to deliver accelerated zero emission solutions to the wider market. Liebherr-Australia's growing involvement in the development and implementation of zero emission technology with Australian customers illustrates the necessity for this investment in infrastructure, and signifies Liebherr's commitment to these industry-leading projects.

The Redcliffe-based branch purchased the land and buildings adjacent to the current

location, increasing the Liebherr complex from 34,000m² to 81,000m². The new acquisition includes two workshops and a three-storey office building, adding to Liebherr's existing 3,000m² service workshop, 5,000m² state-of-the-art parts warehouse, along with administration building and build area.

Liebherr-Australia Managing Director, Trent Wehr, commented on the importance of this facility expansion. "This is our largest investment in infrastructure here in Australia in many years, and this signifies how vital this facility is for our current and future business."

Liebherr's developments in zero emission technology, and the projects we are working on with industry partners and customers, are progressing every day and will deliver tangible solutions for the wider industry well before 2030," Wehr said.

"The team at Liebherr-Australia is making important contributions to the decarbonisation of the mining industry, and we're committed to resourcing this momentous work

for both our long term success and the benefit of the whole industry."

Accelerated zero emission mining development

The newly acquired office and workshop buildings will form the central hub for Liebherr's mining zero emission, autonomy, and other technology development and implementation projects in Australia.

The workshop and additional hardstand areas will facilitate these development projects, as well as new equipment builds for the growing number of machine orders in Western Australia. The additional office space will house the growing teams working on these industry-leading projects.

Liebherr-Australia's Regional Manager WA, Paul Hyam, says the company's decarbonisation and technology focus has ramped up quickly over the past year. "We're building a really critical team here in Perth to support new technology development, which will employ everyone from engineers to on-site technicians," said Hyam. "We're excited to be bringing across some of our best inter-

national talent, as well as recruiting talent locally, and upskilling our own workforce over the next 12 months. We currently have around 200 permanent employees here in Perth and we forecast an increase steadily over the next few years."

This expansion will have significant impact on the Liebherr Mining business both locally and globally, Hyam continued: "It's exciting to have the forefront of this technology development and deployment right here in our backyard."

Across the business there's a feeling of excitement that we're making real progress. Announcements like this facility expansion really show our employees, customers, and our wider network that we're on the cusp of meaningful change."

Alongside this expansion, the Perth complex will continue to be the main mining facility for all services in Western Australia, and support its satellite network of branches in the state's regional mining hubs including Newman and the recently established branch in Kalgoorlie. **AMR**



CPC Engineering chief executive Glen Weir.

First Nation Engineering charts new course for Indigenous business

First Nation Engineering (FNE) is a joint venture between Carey Group, Australia's leader Aboriginal commercial enterprise, and CPC Engineering, a mining and infrastructure services provider of more than 50 years.

CPC Engineering chief executive Glen Weir says both companies have collaborated on several projects over many years and there is substantial trust between himself and Carey founder Daniel Tucker AM.

"Daniel and I have forged separate but similar careers in the contracting industry, but we are both committed to bringing positive, measurable change to the communities in which we live and work," Mr Weir said.

"We see First Nation Engineering as an opportunity to build something quite significant."

"I share Daniel's passion for family and sus-

tainable business. First Nation Engineering is a way of fulfilling CPC's commitment to provide employment opportunities for Indigenous people to help them to achieve their potential."

"There are a number of Indigenous companies providing engineering services in the resource, energy, infrastructure and agriculture sectors but none can boast more than 75 years of experience and the range of services that FNE can provide across mining, engineering design, construction and maintenance."

"FNE will provide access to the combined services, experience and skills of CPC and Carey in the one company that does not exist anywhere else."

Mr Tucker says First Nation Engineering is Supply Nation certified and combines the strengths of both companies.

"The core focus of FNE is to deliver exceptional services to our partners while embracing the Aboriginal Supply Chain and driving powerful social and economic outcomes relating to Indigenous education, health, culture and community safety," he said.

"My vision has always been to create sustainable business opportunities to share the wealth of the land with Aboriginal people, elevating Aboriginal businesses and creating further opportunities for Aboriginal people in mining."

"Clients of FNE can drive social value and deliver measurable ESG outcomes and support various foundations in Indigenous education, health, culture and community safety."

"Employees will work with equality in an environment that is culturally inclusive and respectful and are offered career development pathways to achieve their full potential."

Carey and CPC Engineering have serviced major companies including CBH, BHP, Anglo Gold Ashanti, Rio Tinto, FMG, Northern Star, Woodside and the WA Water Corporation. First Nation Engineering is currently pursuing several tenders to win its first contract.

AMR

CMI Launch New 11kV Coupler Range for Above Ground Mining

< 11kV COBRA Coupler

CMI Electrical Products have been established in Sydney since 1954. Operating primarily as a cable manufacturer under the well-known brand names of Hartland, Aflex and XLPE cables.

CMI are also experts in the field of Explosion Protection techniques for mining. As a market leader, the Minto Industrial Products brand is synonymous within the Mining Industry in Australia. Particularly within the underground coupler and receptacle market.

Minto Industrial Products have been supplying couplers for underground mining in Australia for over 40 years.

Recently our reputation has become a global

one, with exports to mining installations in Indonesia, Papua New Guinea, China, South Africa and Mongolia. Minto, known for supplying mining installations around the world with their restrained plugs, couplers, receptacles & bolted adaptors, have now launched a new product range of an 800A, 11kV couplers specifically designed for above ground mining, tunnel and roadway applications.

The product is known as the 11kV COBRA.

This new range of bolted couplers specifically designed for use in above ground mining and road tunnelling projects is easy to use and designed to perform for long periods between maintenance cycles. The 11kV COBRA product can extend service life of

couplers with the use of innovative design features and materials.

Below is a summary of some of the key features for the Minto 800A, 11kV COBRA coupler:

- Fully rated for a continuous operation 11kV @ 800A
- Modiewark No Contact - Voltage Test compatible windows, one on each phase
- Teflon Insulators
- Silver plated high purity copper current path elements
- Lower heat losses for longer service life
- Removable Stainless-Steel faceplate, which can be easily replaced
- Choice of small or large cable gland
- Easily opened for inspection and

re-termination

- 3 filing apertures for ease of compound filling (if required)
- Small and Large Gland body to suit cable type and size
- Choice of Rubber Cable or Steel Wire Armoured cable glands
- Unique gland design offering ease of use and additional cable support
- Custom designed ergonomic handles for lifting and handling

For more information on this product, you can get in touch with CMI on **1800 264 222**, or go to their website at www.cmielectrical.com.au

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(03) 9532 1233
3 Dissik Street,
Cheltenham VIC 3192
vic-sales@cmielectrical.com.au

CMI Head Office NSW
(02) 9807 6155
18-20 Railway Road,
Meadowbank NSW 2114
nswsales@cmielectrical.com.au

CMI QLD-Rockhampton
(07) 4921 0978
Shop 3 at 76 Hollingsworth Street,
North Rockhampton Qld 4701
northqldsales@cmielectrical.com.au

CMI WA
(08) 9358 1788
36 Division Street,
Welshpool WA 6106
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RUFFLING FEATHERS

THE CANARY IN THE COAL MINE IS NOW A DROID

A Queensland based robotics company is redefining mine safety standards with its droids in the same way canaries helped miners evade dangerous gases in mines more than a century ago.

Brisbane-based Australian Droid and Robot (ADR) is building robots that can detect toxic gases, perform deep underground mining inspections, remote inspection of inaccessible areas through specially designed ground and aerial robots.

ADR AI and Perception Manager Mat Allan said the robots were lifting mine safety standards.

"While the practice of sending miners underground with a canary to check the sensitivity of gases has been stopped, the practice of sending miners into the mine with gas detectors is still being carried out," Mr Allan said.

"We are still putting lives and the health of workers at risk through this practice which can easily be reversed by sending robots without exposing people to that danger."

ADR believe they are one of the first companies to provide a fit-for-purpose tool for mining companies to use in its day-to-day operations enabling the safe re-entry into a mine after blasting.

Historically, miners would go underground with a canary because of its sensitivity to toxic gases like carbon monoxide that would otherwise be dangerous for humans.

If the bird stopped chirping, the miners knew they had to evacuate. Canaries were used in mines until the 1980s when British legislation outlawed the practice and ordered miners to replace canaries with electronic carbon monoxide sensors.

ADR, which started in 2013, specialises in robotics, drones, and automation to deliver safe, cost-effective, and reliable solutions for sectors including defence, mining and emergency services.

ADR's Explora XL Robot, a rugged portable robotic platform, can support data collection in dangerous or hazardous environments where human entry is not possible or practical.

Weighing just 23kg, the Explora XL is integrated with a 3D mapping system, multi-gas detector (up to six gases), thermal cameras, lighting systems, ventilation monitoring equipment, and various other tools.

Mr Allan said gas detecting robots could also assist mines with greater efficiencies such as enabling a quicker and safer return to productive mining operations.

"Blasting results in large quantities of gases being released that displace oxygen, which can release toxic fumes causing serious breathing difficulties and other health issues.

To re-enter these areas, trained people with a gas detector progressively attempt to enter the affected areas. If gas concentrations are too high, they retreat. This process may take an hour, or sometimes a full shift, to complete," he said.

"However now with the development of our robots we can allow the re-entry inspection task to be conducted sooner, after a blast and without the significant risk to operation personnel, whilst also providing critical oper-

ational information for the mining team to plan the next stage of work in that area."

About Australian Droid and Robot

Australian Droid and Robot (ADR) deliver cutting-edge technology to companies right across Australia. Taking the world's best technology and innovation and adapting and modifying it to meet the needs of Australian companies and Government agencies, ADR is changing the way businesses operate. ADR supplies a range of products and services including:

- Industrial Robotics and Automation;
- Drone and Robot Services; and
- Custom Robot Solutions.

Currently focussed on the Defence, Mining and Emergency Services sectors, ADR's experience and expertise are bringing global best practice to deliver safer, more cost-effective and more reliable solutions.

For more information about ADR head to <https://www.australiandroid.com.au>

AMR



Local Manufacturer Revolutionising Drilling Rig Design

Emerging Perth drill rig manufacturer, Geomagnetic Design has announced results from field trials on its specialty, patented RC and diamond GM1 drill rig.

Now in advanced stages of research and development (R&D), field testing in Western Australia's Pilbara Region have confirmed the drill rig's ability to halve the carbon footprint of traditional exploration drilling programmes, with exceptional operational and environmental outcomes.

Of note, the GM1's performance in exploration drilling programs at 6 separate sites across the state showed a significant reduction in fuel consumption of up to 400l per 11-hour shift at RC configurations, and 60l per 11-hour shift at diamond configurations, as well as reducing ambient noise emissions.

The GM1 can also commence drilling in Reverse Circulation mode, and change to diamond coring within three hours, substan-

tially less than current market changeover configurations, which typically take between one to three days.

"Drillers are facing growing scrutiny and pressure from governments, investors and communities to exceed environmental considerations in their program design," Geomagnetic Design Founder and General Manager, Darren Papst, said.

"We made it our business to address a multitude of performance factors that have never been achieved in one drill rig. Once our R&D is complete later this year, our solution will be the first of its kind, an 'all in one' RC and diamond rig that delivers reduced fuel consumption, carbon output and noise emissions all while covering more ground, with less holes and less metres."

Designed and manufactured at the company's headquarters in Perth, the patented blueprint for the GM1 utilises a hydraulic

system, enabling the rig to operate with a drastically reduced carbon output (from 59kg per hour down to 29kg per hour) whilst still retaining the same operational capacity as competitor rigs.

As well as halving carbon emissions, the physical machine footprint is notably smaller than other drill rigs – measuring just 2.5mx3m. The GM1 rig requires support from only one air truck, where competitor rigs are normally accompanied by two to three large trucks.

Unique to the GM1 drill rig is its ability to conduct shallow angle Reverse Circulation (RC) Drilling on two axis'. This capability has been addressed during R&D and if successful in future trials, will provide a cheaper form of drilling that allows clients to cover more ground with less holes and less metres.

The concept of a magnetically driven drill rig

has been a long-time plan of Papst's. Founding Geomagnetic Design in February 2021, Mr Papst didn't waste any time from kicking off the process to licensing a fully-fledged rig the same month.

"I began ideating the GM1 drill rig years ago when I noticed a gap in the market between having a superior-functioning rig versus having a sustainable, environmentally designed rig.

"This current drill rig that we aim to go to market with has phenomenal fuel efficiencies, but we don't plan on stopping there. Phase two of our engineering process will involve removing the need for diesel altogether with the use of a magnetic drive in its place," Mr Papst said.

If the project continues to move at the expected timeline, Geomagnetic Design's GM1 rig could be commercially available as soon as December 2022. **AMR**



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FLEET SPACE EARTH SCANNING TECH SUCCESSFULLY TRIALLED AT AUSTRALIAN LITHIUM PROJECT



Fleet Space Technologies has successfully completed a trial using its proprietary Ambient Noise Tomography (ANT) technology to faster and non-invasively find critical lithium deposits.

The trial was commissioned by Australia's newest lithium miner, Core Lithium, at its Finiss Project in Australia's Northern Territory. This is in line with its mission to provide the globe with high-grade lithium suitable to power electric vehicles and renewable energy storage.

Core Lithium described the results of the trial as “an outstanding success”, noting an excellent correlation with the pegmatite body interpreted from drilling to depths in excess of 500m and stating that a number of previously unknown targets have emerged – a major boost for exploration.

Core Lithium's Finiss Project will be Australia's newest lithium producer on the ASX Australian Securities Exchange, with first production targeted for Q4 2022. As one

of Australia's most capital efficient lithium projects, it has been awarded Major Project Status by the Australian Federal Government.

Opportunity To Revolutionise Exploration

Fleet's ExoSphere technology has been created to answer the urgent global requirement to find a dramatically more sustainable, economically viable and faster route to finding critical mineral deposits. Since introducing ExoSphere technology to the market in Q1 2022, Fleet has been engaged by the world's leading exploration companies.

In completing these successful field trials, ExoSphere has emphatically proven its viability to support the discovery of the more than \$13trillion in additional energy transition minerals. This figure is stated by the International Monetary Fund (IMF) as required to meet global net zero targets to enable the transition of vehicles to clean-air powertrains.

ExoSphere is Fleet's pioneering exploration technology. It delivers detailed subsurface 3D mapping using an array of Geodes. These devices are so portable and lightweight they can be transported and placed by hand. The geodes use edge computing to analyse ambient seismic noise which is sent by Fleet's network of small satellites for processing. The data is rapidly processed in the cloud to deliver a 3D visualisation of the area to support critical exploration decisions.

This makes searching for key energy transition minerals faster, more sustainable, less expensive and more accurate.

The proposal between Fleet Space and Core Lithium outlined the subscription options for ExoSphere by Fleet. ExoSphere is a pioneering exploration technology that delivers detailed subsurface 3D velocity mapping using an array of Geodes, Fleet's satellite-connected seismic sensors. The subscription included the rental of the Geodes (satellite-enabled Geophones), planning support, deployment support, and the real-time pro-

cessing and delivery of any 3D shear velocity models.

“By harnessing the power of Fleet's ExoSphere technology, we are able to scan the earth in greater depth and detail than ever before.

This cleaner, faster and more flexible approach to exploration answers the urgent global requirement to find more than \$13 trillion in critical earth transition minerals. ExoSphere is supporting the world's transition to more sustainable practices by speeding up vital mineral discoveries more than one hundred-fold.

We are proud to enable this critical step in mining to provide better access to the resources we need to make a better future for humanity,” Matt Pearson, Co-Founder, Fleet Space Technologies, said.

For more information head to <https://fleetspace.com/>
AMR

Digging Deeper into Cybersecurity Issues in Australian Mining

Article by Scott Leach, VP of APJ at cybersecurity firm Varonis

Mining companies are high-stakes targets for cybercriminals and state-sponsored attackers. Successful attacks can bring operations to a standstill and involve costly and time-consuming recovery efforts. Despite the potential to cause widescale disruption, several signs indicate that although mining companies are concerned, they are underprepared for a potential attack.

In late 2021, KPMG surveyed 23 of North America's largest mining corporations that operate more than 100 mine sites and have a combined market capitalisation above 185 billion USD. Respondents identified ransomware as the biggest cybersecurity threat to their organisation, followed by activists/hacktivists and disgruntled insiders.

The world's leading mining companies unanimously agreed that cyber threats were among the principal risks facing their organisations, according to research by Marsh. Fast-forward a few years, and pandemic-induced remote working has caused mining companies to rapidly invest in new technology, which can potentially create an even higher level of cyber risk.

As the industry embraces digital transformation, mining companies are increasing interconnectivity and accessibility among systems and data sources. Many are turning to cloud services to support this evolution. These advances make businesses more efficient and adaptable — but also increase a company's attack surface.

This research should be a wake-up call to Australian mining companies. The severe

economic and potentially geopolitical consequences of a cyberattack warrant serious attention and intervention.

Why is the mining sector a target?

Bad actors target mining companies to steal and encrypt highly confidential and sensitive. Data can include valuable intellectual property and sensitive information, such as details on exclusive sales and mergers. If attackers steal a mining company's intellectual property, the company may lose its competitive advantage and revenue. If data is encrypted and held for ransom, unprepared companies are more likely to give in to attackers' demands to keep cybercriminals from exposing sensitive data.

Mining corporations also rely heavily on a network of third-party suppliers and contractors, significantly widening their attack surface. Each of these suppliers could provide a backdoor into the corporate network, which attackers can use to gain access to sensitive information. It only takes one supplier in the network with poor security practices to give bad actors access to a wealth of information.

As mining companies increasingly rely on autonomous technology to manage critical systems, attackers can cause major disruption with potentially dangerous consequences.

For example, an attacker who gains access to the corporate network may not only be looking to steal sensitive data but may also try to meddle with critical safety systems, pipeline controls, and automated machinery — creating a massive safety risk. With such

a high potential to cause disruption, it's critical that attackers cannot gain a foothold in the environment.

Mining organisations can take these proactive steps to help maintain the upper hand:

1. Understand where your most critical information is located.

While all data should be protected, organisations should focus initially on what might be considered the most sensitive data. However, you can't protect sensitive data unless you know exactly where it resides. This could be on-premises or in the cloud, or a hybrid combination of the two, and across numerous locations. Using technology, organisations can automatically identify and secure files that contain sensitive information.

2. Employ a policy of least privilege.

Once mining corporations identify their sensitive data, they must ensure that only those whose jobs require access are able to view the data. This is referred to as “least privilege.” Giving users access to data that is not essential for their jobs constitutes a security risk and can lead to sensitive information falling into the wrong hands. By employing a policy of least privilege, organisations can limit sensitive data exposure and make it more challenging for hackers to access.

3. Constantly monitor data access attempts.

If mining corporations cannot answer “yes” to the following questions, their data is at risk: Do you know who has access to your data? Do you know when and where they are accessing this data? Do you know exactly what they are doing with the data?

Unless IT staff can reliably answer all these questions and ensure only the right people have access, it's very difficult to spot any misuse or abnormal activity. It is also impossible for humans to keep track of such a large volume of activity on the network, which is where automated security assists by monitoring the network in real-time and notifying of abnormal activity that may indicate active cybersecurity threats from internal or external sources.

4. Test your blast radius and your defences.

Mining corporations should regularly test their defences to find out how easy or difficult it is for unauthorized users to access sensitive data. Start by picking a mid-level employee and looking at all the data that an attacker could steal if this employee's account were compromised — consider this your blast radius.

The next step is to remove unnecessary access to sensitive data. A significantly reduced blast radius makes it far more difficult for hackers to get what they want, in turn making mining corporations better protected and less vulnerable.

The takeaway:

It's almost inevitable that a cyberattack will target your organisation. But you can control the amount of damage if the attacker gains entry.

By understanding your data, following the least-privilege model, and reducing your blast radius, you can lock down your sensitive data and make sure your attackers leave empty-handed. **AMR**

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BOWEN

PROCESSES FIRST BROADMEADOW EAST COAL

Bowen Coking Coal Ltd recently processed first coal from its Broadmeadow East mine near Moranbah whilst shipping a second vessel of approximately 40,000 tonnes of ultra-low volatile pulverised coal injection (ULVPCI) coal from its Bluff Mine near Blackwater.

The successful operation has cemented the company as Queensland's next independent metallurgical coal producer.

Broadmeadow East Pit

Mining at Broadmeadow East, the first pit in the enlarged Burton Complex which also includes the nearby Lenton and Burton pits, has gained momentum with more than 100 000 tonnes of run of mine (ROM) coal mined to date and further coal uncovered in the pit.

Initial coal haulage to Fitzroy's nearby Carborough Downs mine Coal Handling and Processing Plant (CHPP) has been slower than anticipated but is expected to ramp up during September as the haulage contractor mobilises more equipment.

First coal has been processed over the weekend and sample analysis is underway for statutory export permits to pave the way for first coal sales in coming weeks.

Refurbishment work at the Burton CHPP and Train Load Out facility (TLO) is underway.

A fast tracked, phased recommissioning of the TLO is planned to start from early next quarter, opening the potential for additional

bypass thermal coal sales while the CHPP is recommissioned.

The refurbished CHPP is expected to wash first coal from Broadmeadow East in the first quarter of 2023. In the interim the company will utilise the Fitzroy CHPP and potentially other third party infrastructure to process and ship coal until such time as the Burton CHPP and TLO are ready to do so.

Some 200 rooms of the 350 plus person camp have now been fully refurbished and are being utilised by the mining contractor and infrastructure refurbishment crew.

Bluff Mine

The additional 400t excavator mobilised at Bluff Mine is performing well and is assisting in accelerating overburden removal to achieve an ongoing Run-of-Mine (ROM) target of 80,000t to 100,000t per month early in the next quarter, representing an annualised production rate of between 1Mtpa and 1.2Mtpa ROM1 over four to six years to supply the global steel industry.

Unseasonal wet weather required additional surface water management actions and COVID impacts on the mining and haulage workforce had some impact on short-term production.

"The second shipment of 40,000t of high quality ULVPCI from Bluff has now sailed to a Tier 1 North Asian steel mill," Bowen Managing Director and CEO, Gerhard Redelinghuys, said.

"In the face of a very tight labour market and some weather delays our team has performed well and production for the remainder of 2022 is fully committed to first class Asian steelmakers.

"Mining at Broadmeadow East is going extremely well after a rapid start up and in spite of similar staffing and weather challenges.

Transforming the site from a padlock to mine our first 100,000 tonnes within three months of mobilisation reflects a stellar

effort by the entire team. Access to our own Burton CHPP and TLO is central to our plans and we are focusing a lot of our effort and resources on fast tracking the refurbishment process to support steady state production from Broadmeadow East as the first pit in the larger Burton complex."

Coal from Broadmeadow East is planned to be initially processed at the neighboring Fitzroy CHPP under an infrastructure sharing agreement with Fitzroy (CQ) Pty Ltd and exported through the Dalrymple Bay Coal Terminal.

As the first producing pit of Bowen's expanded Burton Complex, which includes the Burton and Lenton Pits, 20km to the north, Broadmeadow East coal will be processed through the Burton CHPP following the completion of its refurbishment in early 2023.

After final approvals for the project were granted in March this year, Bowen announced the appointment of BUMA Australia Pty Ltd as mining contractor in May.

The coal at Broadmeadow East has the flexibility to produce a primary coking coal product of either high quality (7.5% ash, up to CSN 7.5) or high yield (9.2% ash, CSN 4.5). In both of the primary product cases, the secondary energy coal created from the primary coking coal discard has a calorific value of more than 6,500kcal/kg (ad) which is also a sought-after product for the export coal markets. **AMR**



Bringing You a Total Solution

Total Data Centre Services is modernising the mineral resources sector with their cutting-edge technology infrastructure deployments.

With offices in Queensland and Western Australia, the turnkey provider specialises in the design, installation, commissioning, and maintenance of critical assets, allowing operators to expand and enhance their resource projects.

Their comprehensive auditing service is very popular, with TotalDC teams providing detailed reports into system and data centre weaknesses and then providing solutions.

Performed by highly experienced technicians, the in-depth audits give clients an infrastructure deep dive, with enough information to identify and remove any points of failure.

Clients particularly appreciated the thorough overview of system health, enabling operators to engage in proactive rectifica-

tion activities.

A TotalDC spokesman said their highly trained staff also keep critical secure power and cooling infrastructure in good condition through exhaustive preventative maintenance.

“One of our primary goals is to ensure your critical infrastructure is environmentally maintained at optimal conditions,” the spokesman said.

“But we do more than just maintenance.

“A very important component of a data centre and often the most overlooked is a well designed and installed inter-rack structured cabling system. This can save time, money and prevent air flow restrictions from bad cabling and patching practises.

“Total Data Centre Services have the expertise to design, supply and install your copper and fibre requirements.

“We’re a full-service company and operators can rely on us from the design phase onwards and throughout an operation’s lifetime.”

Drawing on their team’s extensive knowledge of industry and complex IT data centres, TotalDC have repeatedly booked mining operators significant cost and downtime savings.

The company is currently offering complimentary infrastructure reviews for potential clients that are experiencing reliability issues, want to upgrade their server room or are simply looking to modernise.

The no-cost one hour inspection will come with a high level overview of the existing infrastructure and areas for improvement.

For more information,
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The Gruyere Gold Mine, located approximately 1,200 kilometres north-east of Perth in Western Australia's north-eastern Goldfields, is a 50:50 joint venture between Gold Road and Gruyere Mining Company Pty Ltd, a member of Gold Fields Ltd and the manager of operations.

Mining and processing operations at Gruyere run 24 hours a day, with personnel working 12-hour shifts. Gruyere has a total workforce of approximately 496 personnel, who commute via jet aircraft from Perth with a flight time of approximately 90 minutes.

Gruyere has a number of personnel that commute from the local communities – Laverton and Cosmo Newberry – approximately 200 kilometres from the mine. A regular bus service drives local community employees to and from the mine, a trip that takes approximately 2 hours each way.

Gruyere has been producing gold for over 2.5 years and has produced 603,832 ounces (100% basis) since gold was first poured (30 June 2019) to 31 December 2021. The 2021 Ore Reserve update sees Gruyere's mine life extending to at least 2032.

Initial Discovery

The Gruyere Gold Mine was discovered by Gold Road in October 2013 on the South Dorothy Hills Trend, 25 kilometres north-east of the company's original Yamarna Belt discovery, Central Bore.

Within 10 months of Gruyere's discovery, Gold Road had defined a significant high-grade gold deposit and announced a maiden JORC 2012 Mineral Resource of 96.93 mil-

GRUYERE

FOLLOWS A GOLDEN ROAD FROM DISCOVERY TO PRODUCTION

lion tonnes grading 1.23 grams of gold per tonne for 3.8 million ounces of contained gold.

The Gruyere Open Pit Mineral Resource has since grown to 153 million tonnes grading 1.33 grams per tonne for 6.51 million ounces of contained gold, making it one of the largest virgin gold discoveries in Australia.

After completing positive Feasibility Studies on Gruyere, Gold Road announced in November 2016 it would sell 50% of the Project to leading international gold producer Gold Fields Ltd for A\$350 million in cash plus a 1.5% Net Smelter Return royalty on production over 2 million ounces.

The transaction fully funded Gold Road for its 50% share of development capital de-risking the Project through the introduction of a partner highly experienced in the development and operation of open-pit gold mines.

Under the Joint Venture Agreement, Gold

Fields were appointed the manager to develop and operate Gruyere Gold Road retained responsibility for exploration on the Joint Venture tenements.

Construction of the Project which commenced in 2017 was completed in 2019 with first gold delivered in the June 2019 quarter.

Production on the rise

Gruyere produced a record 85,6761 ounces of gold (100% basis) at an AISC of A\$1,250 per attributable ounce during the June 2022 quarter (March quarter: 71,135 ounces at an AISC of A\$1,526 per attributable ounce).

The increased production quarter on quarter was the result of record high head grades, as well as record high quarterly processing throughput.

Gruyere remains on target for 2022 Annual Production Guidance of 300,000 – 340,000 ounces (150,000 – 170,000 ounces attributable) at an attributable AISC of between A\$1,270 – A\$1,470 per ounce.

Gruyere (100% basis) Mining Total material movement was 9.4 Mt, with mining and waste movement continuing from the Stage 2, Stage 3 and Stage 4 pits.

Ore mining totalled 2.7 Mt during the quarter. Mined grades lifted quarter-on-quarter to a record average grade of 1.19 g/t Au as mining advanced through higher grade zones in the deeper sections of the Stage 2 pit, along with the mining of higher grade oxide and fresh ore from the Stage 3 pit.

At the end of the quarter, ore stockpiles increased to 5.9 Mt at 0.74 g/t Au (March quarter: 5.7 Mt at 0.73 g/t Au).

Mining continued at a rate higher than required to deliver ore to the process plant to mitigate ore supply risks in 2022 associated with the current tight labour market and COVID-19 related impacts on the workforce.

Processing

Total ore processed during the quarter was a record 2.4 Mt at a record head grade of 1.22 g/t Au, and a gold recovery of 91.3% for a record 85,676 ounces of gold produced. Head grade was higher quarter on quarter in line with expectations for 2022.

The record quarterly production performance was as expected and is largely due to improving head grades and a quarter-on-quarter improvement in plant utilisation owing to reduced scheduled and unscheduled maintenance downtime.

The production result follows a progressive quarterly increase in ounces and head grade over the past 12 months. **AMR**



GETTING IT DONE WITH GEKKO



Gekko is boosting the bottom line of Australian mine sites with gravity technology and technical services – a product mix purposefully designed to help operators get the most out of their projects.

Founded in 1995, the Victorian company strengthens the mineral resources sector with an range of proven and world-first tech solutions, including the innovative and world first OLGA – a pioneering onstream analyser.

The OLGA is designed to continuously read low grade gold grades in slurries and solutions, significantly bettering traditional sampling methods which can take roughly one or two days to provide operators with feedback.

Gekko Sales and Operations Manager Tim Bell said the OLGA was recently installed at Gruyere Gold Mine, a project in Western Australia's north-eastern Goldfields.

He said it went hand in hand with Carbon Scout, another highly sought after productivity solution.

"The Carbon Scout is a self-contained, ground-level sampling system designed to improve the overall carbon management process," Mr Bell said.

"It has unparalleled accuracy and uniquely has multiple data points, including slurry density, pH, DO and gold loading on carbon optionality.

"Data profiles are provided in every tank, every hour.

"The combination of OLGA and Carbon Scout, supported by the Gekko Sample Delivery System means all CIL/CIP sampling can be done conveniently and safely at ground level.

"Each tank is sampled by a pumpless delivery system.

"All samples can be delivered through it, potentially alleviating the need for expensive cross cut samples.

"The Gekko OLGA and Carbon Scout will revolutionise the industry's ability to measure gold circuit inventory and recovery in real time, move it into the digital world and provide opportunity for full automation."

Mr Bell said the OLGA and Carbon Scout installation at Gruyere was a milestone moment in the company's METS Ignited project, an exciting collaboration between Gekko, Gold Fields, Orway IQ, CSIRO and Curtin University.

He said product innovation was a core Gekko practice, as well as keeping staff ahead of the curve when it came to industry needs and trends.

The company's highly experienced team offer comprehensive technical consulting, which provides operators with a deeper un-

derstanding of how they can introduce or optimise mineral recovery processes.

Once a solution is deployed, Gekko provides in-depth product know how, including operational and safety advice as well as ongoing maintenance support.

Mr Bell said clients also had access to an exclusive Gekko service centre.

"We want to provide people the whole package when they engage with us.

"We're in the business of rapid problem-solving and professional care.

"Our specialist services are supported by our globally renowned expertise and knowledge in energy efficient gravity techniques.

"Give us a ring and find out how we can help you." **AMR**

ONLINE GOLD ANALYSER (OLGA)

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TAHMOOR SOUTH

MOVE MAKING SMOOTH PROGRESS



SIMEC Mining is making strong progress with its growth plans at the Tahmoor Colliery in NSW as it continues to transfer the mining focus from Tahmoor North to Tahmoor South.

The Australian Mining Review recently caught up with Peter Vale, SIMEC Mining Executive General Manager Coal Operations, to gain an update on activities that are occurring at Tahmoor.

"We are making good progress with our plans to complete mining in Tahmoor North. At the same time, we have commenced moving our equipment across to Tahmoor South," Mr Vale said.

"We have now moved all of our gas drainage and development equipment across to Tahmoor South and have been working in Tahmoor South for some time.

"In September, and then into October this year, we will be moving a lot more equipment across to Tahmoor South, then recovering what we think is recoverable out of Tahmoor North prior to sealing it off. What that does for us is provide a really simplified underground operation.

"Moving out of Tahmoor North and sealing that area off will provide us with a really simplified mine design with new equipment installed into Tahmoor South, allowing us to take the mine forward into the future."

Mr Vale said other activities being undertak-

en to smooth the development of Tahmoor South includes rehabilitation work on some existing roadways and the installation of the conveyors that are required to support mining in Tahmoor South.

"We have commenced gas drainage, which reduces the gas levels in the coal seam to safe levels and then we have commenced driving the development roadways for the first longwall, which we have almost completed. That work has been going on now for well over a year.

"The final piece in the puzzle is taking the longwall and starting that first Tahmoor South longwall in October this year."

The transfer of mining activities to Tahmoor South will mean the operations can continue to around 2032 and Mr Vale says it has all gone to plan.

"Moving the longwall from Tahmoor North to Tahmoor South is a little bit longer than your average level of move as it requires around 15 kilometres of underground travel. Logistically, it is a little bit more distance than usual, but it is the same equipment, we are unpacking it the same way, putting it together the same way in Tahmoor South as we have done in Tahmoor North for the last 20 years."

As part of the move, the company is introducing a number of new initiatives to help reduce the operations environmental impact.



"There are a few things that we have been working on. We are putting in place a new waste water treatment plant using reverse osmosis technology, which will treat the water that is produced by the mining operation to a point where it would actually be suitable as drinking water.

"We will be reusing that through the mine, which will reduce, or even eliminate, the need for us to use Sydney catchment water from that point forward.

"It will also mean the water discharged from the site through our licensed discharge point is further improved. That's a major step forward.

"We have recently constructed a new sewage treatment plant, which supports the waste water treatment plant. We are undertaking noise mitigation activities at the site and just recently we finished an upgrade of the road and the entrance to the site.

This was completed in collaboration with Wollondilly Shire Council and the final result is fantastic."

The ability to continue operations at Tahmoor will be a major boost to the local economy, with over 400 people, many of whom are local, to be kept in employment.
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SIMEC'S SUCCESS STORY AT TAHMOOR COLLIERY

All the latest news on the expansion at the site, which extends operations until around 2032.

Situated in the Southern Coalfields of New South Wales, SIMEC mines high quality metallurgical coal at its Tahmoor Colliery, which is widely used by domestic and international steelmakers in the production of essential materials for a range of industries.

In April 2021, SIMEC received conditional approval from the New South Wales Independent Planning Commission to mine the Tahmoor South Central Domain.

It then received federal approval under the Environmental Protection and Biodiversity Conservation (EPBC) Act for the Tahmoor South Domain.

The approval enables SIMEC to extract up to 4Mtpa of ROM coal and 33Mt of ROM coal in total over the next 10 years mine life, making this transition the most significant piece of work since mining moved from Tahmoor to Tahmoor North 25 years ago.

As mining nears completion in the Western Domain of Tahmoor North, work has been under way over the past 12 months to prepare the Tahmoor South Central Domain and ensure a seamless transition.

Mining will commence on Tahmoor South in the second half of 2022.

SIMEC is a member of GFG Alliance, which has an ambition to become carbon neutral by 2030 and is actively working to change the way steel is made globally by manufacturing GREENSTEEL using hydrogen as a replacement for coking coal.

However, this cannot happen overnight, and the ongoing mining of metallurgical coal in

the Tahmoor South Domain will ensure continued supply to the local and global steel-making industries while GFG continues to invest in the future.

Central to this investment is the long-term transformation of the integrated Whyalla steelworks, which will see it become a leader in the production of GREEN-STEEL using magnetite sourced from our mines in the Middle Back Ranges and renewable energy from our Cultana Solar Farm.

Current mine performance and future forecasts

The mine has enjoyed a successful FY22 on the back of strong coal prices, a targeted continuous improvement program and ongoing investment in our operations.

Monthly production records have been achieved throughout the year and we are well positioned to continue this growth as operations transition to the Tahmoor South Domain where we will mine for the next 10 years.

Some of the unique environmental projects being conducted onsite

The mine has a number of existing projects and more in development as we continue to work to reduce emissions.

For some years, we have had processes in place to capture gases produced by the mine, which are then used to generate electricity on-site.

The remainder of the gas captured is flared through the mine's flaring plant, which has been operational since 2012, to reduce emissions.

Notwithstanding delays caused by COVID and supply chain issues, development work continues on our water treatment plant, which will improve the quality of water produced during mining.

The plant will use Reverse Osmosis technology to improve quality of water discharged in line with ANZECC Guidelines.

Water quality will also be improved by a recent upgrade to the mine's onsite sewage treatment plant, which treats the grey water at the site prior to treatment through the Water Treatment Plant.

We've also invested and continue to invest in noise mitigation measures, including the extension of the product stockpile to the east to push night-time works further from receptors and the installation of noise reduction engine covers and exhaust mufflers on machinery.

In line with the conditions of consent of the Tahmoor South Project and GFG Alliance's ambition of CN30, we also continue to investigate ways to further reduce emissions onsite.

The significant social and economic benefits arising from the expansion

The approval of mining in the Tahmoor South Domain secured the futures of more than 400 staff employed by the mine, will create a further 150 jobs during construction, and ensures the mine continues to support the countless local and national suppliers directly linked to the mine.

Tahmoor South is projected to contribute \$137.5m to the local economy over the next 10 years, while state economic projections

indicate a \$660m injection into the New South Wales economy.

The mine is been a proud member of the Wollondilly Shire for the past 40 years and many of its workers were born locally and have chosen to raise families in the area, attending local schools, playing for local sports teams and participating in community groups.

SIMEC contributes to a range of community initiatives; from our ongoing sponsorship of the Thirlmere Festival of Steam, Wollondilly Beach Bus and the Illuminate Festival to its affiliation with a local wildlife group and partnering in the construction of a local BMX pump track.

As part of the consent to mine the Tahmoor South Domain, SIMEC has committed \$3.4 million to upgrade the Bargo Sportsground, which is home to a number of local clubs, as well as a community hall, skate park and off leash area for companion animals.

Some of the sites valued contractors and partners and the work that they do

The mine has long-standing ties with many local suppliers who have provided services during the mining of the Tahmoor North Domains and will now provide services on the Tahmoor South operations.

This includes equipment hire, engineering services, security providers and landscape suppliers.

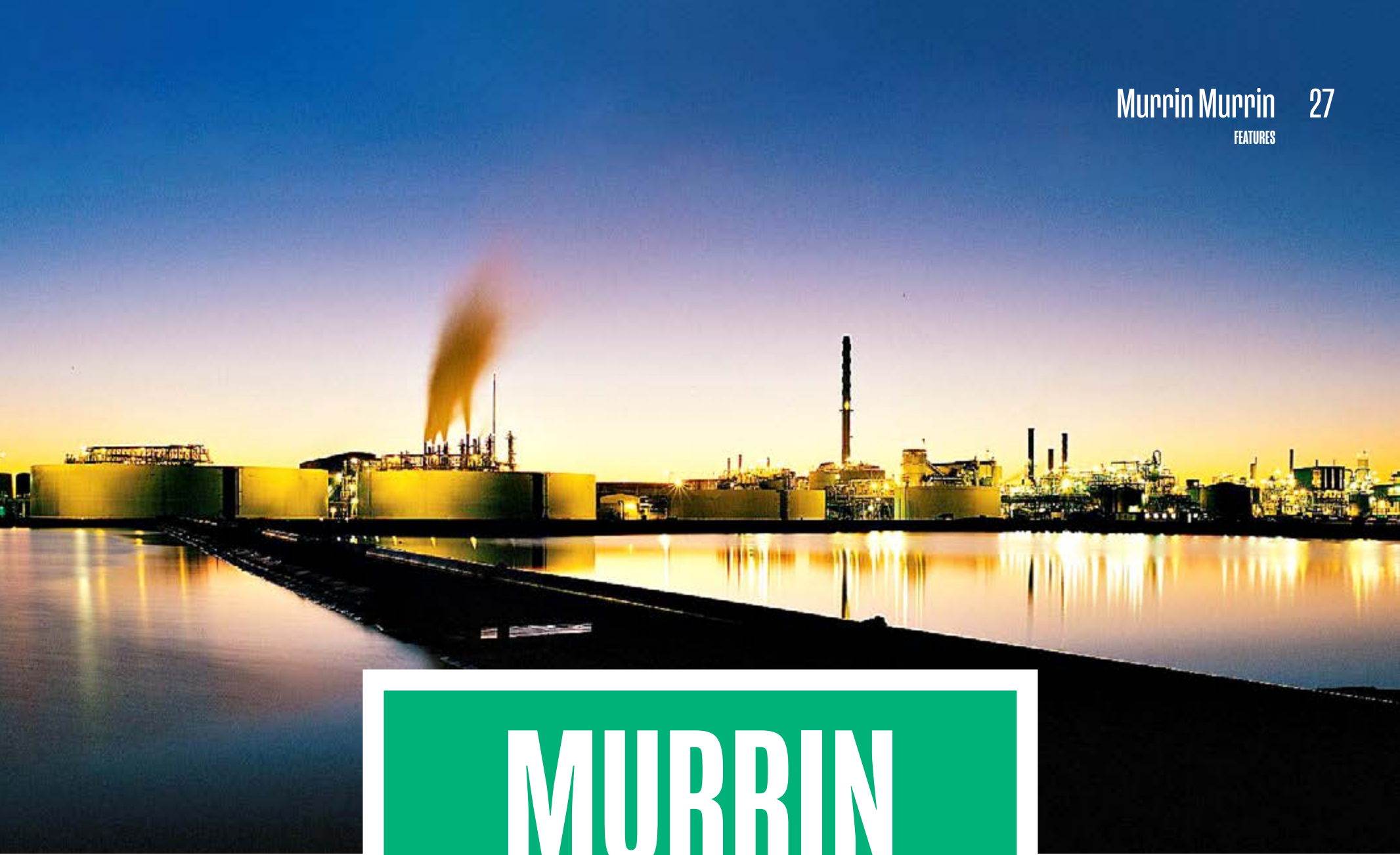
On the labour front, RStar Mining and Mastermyne are valued contract partners providing labour both on the underground development of the Tahmoor South Domain and our day-to-day operations. **AMR**

“

You saw it, and thousands of others in the mining industry have too.

BOOK your position for **2023 NOW!**

✉ handbook@australianminingreview.com.au



MURRIN MURRIN

COBALT PROVIDES GENERAL MOTORS WITH NEW POWER

Cobalt from the Murrin Murrin Nickel-Cobalt project in Western Australia is providing a key “green energy” ingredient for leading motor vehicle manufacturer General Motors.

Murrin Murrin operates Glencore and General Motors recently reached a multi-year agreement in which the Western Australian operation will supply the motoring company with key battery metal cobalt.

The cobalt processed from Murrin Murrin will be used in GM’s Ultium battery cathodes, which will power its international fleet of electric vehicles such as the Chevrolet Silverado EV, GMC HUMMER EV and Cadillac LYRIQ.

Murrin Murrin is Australia’s largest producer of cobalt, a critical metal used in electric vehicles and a wide range of everyday applications such as medical tracing, renewable energy and jet engines.

Last year Murrin Murrin employed over 1,000 people, spent more than \$500 million on goods and services from Australian suppliers and contributed \$52 million in taxes and royalties to federal and state governments.

Glencore is one of Australia’s largest producers of green metals such as cobalt, nickel, copper and zinc which will drive the global green energy transition. This is also a key part of Glencore’s ambition of achieving net zero total emissions by 2050.

The company committed to responsible supply chain management. Glencore and General Motors are members of the Re-

sponsible Minerals Initiative (RMI) and Murrin Murrin is conformant with the OECD-aligned Responsible Minerals Assurance Process.

“We are very pleased to supply General Motors with cobalt from our Murrin Murrin operation in Australia,” said Wayne Ashworth, head of Glencore’s global nickel business.

“Glencore will continue to play an important role in providing the green metals needed for the electric vehicle revolution and energy transition in the years ahead.”

Glencore is one of the world’s largest global diversified natural resource companies and a major producer and marketer of more than 60 responsibly sourced commodities that advance everyday life. The Group’s operations comprise around 150 mining and metallurgical sites and oil production assets.

Murrin Murrin is a remote, fully integrated nickel and cobalt producer located in the north-eastern Goldfields region of Western Australia.

The operation used conventional open pit mining methods to extract the nickel and cobalt ore, before processing and refining this laterite ore at our complex hydrometallurgical facility. The high-grade nickel and cobalt products are sold to customers in both the domestic and export markets.

The project’s responsibly produced nickel and cobalt briquettes meet the high standards of the London Metals Exchange and are in strong demand from consumers around the world. **AMR**



The New Hand Protection Technology Helping the Australian Mining Industry

Graphene. Have you heard of it? In simple terms, Graphene comprises a single layer (monolayer) of carbon atoms packed tightly together in a hexagonal honeycomb lattice. However, this description doesn't do justice to an extraordinary compound whose features were first characterised by two scientists at the University of Manchester in 2004.

How's this for a portfolio? Graphene has been proven to be harder than diamond and up to 300 times stronger than steel. It also happens to be as thick as just one atom, making it the thinnest compound we know.

With years of rigorous research and development, there is now Kyorene, the brand name for the synthetic yarn that incorporates graphene oxide directly into the fibre. When included in textiles and fabrics, Kyorene products are changing the way we look at protection in the workplace and providing new options for businesses and their workers.

The science of Graphene and innovative uses of Kyorene is characteristic of where safety is heading. It's driving the way forward in future product development, particularly as hand injuries are one of the leading problems faced by industry businesses today," says Brendan Ryan, Blackwoods Technical Safe-

ty Specialist.

The benefits the PROSAFE Kyorene glove range provides end users include a lightweight and strong construction designed for comfort while offering great flexibility and dexterity, and resistant to cuts and abrasions. The range also provides excellent UV protection, UPF 50+, against the harsh Australian sun.

Features

- Made with Kyorene Graphene fibre & ultra high molecular weight polyethylene provides a close fit for comfort and efficiency
- Light feather-weight 18 gauge knitted shell, designed to minimise time needed for putting on and taking off
- HCT Nitrile micro-foam palm coating provides grip in dry or slightly wet environments
- Palm coating provides performance where needed yet allows the back of hand to be unrestricted, reducing hand fatigue
- Reinforced thumb crotch for increased protection and resistance to wear
- Excellent UV protection, UPF 50+

The Prosafe Kyorene range is exclusive to Blackwoods.

Blackwoods Integrated Approach to Safety

For over 140 years, Blackwoods has been Australia's leading industrial and safety equipment provider. You'll find Blackwoods across the country on construction sites, mine sites, and on desert roads, making sure

workers are protected when it matters most. Blackwoods work with customers to understand the specific hazards they face. Drawing on the knowledge of a technical safety team, Blackwoods share the expertise needed to review, test and manage safe work practices.

Where stock is critical and time is limited, Blackwoods can provide streamlined solutions using smart technology to help you better manage inventory, reduce cost, free-up capital and improve productivity. When managing safety on worksites, knowledge is the key to prevention. The goal is to stay abreast of the latest safety standards, recommendations and technology to keep customers informed.

Blackwoods Technical Safety Specialists are experienced in a wide range of industries, from mining to construction, offering a wealth of hands-on practical knowledge and a passion for helping customers stay informed and protected.

Blackwoods global sourcing expertise and capability coupled with long-standing relationships with market leading manufactur-

ers throughout the world ensures our customers are provided with any best-practice developments and innovations in the safety space.

With fit-for-purpose product selection guidance, sourcing, delivery and post purchase support in line with applicable standards, Blackwoods has everything you need to get the job done safely. **AMR**

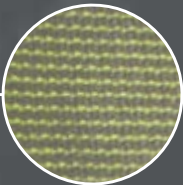


KYORENE

Exclusive to Blackwoods.

Kyorene Graphene gloves use a patented ultra thin cut resistant fibre technology designed to provide a new level of comfort and dexterity with industry leading protection at its core.

Available in various styles and cut ratings to suit a wide range of applications, Kyorene protects the wearer allowing freedom and performance.



Lightweight knitted Kyorene fibre knitted shell

Excellent UV protection, UPF 50+

Palm coatings for performance where needed, reducing hand fatigue

Reinforced thumb crotch

Feels like a second skin

Hybrid Coating Technology nitrile micro-foam coating for grip

PROSAFE
PROTECTIVE SAFETY

THE COMPLETE KYORENE RANGE





AUSTRALIA'S LEADING GROUND SUPPORT SPECIALIST

Jetcrete Oz has established itself as the first port of call for mining operators on the hunt for ground support solutions, following more than 35 years of service to the industry.

Experienced in underground and above-ground projects, the company has earned a solid reputation for high-quality work across mine tunnels, portals, shafts, drains, high walls, bulkheads and vent walls.

Over the years, the trusted provider has introduced most of the modern technologies used for shotcreting in Australian mining, such as overhead wet shotcrete, robotic shotcrete units, hydrosclaving and shotcrete thickness scanning solution.

Known as Australia's leading shotcrete provider, Jetcrete Oz has been delivering underground shotcrete and fibrecrete support for the development and rehabilitation of underground mines since 1992.

The Perth-based company is also the first and only shaft lining contractor in Australia equipped to safely operate in ER21 hazardous environments.

With a footprint around the country, Jetcrete OZ is considered a leading innovator of shaft lining solutions and has refined the remote shaft lining system, with a continuous effort in upgrading its system reducing safety risks.

The business is capable of providing a complete service for all stages of underground shotcreting - from onsite concrete products manufacture to delivery and application.

The shotcrete solutions provider is also capable of delivering surface and underground civil infrastructure works including earthworks, concrete slabs, heavy vehicle workshops and site offices.

Jetcrete Oz has extensive experience in all aspects of concrete spraying and can establish sites in remote areas in a matter of days.

It has successfully completed Shotcrete Solutions Specialists projects all over Australia, including shaft lining coal mines in Queensland.

Jetcrete Oz operates in North America and 19 mine sites across Australia, working closely with a number of mid-tier and major clients.

The company is ISO-accredited and is backed by mature and robust health, safety, environmental, and quality systems.

With 17 batch plants, 90 agitators, 59 remote concrete units and operating over 12 cable bolting plant, Jetcrete Oz can do any specialist ground support job, anywhere.

AMR

JETCRETE'S NEWEST SOLUTIONS | RESIN INJECTION & CABLE BOLTING

Resin injection and cable bolting are alternative active rock support systems in underground mining. Resin injection has become a major presence in hard rock mining and was successfully deployed for ground stabilisation at various mining projects. Resin is injected into the foundation and expands like a gel to create pressure and achieve stabilisation of rock, sand, gravel, concrete, and caved material. It has proven to be a faster and less-invasive solution than previously used methods. Meanwhile, cable bolting is an established technique and an alternative active or passive rock support system for underground mining, with the bolts dramatically improving the shear and tensile strength of the rock mass. Jetcrete Oz does the majority of its cable bolting work in major mining operations in the Eastern States and is actively pursuing more mining contracts in this field.

NATIONAL CAR MOVERS MAKE TRANSPORT SEAMLESS

Companies Gearing Up 31
INDUSTRY FOCUS

Transporting a single vehicle or an entire fleet to any corner of the country is no easy feat. Whether you're moving a car, motorcycle, 4x4, caravan or boat, dealing with multiple transport carriers and an endless number of travel routes can be a logistical nightmare.

But one Australian company is making the process easier than ever, all via a simplified online booking platform.

National Car Movers is a one-stop-shop offering a customised door-to-door delivery service all from the click of a button. From processing bookings to tracking a vehicle in transit, the company removes the headache out of transporting your prized possession.

The Australian business has cemented its position as one of the most trusted vehicle transport providers, moving over 100,000 cars during its 25 year reign.

It has established partnerships with over 30

leading Australian carriers including major car companies Prixcar, Ceva and Autocare. This has strengthened its buying power to deliver the most competitive prices on the market.

National Car Movers provide instant, accurate quotes online with a range of flexible transport options that meet specific customer requirements.

"We offer a truly personalised service where our customers can choose from the cheapest, fastest or most convenient options for their vehicle transport," said National Car Movers Operations Director, Robert Hawkins.

"Whether you're moving house, travelling interstate or managing a company fleet, you will have the security knowing you're dealing with the largest providers in the industry," said Mr Hawkins.

"We deal directly with the transport carriers, so customers don't have to worry

about the finer details. We simply take the stress and time wasting out of dealing with multiple parties and the complex logistics involved."

National Car Movers use proprietary software to build out several, strategic transit routes that connect local depots, drivers and carriers.

Rather than limiting to just one provider or a predetermined route, the business offers a high level of flexibility without compromising on cost or convenience.

"We leverage a dedicated local team that support customers in planning ahead and navigating any logistical challenges," he said.

"If it's a remote mining company sourcing multiple vehicles, we select the most strategic transport routes and specialised carriers.

"Our advantage is industry knowledge and

the know-how to create the best options possible for each booking.

"We'll pick-up and deliver to a specific address. If we're delivering to a remote location, we'll find the nearest accessible road via truck. We're experts when it comes to logistics, it's that simple."

Customers can choose to meet their vehicle carrier at a designated pick-up point, and also drop the vehicle off at their nearest depot.

These are just some examples where National Car Movers provides customers with the power to compare and choose based on the option that best works for them.

To request an instant quote online and book your next vehicle transport today, visit <https://nationalcarmovers.com.au/> or call the dedicated team on 1300 396 099.

AMR

Choose from the cheapest, the fastest and the most convenient options for your car, boat, caravan or motorcycle.

Request an instant quote or book your next vehicle transport today!

Visit www.nationalcarmovers.com.au or call our dedicated team on 1300 396 099



For over 25 years, National Car Movers has become one of the most trusted vehicle transport providers in Australia.

We are a one-stop-shop offering a customised door-to-door delivery service all from the click of a button. From seamlessly processing a booking or real-time tracking of a vehicle, we take the stress out transport.



THE IMPORTANCE OF SECURITY

of Supply and Reliability



Mining optimally is all about getting the right payload at every pass, getting as much dirt out of the ground without asset damage, every time. Which means it's important to have the right equipment for any condition, ensuring your machines can keep digging.

But in mining's harsh environment, even the best equipment will need to be replaced eventually. With today's supply chain constraints, can you ensure that you can get replacement parts in time for interval maintenance or in the case of an unexpected downtime?

Vulnerability of international supply chains

CR has invested heavily into their supply chain, ensuring readiness to counter and weather global events. Going above and beyond to ensure that their products get to their customers when they say they will.

With this in mind, CR has been able to maintain a 91% average on time delivery for the past nine months and within the past two years they have been able to maintain a continuous 90% average delivery time.

Legendary site support

CR is all about building a collaborative partnership with their customers, customer suc-

cess is CR's success. CR is on site as much as their customers need them to be. This ensures that they intimately understand the mining conditions and operational needs of each customer.

Due to this intimate understanding their expert field service technicians are able to confirm how well the CR products are integrating with their use onsite as well as to confirm that the forecasted maintenance schedules are correct. This allows CR to have replacement parts at the site exactly when they are needed.

How does CR do this?

By being in close collaboration with their clients, CR strives to know their business as well as they do and provide expert advice related to their GET and maintenance. CR ensures that their forecasts line up with the maintenance schedules of each customer so that they have new stock exactly when they need it.

CR also continues to invest into and grow their supply chain, which means that they can source multiple places to manufacture their products to their exacting specifications. CR ensures that they have the logistical capabilities to service their customers fully by having local supply teams

within every country they manufacture their products.

Beyond that, CR maintains a series of 'safety stock' stores globally. This allows them to be agile and capable to weather any world altering events like another pandemic, should it happen again. As well as being able to pack and send stock within 24 hours for critical cases.*

Solutions for today's mining challenges
And with over 40 years in the mining in-

dustry, CR understands the challenges of the modern mine. They engineer advanced solutions to unlock productivity, enhance safety, and reduce maintenance requirements. CR thrives on building collaborative partnerships with the world's best miners.

Get in touch to start the conversation. **AMR**

**Critical cases are evaluated on a case by case basis.*



Manufacturing in progress in local, Maryborough facility.
SEP2022 AMR

Site Specialist and Engineer on regular site visit.

SUPPLY SECURITY

Ensure local supply
and support when
you need it, where
you need it.

SR MINING





PORGERA GOLD MINE

ROXSET Australia is regarded as the number one applicator of superior hygienic grade coatings.

It has supported the food and beverage Industry for more than 30 years in both Australia and Papua New Guinea.

One of the company's most popular products is the ROXSET SE HACCP OH&S non-slip coating range.

It has been developed in Australia to service environments requiring the high level hygiene standards.

The coatings unique strength, durability and resilience to bacteria offers the ultimate protection from environmental challenges.

It is engineered to withstand the significant moisture and contamination typical of remote mining locations due to a high altitude and extreme heat.

Recently ROXSET visited PNG to work in particularly challenging conditions after Porgera Gold Mine engaged the company to install floor coatings to key catering areas of their site.

The Porgera Joint Venture is an open pit and underground gold mine located at an altitude of 2,200-2,600 meters in the Enga Province about 600 kilometres north of Port Moresby.

Compliance with Hazzard Analysis and Critical Control Point International Certification was a key milestone the client wanted to achieve.

This certification means a facility's food and beverage activity meets world safety standards.

ROXSET organised a professional team of eight installers, equipment and product to be transported to PNG from its Australian factory.

The job involved installation of more than 1000sqm of floor coatings.

The project entailed coating upgrade and repair of critical floor areas spanning the mess kitchens, bakery, chillers and walkways.

The coating was a seamless and durable epoxy at 4-6mm. It was integrated with anti-microbial additive to hinder bacterial growth and it was a stylish matte finish, made easy to clean with a R12 Slip Rating.

Slip resistant flooring is a health and safety must-have for most industrial and commercial facilities to prevent risk to employee wellbeing and operational productivity.

ROXSET's flooring is available in a range of textures and can be graded with aggregates to create an anti-slip profile that minimises the risk of falls by enhancing traction underfoot.

ROXSET SE Slip Resistant Finish also meets

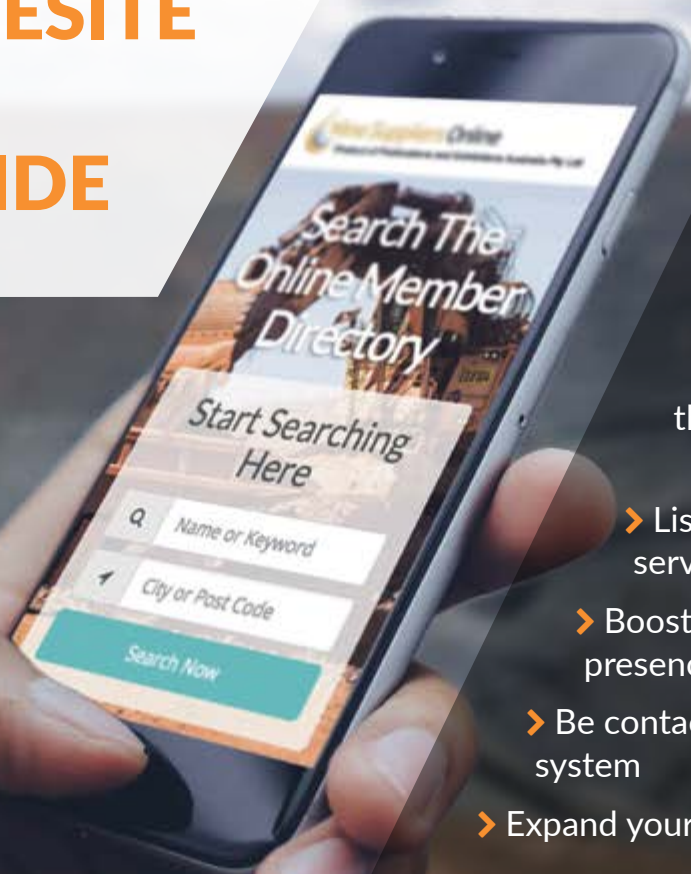
an ISO 22196 standard which measures the antimicrobial effectiveness of non-porous surfaces. This disrupts the growth of microbes and enhances the protection of the floor area.

The ROXSET SE Floor Coating Solution can withstand harsh environments within the mining and resources sector.

The unique hard wearing epoxy coating can be tailored to all industrial settings, including workshops for heavy vehicles, mess kitchens, chemical storage bunds, ramps and walkways.

Learn more about ROXSET solutions by visiting Epoxy Flooring Coatings & Solutions | Production Floors | Roxset
AMR

BE AT THE FINGERTIPS OF EVERY MINESITE OPERATOR AUSTRALIA WIDE



Join **Mine Suppliers Online** and be seen by mine operators all over the country.

Our comprehensive directory is the one stop when looking for services on the go.

- List your company details, logo and services
- Boost your own website SEO and expand your presence
- Be contacted directly via our instant messaging system
- Expand your online presence

Get a listing today!

The mineral resources sector is getting more bang for its buck with PumpEng's expertly crafted dewatering pumps – products leading the industry with their design and performance.

Based in Perth, PumpEng is an Australian pump designer and manufacturer offering sales, hire, and parts to customers in Australia, the Americas and South East Asia. They supply quickly, limiting downtime.

The full-service OEM manufacturer also delivers improvement-focused repairs, after-care services and ongoing consultative data-based assistance.

PumpEng Commercialisation Manager Matt Oliver said the Australian company's products and services drew on extensive industry experience, as well as insights gained from Australian maintenance and mining operators.

These innovations have placed PumpEng ahead of the curve in the specialist submersible pump market and made the company the partner of choice for many mining companies.

Matt Oliver discusses the reasons for PumpEng's success. "Our solutions are backed by a vigorous research and development process, and they are purpose-built for harsh mining conditions. Pump failure has just been accepted as the norm. Not anymore!"

Over the last year, we have worked hard to accommodate the fast-growing interest in our products, leading us to open new interstate and international offices to be connect with our growing network of reputable international distributors."

Well-designed products are only half the story. PumpEng is also committed to first-rate installation practices, strategic and innovative thinking, and a data-driven approach.

PumpEng leverages industry trends and collaborates with mining operators to better understand contemporary underground dewatering needs and adjusts its offerings accordingly.

Increased mine productivity through modern mining methods means that PumpEng are here to challenge the status quo in pump design to keep up.

The company performs regular site inspections, thoroughly analyses repair data and conducts quarterly reporting to get a well-rounded view of how the pumps perform.

This information and feedback helps PumpEng create products that reduce the number of maintenance events exposing crews to the hazardous combination of water and electricity. This improvement significantly increases site safety.

PumpEng pumps are also known to reduce maintenance costs because they require much less repair or replacement due to the type of materials used in manufacture. Operators report lower labour costs and a decrease in production delays caused by pump failure.

Matt Oliver explains the levels of company involvement. "Our commitment to our clients extends past industry specific designs, quality manufacturing, and timely supply of pumps and repairs, with full aftermarket support to ensure each pump is used cor-

rectly to reduce pump failure."

PumpEng has partnered with major foundries and quality manufacturing facilities located within Australia and abroad to facilitate the reliable supply of quality parts and pumps.

While the manufacturer has a primary focus on supplying underground mine operators and contractors, it also has a national footprint across several other industries.

Ultimately, PumpEng has developed an experienced team dedicated to delivering a good at work when it comes to underground dewatering.

ABOUT PUMPENG

PumpEng is a manufacturer with its patents and products breaking industry pump performance records.

This Australian company evolved from a venture between Paul Meneghel and the owners of Galvin Engineering.

Paul's initial vision was for pump parts tough enough for Australian conditions. As a company founder, he drew on his extensive experience with submersible pumps in mining, stretching back to the 1980s.

Harnessing more than 100 years collec-



tive experience in foundry processing and manufacturing, the original PumpEng team set out to improve the design of mass-produced submersible pump components for Australian operating conditions.

The company has since grown well beyond Paul's original 2001 vision to improve pump component design.

PumpEng's branch network spans Perth, Kalgoorlie, Townsville and Adelaide. On the international stage, the company also maintains officers in Indonesia and North America and emerging markets in South America. **AMR**

Protect Your Pumps Against Shotcrete Polyfibre

Tough Pump for the Modern Miner.

JetGuard® provides a Good Day at Work for Mining Operators:

Protected Less Fibre Gets In

Toughened Metal is Best

Reliable Less Failures

Unique Innovative, Patented Design

Patent Numbers:

AUSTRALIA - 2015230662 | CANADA - 2941904 | USA - 10514047

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sales@pumpeng.com.au

PumpEng.com.au

PumpEng

Tough Submersible Pumps

AMR SEP2022

Reliable Water for Remote Sites

Desert Sands has recently acquired a Concrete Batching Plant, which has a 70 cubic metre capacity. The plant also includes a water chiller, to assist with hot weather projects.

Mining is thirsty business and Desert Sands Cartage Contractors has the solution.

Established in 1989, the Laverton-based contractor is a specialist service provider to mining projects in regional WA and the Northern Territory, with one of its key services including potable water supply and cartage.

According to Desert Sands director Rex Ryles, when projects are in the exploration, earthworks and construction phases,

the company is called in to provide potable drinking water for personnel mobilised on-site.

"No matter where your site is located, we travel far and wide to ensure you and your staff are looked after and have a reliable source of drinking water," he said.

"We've worked with mining companies and regional shires far and wide from the Gruyere gold mine to Anglo Gold sites, Downer EDI, Gold Fields' Granny Smith mine, Poseidon and many more."

At the Gruyere gold project, Desert Sands was involved from the first shovel in the ground through to production, looking after civil earthworks, camp/plant concrete set up, and camp potable water.

The contractor also has extensive experience in hauling gold ore, nickel ore and concrete, along with screened sand, dune sand and fuel into some of the most remote and isolated areas in Australia.

Other specialty services include contract screening, semi drop deck hire, front end

loader hire, road maintenance and construction for local government organisations, general civil works, bulk tipper haulage, and more.

More information on the company's offerings can be found at www.desertsandscartage.com.au or by calling (08) 9031 1326

AMR

DESERT SANDS
CARTAGE CONTRACTORS
Est. 1989



Established Since 1989



- ✓ For all your transport and civil contracting requirements
- ✓ Supply of potable water to remote areas

- ✓ Haulage of ore, concrete, screened sand, dune sand, fuel and potable water
- ✓ Extensive experience in civil works and construction projects

GET IN TOUCH NOW

Rex Ryles 08 9031 1326 | site@desertsands89.com.au | www.desertsandscartage.com.au
Lot 501 Cox Street Laverton WA 6440

A Cut Above the Rest

HD Plasma and Laser Cutting Services provides an innovative and dynamic profile cutting service to all steel manufacturing industries within Australia.

The purpose-built, multi-function, steel processing business located in Bibra Lake, WA, is seen among the leaders in the steel cutting industry.

Laser Cutting

The technology of the HD Plasma and Laser Cutting Services machines delivers superior performance, giving the ability to provide clients with exceptional quality, together with 24-hour operations, shorter lead times compared with other conventional laser cutting machines.

- Cutting table size 4000 x 2000mm
- Capable of processing up to 20mm thickness mild steel
- Capable of processing up to 20mm thickness QT Material
- Capable of processing up to 32mm thickness aluminium
- Capable of processing up to 25mm thickness stainless steel

Plasma Cutting

HD Plasma and Laser Cutting Services operates three plasma machines - one Kinetic K4000 and two Kinetic K5000. These state-of-the-art, heavy duty combination plasma/oxy/machine centres can process a wide variety of materials at an extremely fast rate.

The 62m plasma cutting bed, together with 24-hour operations, allows high volumes of cutting to be achieved with short lead times.

- Counter sink/counter bore
- Drilling – 3mm up to 60mm
- Plasma cutting – 3mm up to 50mm
- Oxy-cutting – 60mm up to 300mm
- Beveling – up to 50mm with maximum of 45°

Steel Plates

HD Plasma and Laser Cutting Services holds steel plate in stock.

Plate is sourced from quality local and imported steel mills, to cut a wider range of materials at a greater thickness range than most of its competitors. **AMR**

GRADE	THICKNESS (mm)
AS 3678-250	UP TO AND INCLUDING 300mm
AS 3678-350	UP TO AND INCLUDING 300mm
FLOOR PLATE M/S	UP TO 10mm
BOILER PLATE - ALL GRADES	UP TO 80mm
QUENCHED AND TEMPERED	UP TO 80mm
CARBIDE OVERLAY	UP TO 40mm
ALUMINIUM PLATE	UP TO 32mm
PGI, ZINCANNEAL, GALVANISED & COLORBOND	UP TO 6mm
STAINLESS STEEL - ALL GRADES	UP TO 40mm



Companies Gearing Up 37
INDUSTRY FOCUS

THE STATE-OF-THE-ART, HEAVY DUTY COMBINATION PLASMA/OXY/MACHINE CENTRES CAN PROCESS A WIDE VARIETY OF MATERIALS AT AN EXTREMELY FAST RATE.



A cut above the rest



HD Plasma & Laser Cutting Services Pty Ltd is a purpose built, multi-function, steel processing business located in Bibra Lake, Western Australia.

We can deliver an innovative and dynamic profile cutting service to all steel manufacturing industries within Australia.

HD Plasma & Laser Cutting Services philosophy of progressive service to our customers is what is bringing us to the forefront of the steel cutting industry.

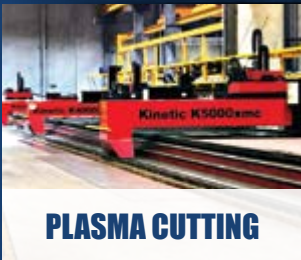
A continual process of system and service development and refinement is where our key advantage lies. We constantly find new ways to add value to the service we deliver to you.

Progressive service and quality is about staying one step ahead.

Services



LASER CUTTING



PLASMA CUTTING



OXY CUTTING



DRILLING/
C-SINKING/TAPPING



CAD/ CAM



PRESSING



ANCILLARY SERVICES



STEEL PLATE

PHONE: +61 08 9418 8462
www.hdplasmacutting.com.au

81 Discovery Drive, Bibra Lake WA 6163
Email: sales@hdplasmacutting.com.au

WHY CHOOSE VIKING?

»»INDEPENDENT

The fact that we're an independent company, not tied down to any one engine manufacturer, means we can offer you a wide range of products customised specifically to your job requirements and budget.

»»VERSATILITY

We understand that no two jobs are the same, and that's why at Viking, we spend time with our customers to offer a range of payment solutions to suit the job. Multiple payment options and full turn-key packages are available to fit your budget and requirements.

»»AUSTRALIAN

Our whole range of products are made to high quality spec and assembled by us here in Australia. This means that you can expect only the most modern and up to date products and equipment in the game.

»»SAFETY

Used on the largest projects nation-wide we are always big enough to meet the strictest site requirements while small enough to remain flexible and find options to solve any problems swiftly.

If Australia's Biggest Projects Trust our Lighting Towers, Shouldn't You?

Built tough to withstand harsh conditions and tested on some of Australia's largest projects, Viking Industrial Lighting Towers are the new standard in portable lighting.

From short-term events to large-scale mining work, the company's custom options provide lighting solutions that precisely suit the needs of any project, spanning a variety of sensors, timers, power sources, base arrangements and batteries.

The proudly Australian provider has light configurations available from 50W to 4000W, with versatility for diesel, solar, or hybrid power supply.

Viking Industrial BD and Brand Manager Simon Luu said the

Viking team offered convenient rent or buy options across their entire range, allowing clients the flexibility to meet dynamic project and budget demands.

He said the fast-selling Lighting Towers were designed to help project operators meet site-specific requirements and were backed by the company's Australia Wide, 24/7 support network.

"Viking offer a range of lighting types such as diesel powered and hybrid powered, but by far our most popular range is the Apollo Series of solar powered lighting," Mr Luu said.

"In fact, we were engaged to provide them for the Sydney Gateway project, as part of the New South Wales Transport motorway project.

"We provided the operation with a fleet of our high-efficiency Apollo Solar Lighting Towers, which offer a powerful, low maintenance and cost-effective solution.

"They came with the added flexibility of both sales and rental options, which were both being utilised by the client."

Mr Luu said the buzz surrounding the Apollo Solar lighting Towers capped off a record period of growth and expansion for Viking Industrial, which has been focused on providing an even strong and more flexible service to Australian industry.

The company has recently opened new locations in Cooma and Karratha, bringing its national footprint to five dedicated branches offering a comprehensive product range.

Viking Industrial offers fixed and portable diesel air compressors, a robust diesel generators range and mobile and static fuel storage tanks and solutions that can hold in excess of 10,000 litres.

The popular products are supported by a dedicated sales team that have been trained to understand the unique needs of settings and offer industrial reliable and cost-effective solutions.

The turnkey offering means the company's dedicated expert team can walk clients through the entire scope of a project, no matter how large or small.

Mr Luu said Viking Industrial was also independent of engine manufacturers, meaning it was uniquely positioned to source equipment directly and build bespoke power solutions.

"We provide the whole package – a comprehensive equipment range and delivery strategy to meet your lead times," Mr Luu said.

"We offer installation, commissioning, training, and servicing to keep equipment well-maintained and productive while in use. Our fleet is modern with an average of two years wear, to make sure clients are offered equipment in excellent condition."

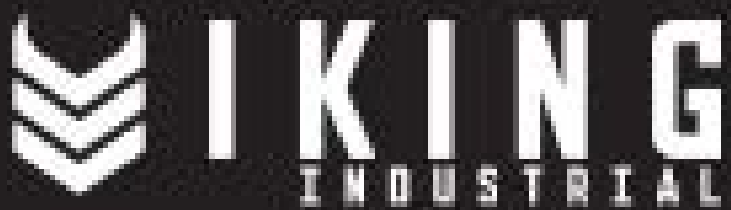
"The core of our business is really to provide reliable and cost-effective power to Australian projects at every stage.

"We aim to keep each project running safely, efficiently and on time – that is our promise."

For more information, please visit <https://vikingindustrial.com.au>

AMR





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6 Locations - Australia Wide
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TRUSTED TECHNOLOGY INTEGRATORS FOR BUSINESS CRITICAL NETWORKS



Eliwana Mine Key Project Features:

- Radlink first project for Eliwana was completed in March 2017
- Radlink has completed more than 40 projects for FMG at Eliwana since February 2017
- FMG celebrated first iron ore in December 2020
- Radlink has assisted FMG with communications every step of the way; from development, through construction to operations
- Radlink is still actively engaged to provide multiple levels of support, across many communications systems
- In summary, Radlink have provided the following communications services for Eliwana:
 - > Concept design,
 - > RF modelling,
 - > Infrastructure for 3rd party technology,
 - > High-capacity radio backhaul,
 - > Antenna structures and communications shelters,
 - > Camp technology services,
 - > Mobile communications solutions,
 - > Safety and early warning technology solutions,
 - > Radio licencing,
 - > Large scale/multi-site technology and infrastructure solutions,
 - > Remote operations solutions,
 - > Onsite and off-site technical support and training

Radlink has become the premier supplier of wireless communication solutions to the Australian mineral resources sector, following the successful delivery of business-critical systems to some of the most remote environments on the planet.

Established in 2007, the company has flourished from humble beginnings to an extensive team of more than 300 qualified specialists nationwide, each with a wealth of experience in deploying reliable, scalable and flexible communication solutions.

National Client Experience Manager David Krieg said Radlink's team had earned a reputation for efficiently tackling large, remote, complex, business and/or mission critical challenges across Australian industry, particularly the mining, oil and gas, transportation and utility sectors.

He said the company was uniquely positioned to meet the needs of the resources sector and facilitate both higher productivity and safer work environments.

"What largely sets us apart is our partnership-focused approach," Mr Krieg said.

"For example, Radlink has worked closely with Fortescue Metals Group (FMG) to deliver business critical communication solutions across all their mine and rail environments.

"Whilst Radlink have won the project work through competitive tender processes, the trusted partnership that has developed over many years between FMG and Radlink enables the two companies to deliver high quality communications solutions that are innovative and reliable.

"You can see this partnership in action at Western Australia's Eliwana Mine, located approximately 80km northwest of Tom Price."

Eliwana Mine is a state-of-the-art 30MTPA dry ore processing facility that includes 143km of rail that links the Hamersley rail line to a 30MTPA dry ore processing facility (OPF).

The innovative low profile designed OPF and dual stacker reclaimer has provided Eliwana the capacity to direct load onto trains up to 10,500 tonnes per hour.

During the development, construction, and operational phases, Radlink implemented the TETRA (Terrestrial Trunked Radio) radio system to provide voice and data services.

TETRA has become the preferred standard of radio communications across much of the resource sector and Radlink are at the

forefront of TETRA technology in Australia, having completed most major installs in the country.

Additionally, the Eliwana Mine work included deployment of the MPLS transmission network that utilises fibre optic backbone cables as the transmission medium. In this area, Radlink worked seamlessly with other specialist providers to ensure a holistic approach delivered high quality outcomes for FMG.

Radlink teams provided a corporate network on the MPLS, as well as the installation of a Voice over Internet Protocol (VoIP) telephone system.

Radlink staff also implemented SCADA and integration of managed/active devices to enable monitoring and control of mine and rail systems. Eliwana Mine was additionally enhanced with important emergency radio solutions, train control and signalling systems at level crossings.

Radlink Project Manager, Beau Heron, said Radlink and FMG worked closely through all phases of the Eliwana project to produce a client-centred outcome that complied fully with the iron ore producer's "safety in design process."

He said safety and a joint approach to service and product delivery was at the very core of the business; values which have catapulted Radlink to an industry leader for radio communication solutions.

"We have an extensive portfolio of work completed underpinned by this philosophy," Mr Heron said.

"Radlink designed Western Australia's first TETRA digital radio system and the first multi-site system.

"Radlink have also built many multi-site TETRA systems for various mines in the Pilbara and Australia wide.

"One of our more complex projects was installing 79 TETRA locations along a 1600 km rail corridor in Queensland.

"More recently, delivering the communications infrastructure at Eliwana mine and rail operations have been crucial in delivering a world class iron ore extraction and transportation facility.

"The work has enabled increased employee safety and helped FMG achieve productivity goals.

"You can contact us any time to find out how Radlink can contribute to the success of your mine development, construction and operations." **AMR**

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We are a leader in wireless integration, and we specialise in delivering practical and effective solutions. Whether you need a simple communications solution for a small area, or a solar-powered, wireless communications network with data and GPS in a remote location – we can help.

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MANAGE AND SERVICE.**


radlink
COMMUNICATIONS

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THE AUSTRALIAN
MINING REVIEW

OFFERING PRECISE AND RELIABLE COMMUNICATIONS

Modern mining is highly dependent on communications technologies. With the uptake of autonomous vehicles, improved safety integration, asset location management, improved utilisation, carbon output monitoring, the demand for rugged and reliable communications has become paramount.

Mining communications is not just the point to point or mesh sending/receiving of data over an RF link, it also includes the highly critical reception of GNSS (Global Navigation Satellite System) for both precise positioning and timing.

If we look at an autonomous mining vehicle today, the range of RF technologies is extensive, starting with a GNSS receiver that can decode multiple frequency (L1, L2, L5) signals from multiple satellite constellations (GPS, GLONASS, GALILEO, BEIDOU, QZSS, NAVIC) as well as receive correction data from either L-Band satellites, 4G mobile, or dedicated land-based UHF reference stations. Then we have the vehicle to vehicle and vehicle to infrastructure communications. The RF technologies used here typically include VHF/UHF for 2-way voice, 2.4GHz/5.8GHz WiFi, 4G & 5G mobile (600 to 6000MHz), and in some cases dedicated

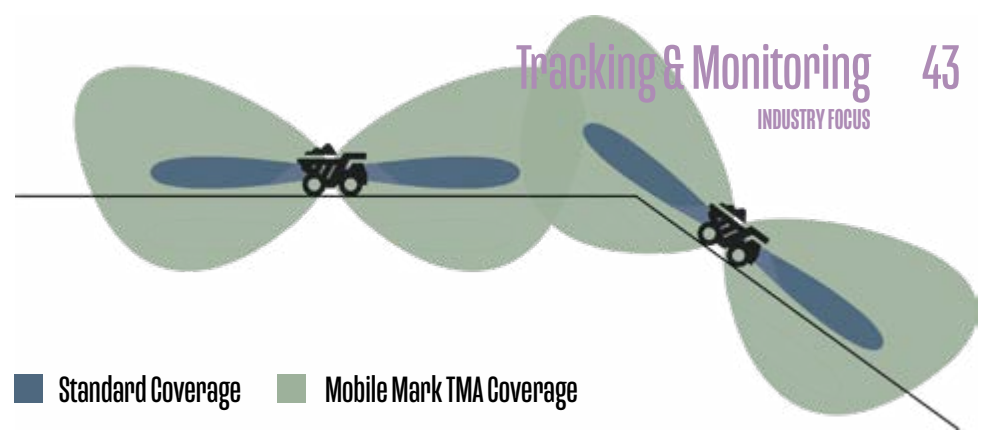
private networks in the 3GHz range.

Australian mining typically takes place in remote areas where there is little or no communications network infrastructure. Mining companies must setup their own highly reliable site to site connectivity as a backbone. Mine site to mine site may include fibre optic, Microwave and long range directional 4G & 5G communications.

Reliable Precise Positioning in Real Time

For GNSS to provide precise position updates at 20 to 100 times per second, you need a rugged antenna and receiver that can discriminate the satellite signals from the numerous sources of noise and interference from multi-path. Multi-path is the largest source of error in GNSS positioning as the reflected signals can come from any reflective surface. Antenna design is critical in dealing with multi-path signals, a good design can reject reflected signals whilst at the same time ensuring minimum noise impacted true satellite signals.

Having a GNSS precision antenna still requires a precision receiver that has the processing capability to discriminate true satellite signals from all noise types. With so many different satellite constellations now



A Mobile Mark TMA has even greater reach than a 8dBi stick antenna, but it has the broader beam width of a 2dBi antenna, as illustrated below. The extra beam width allows the signal to reach higher and lower elevations to maintain connections at most angles encountered in a mine.

available, it makes sense to utilise as many constellations as what is available in your location. The principle is simple, the more satellites you have in direct line of sight, typically overhead, the more precise your position calculation will be. To take advantage of multi-constellation satellites, your receiver should have adequate tracking channels in order to provide very fast updates (up to 100Hz) as the satellites move overhead.

Because of the number of variables that affect GNSS performance (reflected signals, satellite constellation, etc), it is difficult to predict just how well GNSS will perform in a particular type of environment. For some applications, interrupted availability is not a significant disadvantage. For cross-country vehicle tracking, for example, occasional position updates to base are more than sufficient to know where the vehicle is in its route. However, there are several applications that require more robust positioning – positioning data that can be relied upon to be always there, always accurate, always trustworthy. Combining GNSS and inertial technology is an ideal way to address this. Integrating an Inertial Measurement Unit (IMU) from the ground up in your GNSS receiver provides for seamless precision even when your receiver moves under cover or is

in tight canyons or at the face of an open cut mine. Trimble OEM has developed a range of products with integrated IMU's from standalone receivers to integrated Antenna/Receiver/IMU that can also receive correction data from a CORS network.

Vehicle Communications

Vehicle to Vehicle and Vehicle to Infrastructure communications is dominated by WiFi Mesh Networks. The HP-TMA (High-Performance Tactical Mesh Antenna) from Mobile Mark is specifically designed for use in rugged mobile networking environments such as mining. These antennas combine a unique high performance circular wave pattern and signal boosting that provides longer range and greater link stability between mobile clients. As vehicles traverse uneven terrain or varying elevations, the HP-TMA ensures superior signal coverage and data throughput, and better penetration through obstacles.

Step Global is a Value Added Reseller for Trimble OEM GNSS and Harxon GNSS products, including UHF data radios, as well for Mobile Mark and PCTel antennas. Providing a full range of products from GNSS antennas through to 5G/LTE and WiFi antennas.

AMR

RUGGED ANTENNAS FOR MINING APPLICATIONS

Step Global are Australasia's leading distributor of antenna brands such as Trimble, Mobile Mark, PCTel and Harxon.

GNSS ANTENNAS & RECEIVERS

Rugged multi-constellation, multi-frequency for vehicles



Zephyr 3 Rugged

Zephyr 3
- Phase centre from <2mm
- Gain from 50dB



BX992

BX992
- Satellite channels: 2 x 336
- RTK and L band enabled provide accuracy to 0.8cm
- Max update rate: 100 Hz
- Dual ant. inputs provide heading output



TS112

TS112
- Centimetre level TerraStar-C & RTK accuracy
- Comprehensive GNSS support for robust signal tracking



HX-CVX600A

HX-CVX600A
- High precision <2mm PCV repeatability
- Gain from 40dB to 50dB
- L band enabled for correction services
- HX-AULT002 supports 5G and DSRC

WI-FI ANTENNAS

For mine site infrastructure



BD2400

BD-2400
- Bi-directional Wi-Fi blade antenna
- 2.4GHz 8dBi bi-directional gain



YAG-8

YAG-8
- Directional antenna
- 2400-2485 MHz & 4.9-6.0 GHz
- Gain: 8 dBi



TMA-24A-302CT

TMA-24A-302CT
- 2.4-2.5 GHz
- Gain: 17dB Rx



BOALCMGPS

BOA-LCMGPS-PTNF-4LTE
- Multi-band
- Four port MIMO
- Cell, GSM, PCS, Wi-Fi

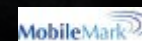
LTE ANTENNAS

4G/LTE & 5G antennas for vehicles & base station



RM-WB1-DN SUB-6

RM-WB1-DN SUB-6, 5G
- Sub-6 surface mount antenna
- 600-6000 mHz



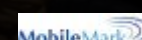
OD3-600/6000 MOD 2

OD3-600/6000 MOD2
- Frequency: 617-960 mHz & 1700-6000 mHz
Gain: 2-4 dBi



Y42700WB

Y42700WB
- Wide-band log periodic MIMO
- 600-2400 mHz, 14dBi
- 4200-6000 mHz, 6dBi



DOD7-700/2700

DOD7-700/2700
- 2 X MIMO LTE omnidirectional
- 694-960 mHz & 1700-2700 mHz
- Gain: 5-7 dBi

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Mobius for Drills' holistic approach connects the pieces, building from a detailed drill layer to ultimately create a safer and harmonised mine. Mobius for Drills was designed from the ground up to harness the full benefits of robotics and digitalisation growth in our industry, interacting with manned operations. So why not enable multi-vehicle command, control and monitoring to maximise your productivity with Mobius for Drills today?

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epiroc.com/en-au



Reel Systems for Quick & Easy Deployment of Layflat Hose

After a considerable reinvestment to strengthen its engineering capabilities, **Crusader Hose is attracting greater interest in its layflat hose reeling systems.** Mining engineers are continually reassessing their water logistics strategies. Those who appreciate the benefits of using a flexible layflat pipeline are now embracing customisable reeling systems to improve dewatering efficiency.

Based in Victoria, Crusader Hose has a proud history of being the only Australian manufacturer of industrial layflat hose. Many years of experience over two generations have seen Crusader Hose step onto the world stage as a rival to many imported products. Industry knowledge has highlighted the necessity to offer complete hose and reel systems. With a considerable reinvestment over the past five years, Crusader Hose now has more engineers and improved technology to fabricate reeling systems specifically designed for the mining sector.

"We have always known that to have the mining engineers seriously consider using a flexible layflat pipeline, we'd have to offer a complete system including reel deployment equipment," said Francois Steverlynck, Managing Director of Crusader Hose. "I'm proud to say, now we can. Our new reeling systems have been designed in consultation with industry to fulfil their requirements," he continued.

The engineering department consists of dynamic, forward-thinking engineers whose collective experience draws on many years of working in the private and government sectors. Stuart Enright, Project Engineer of Crusader Hose, recently brought his expertise to the team. "Thanks to over a decade working with government and Defence and

five years in manufacturing, I bring a wealth of experience in working with clients to deliver quality solutions that fit within their timeframes and budgets," said Stuart, "and at Crusader Hose, we aim to provide turnkey solutions to our clients that allow them to fully utilise the benefits of layflat pipelines."

Involved in concept design, the engineering team have worked closely with the production department, who have an intimate knowledge of best practice in hose handling. Rolling and unrolling thousands of metres of layflat hose each day have set the blueprint for efficient and safe hose handling. Crusader Hose understands the advantages of retrieving hose on spools or reels, and this knowledge has been the driving force in making safe and efficient reeling equipment for industry.

The R&D trials and testing by the team have been rigorous and are ongoing. The Bayswater factory has a large yard with pump tanks and can simulate field conditions. Pump contractors and other specialists have been involved as required, and customer feedback is always welcomed.

"As we process over 2000 m of hose daily in our factory, who better understands the need for safe and efficient reeling systems?" asked Francois. "Over the years, we have invested heavily to have this capability and

expertise in-house," he added.

The reeling systems have particular features, affording benefits and limitations. As mining projects differ, so, too, are the systems offered. There is a range of options to suit many applications.

Interchangeable spools of the Hamersley™ make it quick and easy to deploy multiple lengths of hose, whereas the Bayswater™ is a trailer-mounted modular system ideal for pipelines up to 8 inch.

The company is now well positioned to open its doors to a larger group of potential users. It has set 21 September as an Open Day, promoting its Think outside the circle campaign. Forward-thinking users who can see the benefit of layflat hose compared to bulky and cumbersome poly pipe have responded positively to the invitation.

Many dewatering engineers have embraced the concept of layflat pipelines; those who haven't yet will require a paradigm shift in their thinking. "Once the benefits are understood and appreciated, we are confident more and more water logistics experts will recommend flexible pipelines," continued Francois.

Benefits include the compactness of layflat vs poly pipe. This single benefit has many

flow-on effects, including ease of transport, ease of handling, smaller storage footprint, and reduced carbon emissions.

One truck can carry 3500 m of layflat compared to 10 trucks required to transport poly pipe. The hose comes in lengths of 200 m which are rolled onto individual pallets. The off-loading of the palletised hose is quicker and safer than off-loading lengths of poly off a truck. The space required to store flatpaks of 3500 m of layflat hose is much smaller than poly pipe. Transporting multiple kilometres of hose on a single truck uses a fraction of the fuel that 10 trucks would. Long term, this is more sustainable as this helps reduce environmental pollutants.

"Think outside the circle has been the key message we have espoused," said Francois, "and encourage dewatering engineers to think of layflat as a workable and desirable alternative to poly."

Flexible layflat pipelines offer a suitable alternative to rigid pipe systems in emergencies or other shorter-term applications.

"We are confident there are many benefits in using flexible layflat hose and reeling systems in small or large projects, and we are eager to assist mining engineers in finding more efficient solutions for their dewatering requirements," continued Francois, "we are not here to replace poly or fibreglass, just to offer alternatives to rigid lines. Our challenge to the industry is to have engineers Think outside the circle of rigid pipe and consider layflat." **AMR**



Hamersley™ Reel System deploying 200 m of layflat hose.



Stuart Enright - Project Engineer at Crusader Hose.

Senator S80M 80GHz Radar Level Transmitter on Plastic Tank.

SMART MINING TECHNOLOGIES

FOR FUEL AND WATER TRUCKS

The Mining Industry is one of the most demanding, challenging, and harsh environments for industrial equipment operations.

It is vital to keep essential machinery such as fuel and water trucks operating at optimum efficiency as they are one of the most important pieces of support equipment at a mining facility.

Fuel and water trucks reduce dust levels, increase visibility, and maintain haul road safety.

In order to operate safely and at maximum efficiency, there are now advanced solutions available that monitor critical information such as data, fluid and chemical levels, and diesel tanks.

Whether at a quarry, mine site or job site, it's important to use smarter technology to increase efficiency, production, and safety.

Dust is a critical factor at Australian mine sites, especially during dry weather.

Dust creates a hazardous environment, and it becomes difficult for LVs to drive around as the visibility is reduced.

Moreover, EPA (Environmental Protection Authority) has passed on directives to mines closer to heritage sites for the need to control the dust to protect the gorges and other caves nearby.

Mine sites located to nearby towns have also expressed their concerns with the dust and the EPA is starting to enforce rules and restrictions.

Therefore, it is imperative for mining companies to implement a robust strategy for dust suppression.

Hawk Measurement Systems (HAWK), an Australian manufacturer of smart monitoring equipment for the mining industry, was approached by a large Australian mine site to help implement a dust suppression and inventory management system.

They were using a special chemical mixture that is mixed with water on site and then filled in by the trucks to spray it on the roads. They were requiring a level sensor that can be used to measure corrosive chemicals and wanted it to post data via 4G or Satellite.

The company wanted the system to be independent of the sites PLC controls because the spots where they were going to install the batching plants were in the mining area, which they had no access to without special permission.

Also, they were requiring the power supply to be via Solar and the communications to be 4G or Satellite.

HAWK provided them a non-contact level

device featuring FMCW technology, the Senator S80M 80Ghz Radar Level Transmitter.

This transmitter can measure through plastic so there is no need to be concerned about the corrosive nature of the liquid as the sensor was NOT exposed to the liquid or it's fumes.

To suffice the communication requirements, HAWK supplied both a 4G Option via Hawklink and Battery powered Satellite option.

Hawklink and the sensor is designed to power via Solar if required.

The Hawklink and Satellite were configured to post data twice daily to the HawkEye365 Monitoring Portal.

The HawkEye365 Monitoring Portal is essential for securely and remotely monitoring assets in real-time.

It is a complete remote and in-plant measurement and monitoring system.

Unlike anything on the market today, this system is uniquely different due to the communication capabilities.

The HawkEye365 will send out text messages to the drivers if the level drops suddenly to critical low level.

Local display assists the truck driver to replenish the tanks avoiding any overfill spillage.

The company also has the ability to add tanks to the existing HawkEye365 portal with different site addresses.

Hawklink and Satellite devices provides a location making it easier for inventory management.

This smart solution helped the customer manage inventory levels of their dust suppression liquid which increased efficiencies, safety, and productivity.

Another large iron ore mine site came to HAWK seeking a diesel tank inventory management system.

All Iron Ore mine sites have borewells to extract ground water.

These borewell skids include pump, flowmeters and other instruments that are powered by diesel generators.

Borewells include a diesel tank to power the Gensets.

The company's diesel tanks did not have any level sensors to notify the site of their true levels.

Fuel trucks makes the round to all the bore wells every day to check the levels and fill the tanks up where necessary.



HawkEye 365 Online Inventory Asset and Monitoring Portal.



Centurion Guided Radar (CGR) Level Transmitter on Diesel Tank.

This is an enormous waste of resources as the same fuel trucks are used to fill the haulage dump trucks in case of emergency.

Mine sites want to optimize their fuel truck route by sending the trucks only to the bore wells where diesel level is low.

There were several challenges with this application.

One of the mechanical restrictions this company was requiring was that the sensors could not have more than 50mm high head because the diesel tanks had a lid.

The lid needed to stay closed when the tank was not being filled.

Also, they were prefabricated tanks, and the site was not aware of the thread sizes as the tanks were supplied by different manufacturers.

Fuel truck driver were requiring local indication of the level to make sure they tanks weren't overfilled.

For this difficult application HAWK provided a Centurion Guided Radar (CGR) level transmitter with remote electronics, loop powered remote display and vivid thread adapters to suit their tanks.

The CGR is an advanced Guided Wave Level Transmitter that features dual interface capabilities, built-in digital displays and has a measuring range of up to 38m (124ft).

This technology is not affected by pressure,

temperature, viscosity, vacuum, foam, dust, changes in dielectric constant or coating of the probe.

The complete circuit was powered by the Generator.

The Level output was hooked up to a radio telemetry unit that provides real-time level monitoring which allows the site to optimise their fuel truck deliveries.

The smart technologies implemented drastically improved the iron ore mine site's ability to monitor tank levels and improve overall productivity and efficiency.

For more information on smart technologies for the mining industry, please contact Hawk Measurement Systems (HAWK).

HAWK is the world leader in level, positioning, asset monitoring and flow measurement technology, providing cutting-edge equipment and complete solutions to the global industrial market.

HAWK specializes in reliable and continuous level measurement in storage silos, on conveyor belts, conveyor belts, clarifiers, and blocked chute detection with the ability to send real-time data to a computer, control room or smartphone.

The mining industry presents unique challenges due to the dust, mud, impact, abrasion, and build-up of material on sensors, which HAWK has successfully solved for over 30 years. **AMR**



HawkEye365 Online Inventory Asset & Monitoring Portal

The Industry's First In-plant Power over Ethernet (PoE) Sensors.
Monitor Multiple Remote Tanks & Applications Worldwide In Real-time.



Hawk Measurement Systems' (HAWK) HawkEye365 Online Inventory Asset and Monitoring Portal is unlike anything on the market today, this system is uniquely different due to the communications capabilities and compatibility with HAWK's PoE level sensors.

The portal provides accessibility to critical data such as the ability to view volume, space, material height, historical trending, alarms and alerts, sensor setup and diagnostics. Plant level operator screens are customized to the company's specifications to include control room level and operations level interface screens.



**Real-time Plant Data | Eliminate Costly Downtime | Alarms and Alerts | 24/7 Access to Data & Tank Health
Ability to View On Web | Implemented on Cloud and/or Local Server**

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Exactly What You Need When You Need It

Field Machine Tools is Australia's largest stockist of specialist onsite machining and portable maintenance equipment.

We offer for hire and sale one of the most comprehensive ranges of portable equipment suitable for a large range of applications, materials and specifications.

FMT is a dry hire only company - we never compete against our customers for on-site service work - with conveniently located branches in Queensland, Victoria and Perth. Maximising equipment up-time is critical to shortening project completion times and increasing bottom line profits.

Removing equipment from the job site to a repair facility can delay project completion and put a damper on profits.

This is where Field Machine Tools can help. FMT has the on-site repair and maintenance machines that will minimise maintenance times and keep equipment working for companies and their customers.

Keeping equipment and plants in top operating condition is a constant challenge for today's mining, oil, gas and power generation contractors.

Our wide range of portable equipment is available for rent or purchase, Australia-wide from our three branches, and include equipment for machining applications such as Portable Milling Machines, Portable Lathes, Clamshell Pipe Lathes, Flange Facers (OD and ID mount), Line Boring Machines, Vessel Grinding Machines and Pneumatic Magnetic Based Drills.

For welding applications, there are Bore Welding & Cladding Machines and Induction Heat Treatment Equipment.

For valves, there are Valve Test Equipment, Valve Repair Equipment and Portable Valve Actuators and, for heat exchanger, condenser and boiler manufacture, repair and maintenance there are Tube Pulling Systems, Tube Cleaning Systems, Heat Exchanger Tools, Torque Controlled Rolling Motors and Australia's largest stock range of Tube Expanders and consumables.

FMT is the Australian agent for major international brands including:

Climax Portable Machine Tools, an impressive range of highly-sought after industrial equipment designed by a market leading manufacturer for the rugged challenges facing Oil, Gas, Mining, Chemical & Power Generation Industries.

CLIMAX pioneered the portable machining revolution in 1966.

For more than 50 years they have been the innovators and technology leaders in the industry they invented.

They're #1 for a reason!

Modex Motors and Portable Valve Actuators and Modex vane air motors have been used for 30 years as an alternative to traditional electrical motors in many demanding applications.

They supply OEM replacement motors to a wide variety of industries and application-specific motors to customer specification.

This includes a versatile range of Portable Valve Actuators for preventative maintenance of valves, even in the most demanding of environments, and incorporates a reaction device designed to reduce the risk of strain injury to the operator.

Krais Tube & Pipe Tools has been delivering top quality tube tools for over 40 years.

Designed and manufactured by their engineers, the whole process from paper sketch to producing the tools is controlled in-house with one of the biggest and most modern machinery and production line in the EU.

There is a comprehensive range of Con-

denser, Boiler Tube Expanders, Tube Rolling Motors, Tube Installation Tools, Tube Cutting and Removal Tools, Tube Pulling equipment and Accessories.

Goodway Technologies is a USA-based manufacturer of specialised industrial maintenance products for HVAC, Energy, Manufacturing, Food and Beverage Production markets.

Since 1966, facilities and plant maintenance personal have used their innovative products to maintain HVAC systems, plant machinery, hazardous material clean-up, surface cleaning and other critical maintenance needs.

Established in 1995, Field Machine Tools (FMT) is a privately owned Australian company that provides engineering solutions for field applications to minimise downtime.

The scope of operations is to provide the most complete product lines available to OEM equipment manufacturers, maintenance providers, field service companies, power stations, petro chemical plants, mining industry and other related industries.

Call Field Machine Tools on **1300 FMT FMT** (1300 368 368), email sales@fmt.com.au or visit www.fmt.com.au for more information. **AMR**



Field Machine Tools has a range of end prep machines suitable for 12.7mm to 610mm bore mount to face, bevel or counter bore tube and pipe.



Field Machine Tools has rugged and innovative portable flange facers for 19.1mm to 5054mm (0.75 to 199 inch) diameters. Several of the machines can be configured for facing, milling or both.



Field Machine Tools has OD mount flange facers suitable for 0mm to 3050mm (0 to 120 inch) diameters. Several models can handle flat face, raised face, RTJ, tongue and groove, lens ring, Grayloc and compact flanges.



Field Machine Tools has a range of Clamshell Lathes suitable from 33mm to 1676mm OD pipe preparation whether severing, bevelling or counter boring.

FUEL & LUBRICANT STORAGE and DISPENSING

DESIGN | ENGINEER | MANUFACTURE | INSTALL | COMMISSION | SERVICE

CUSTOMISED SELF-BUNDED TANK SOLUTIONS

- CONTAINERISED TANKS – 11,500L up to 194,500L
- CUBE TANKS – 600L up to 10,000L
- STORE TANKS – 5,000L up to 20,000L
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TOTAL LIQUID CONTROL

There isn't one standard solution when it comes to industrial processing tanks, making manoeuvrability and innovation key from design to manufacture.

Whether the application is intended for static storage, solids separation, or clarifying liquids, each tank benefits from the ability to adapt to various needs.

Additionally, well-planned liquid storage and distribution is essential for the mining and resources sector.

Whether the requirement is a simple tank for storing potable water or a more complex system, running out of critical resources is simply not an option if remaining operational is the goal.

The Australian Mining Review spoke to COERCO Industrial Sales Manager Gareth Wallis and Business Development Manager Daniel Rignall to understand the value of bespoke tanks and ensuring each tank is engineered with the end application in mind.

Made To Measure

Although COERCO does offer a standard range, each tank is customisable, or it can be designed from the ground up, with the end application and all relevant standards in mind.

According to Daniel, this extends far beyond the simple shape and size requirements and into the actual material used to accommodate water, chemicals, or waste, made possible because the COERCO team includes in-house engineering resource and polyethylene processing facilities.

"We can engineer the tank with polymer properties to what is required, so if the project entails higher specific gravity liquids, we can increase the durability of the tank and match it to the density and properties of the medium that it is going to be storing," he said.

"For example, if the tank is going to be holding aggressive substances including corrosive chemicals, some resins might not be compatible, so we'll direct the client to an

appropriate material selection with safety and longevity in mind.

This in-house raw material processing is in line with COERCO's aim to keep as much of the manufacturing in-house.

"The more we can control internally, the more we can provide exactly what the client needs and manage the project right from inception to delivery, assuring high quality control.

"We can assist at very early stages of a project to help expedite the design and engineering aspects of liquid management requirements or if there is a necessity for full customisation around existing elements of design, then we've got the internal ability to do that."

This capability has enabled COERCO to engineer solutions for numerous processes including water and chemical storage, solids separation, and mixing or agitating.

The Range

With nearly three decades of working in major mining projects, COERCO has built an extensive understanding and range in all aspects of liquid storage and safety.

COERCO simplifies the process of finding reliable and engineered liquid management solutions whatever the scale of the project.

"We recently deployed a range of tanks for a state-of-the-art water treatment plant on a lithium mine for various mediums. Our team worked with them at very early stages of design which included agitator structures and access platforms which they could integrate into their overall design," Gareth said.

Storage of volatile or dangerous chemicals is a regular and popular application for COERCO's client base, and the self-bunded tanks in their range eliminates the risk of leakage or spills.

With a large range of sizes available as standard, and a bespoke design service to suit any requirement, liquids can be stored with confidence in these robust and durable tanks.

The range of bunded, or double-skinned tanks eliminates the need for concrete bunding, reducing wastage in time and money.

COERCO's agitator tanks offer the ideal solution for consistent blending or solids separation.

These fully engineered vessels come with all the benefits of COERCO's other high-quality storage tanks, with the addition of sturdy motorised agitators for reliable, repeatable results every time.

Ranging from capacities of 1000L to 50,000L, the agitator tanks are chemical and impact resistant with a tough polyethylene construction.

Their one-piece construction ensures they have no weak spots, and their UV stabilisation enables them to withstand the harsh Australian climate.

The agitator options available can be used for processing a wide variety of viscosities and applications.

With engineered support stands and overhead frames available, as well as personal access platforms, the tanks come with a wide range of fittings and accessory options to suit any requirement.

Complete drainage and consistent mixing can also be achieved with the conical based tank systems. "No matter what the requirement, we engineer a solution based on the specifics of the mediums being mixed or blended and we offer a package solution in terms of a vessel to suit and then the relevant agitating or mixing apparatus," Gareth said.

In another case of COERCO finding fit for purpose solutions for their clients, at Rio Tinto's Gudai-Darri mine in Newman, WA, an electrical contractor intended to truck potable water to the site.

"They needed a solution where they could have a reasonably mobile tank, so we engineered skid mounted tanks with the required pumps that then fed the site facilities," Daniel said.

"The whole unit could be picked up and deployed anywhere else on-site as the project progressed."

A clarifier, or a settling tank, is used to remove solid particles from liquid by mechanical means, with applications including wastewater treatment and other water processing.



An agitator tank designed by COERCO for Tianqi Lithium in Greenbushes, WA.



Coerco's Business Development Manager Daniel Rignall works closely with clients in the discovery phase of liquid management projects.

According to Gareth, the COERCO team can produce vessels designed specifically for individual projects or sites, including weir systems, internal pipework and outlets designed to meet various requirements.

When faced with temperature sensitive applications, COERCO can also offer insulated solutions with the addition of polyurethane foam systems bonded to the tank polyethylene construction.

"Our overall offering is not just above ground storage tanks either," Gareth said. "We can incorporate underground tanks for either emergency storage for wastewater or pumping."

The range of underground storage tanks offers much-needed flexibility for locations lacking the space on-site for a traditional above the ground tank.

With all the benefits of a traditional tank, these polyethylene underground storage tanks can be installed completely out of sight.

Complete Solutions

Aside from a diverse product range, the thing that sets COERCO apart is the team's dedication to providing complete solutions, rather than just the tank itself.

If this means dropping its designs into larger models, as it has in the past, the COERCO team are happy to respond to the challenge. "That's around the ethos of being able to provide a complete solution to the client," Daniel said.

"The mindset that we want to create is that if a customer has a section of the package that they'll be working on that is much bigger in terms of size and dollar value, we may have something that's a relatively small part of that project, but we know that a lot of thought still goes into it.

"We pride ourselves on being able to provide an answer that's fully encompassing and everything they need without looking to multiple vendors.

"We also integrate the end products with other facets such as skids and pumps for particular applications as required."

According to Gareth, other more specialised areas that COERCO offers further to that capability is compatibility and finite element analysis assessments on their products.

This includes cyclonic tie-down designs which are fully certified.

"One of the most important things for us is to be able to offer something that has been fabricated to specifications and that it meets the highest standards required by the rigours of mining projects," he said.

"The other thing that comes up with these sorts of tanks is not just the logistics of getting it on to site, but also loading and installing it, so our team works closely with onsite contacts to ensure that happens seamlessly.

"We've got a plethora of resources we can pull from to find solutions to meet the ever-changing requirements of the mining industry."

In-house Modification

COERCO has invested heavily in research, development, and technology to expand its capabilities to meet client requests with greater flexibility and adaptability.

"The strength of having our own in-house modifications team gives us the ability to customise within our product ranges to greater extents," Daniel said.

Part of this dedication to customisation is COERCO's qualified polyethylene welders, who focus on customising products based on client requirements.

Various highly qualified and skilled teams are involved to customise products to clients' requirement, ranging from polyethylene welders, design and development team to chartered engineers and draftsmen.

About COERCO

Deriving its name from the Latin word coercere, which means to surround, enclose, or hold together, COERCO has carved out a reputation for manufacturing industry-leading poly tanks.

Beginning as Rapid Plastics WA in March 1993, COERCO is now an established and trusted Australian supplier of innovative polyethylene product and engineered solutions, which are essential for liquid management in the mining and civil construction sectors.

The company can provide solution for all aspects of liquid management and storage across its three main divisions: water and chemical processing, dewatering, and civil construction.

It can also provide specialised pump support systems for tailings, decant and process water operations, including but not limited to, pontoons, strainers and intakes, pipe/cable float systems, floating walkways, and access gangways.

COERCO's areas of specialisation include oil, sludge and fuel storage, specialist

transport for mining operations and plants, as well as dust suppression systems, water delivery and trailer mounted units for civil construction.

Although it has predominantly been a poly-based product manufacturer, it has broadened its scope over the last 30 years to service the mining and heavy industrial markets and has moved into steel production to support the poly product range.

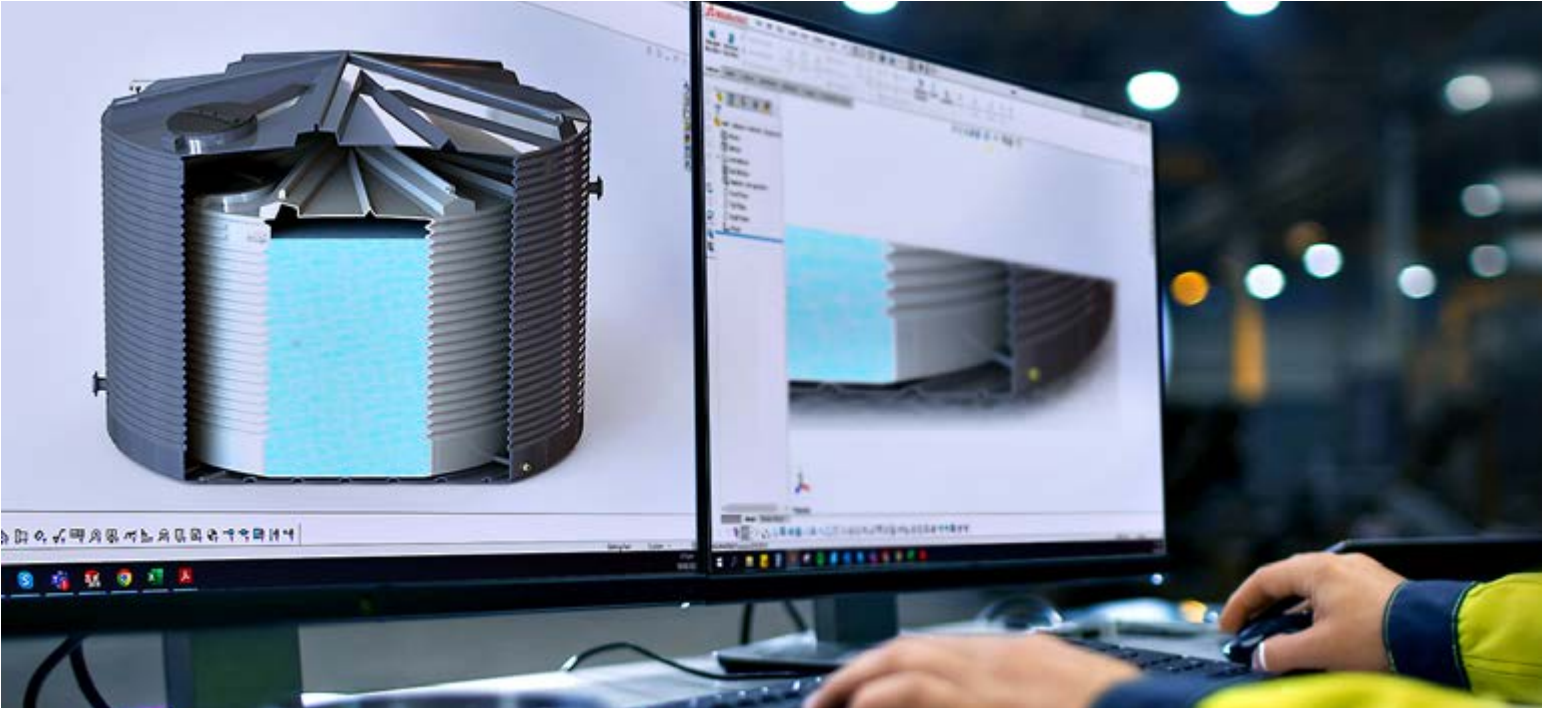
COERCO employs a diverse team of 110 full-time staff across its three factories and two offices in WA.

The main factory and head office are 250km north of Perth in Dalwallinu, which is ideally positioned to service the Pilbara and northern areas.

The other two factories in Northam and Bunbury are predominantly used for steel fabrication, while its additional Malaga office provides COERCO with a Perth hub.

Whether the application is agitating, storing, or clarifying, the team at COERCO will find a tailor-made solution. **AMR**

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HOSING DOWN YOUR PROBLEMS

INSPECT AND CHECK

Continental has encouraged the mineral resources sector to keep an eye on their hydraulic hoses and fitting retention methods, citing that regular inspections were key to safe and efficient mining operations.

Considered one of the globe's leading industry specialists, the business retains a wealth of material expertise across rubber, metal, textile, electronics and polyamide systems, positioning it as the authority on product solutions.

Among their vast offering are hydraulic hoses and fittings, equipment expertly designed to deliver fluid at extremely high pressures that withstand the most challenging conditions in the mining, manufacturing, construction and logistics sectors.

According to National Business Manager Scott Weston, hydraulic hose assemblies are a fundamental and critical component in many high pressure mining applications & operations, Safety & assembly integrity is paramount and must be sourced from a reputable provider and regularly checked for safety & to ensure optimal service life and machine uptime optimisation.

Scott also emphasised the critical need for a designed matched assembly system that would ensure a safety, & integrity with benefits such as leak free, extended service life along with a considerable improvement in productivity & machine up time.

"It is known & estimated that approximately 56.5% of incidences causing downtime on long wall mining equipment is due to hose failures," Mr Weston said.

"Selection of the proper fittings for the application is essential to the proper operation and safe use of the hose and related equipment."

"Inadequate attention to the selection of the hose fitting for the application can result in hose leakage, bursting or other failures, which can cause serious bodily injury or property damage from spraying fluids or flying projectiles."

Innovative products such as hose guard and line of sight sleeving can also be provided to the customer applications delivering another level of safety – Scott said

SAFETY FIRST

Looking to enhance safety across mine sites, Continental has urged operators to become familiar with their hydraulic system needs, select appropriate fittings and commit to routine servicing.

Mr Weston commented that the hose to coupling interface integrity is w extremely difficult to achieve requiring substantial engineering is requiring Impulse Flex testing validating the performance of each & every coupling design with every hose construction.

According to the National Manager, opting to use non-validated - or non-matching – fittings posed a significant risk to users and increased potential for premature failures.

He warned that with such high pressures involved the potential to cause serious injury or death, is real meaning that it is critical for operators to check regularly and follow manufacturer guidelines and replace before failures occur.

"Impulse testing along with many other critical dynamic tests are the key to superior performance and safety & longevity criteria for a hose and coupling combination,"

"Equally important is that the hose and coupling are designed together to ensure interface integrity and performance" Mr Weston said.

Remember - hydrostatic testing does not ensure integrity of the assembly. Request validation proof if there is a doubt.

"To ensure that hose failures are reduced to a minimum, use the manufacturers matched system including the correct manufacturers assembly procedures and crimp specifications."

GROWING WITH INDUSTRY

With 150 years of industry experience, the veteran multinational has evolved with the resources sector to meet the needs of the modern mining operation with a high-calibre product offering.

Continental hydraulic hose assemblies include strong impulse performance together with extra special options such as abrasion-resistance designed for higher pressures, higher bend radius and significant flexibility.

Operators working in oil and gas or similar industries are accommodated with high or very low temperature performing hoses, ideal for pumping petroleum or water-based hydraulic fluids.

Hoses can pump oil safely, adapt to low, medium and high pressure needs and can be specially developed to meet unique and client-specific applications.

Meanwhile, Continental crimp fittings provide maximum coupling retention on 1- and 2-braid hoses as well as 4- and 6-spiral hoses.

Serrations penetrate the cover with a powerful bite into the wire reinforcement, resulting in even hose compression.

Mr Weston said Continental was continually experimenting with materials, design and investigating industrial needs to bring fresh innovations to market, as well as sharing best-practice advise for the sector.

Continental hose, fittings and crimping equipment work together to provide an efficient and reliable hose connection," Mr Weston said.

"The hose and fittings are part of an engineered system and are to be assembled in accordance with Continental specifications.

"Choose fittings carefully, considering the working pressure of both the hose and fitting.

"The maximum working pressure of the hose assembly is the lesser of the rated working pressure of the hose and the fitting.

"Remember the factors involved in the selection of the proper hose ends, including fluid compatibility, pressure, temperature and installation design," Mr Weston said.

TIPS AND TRICKS

To get the most use out of Continental hydraulic hoses, Mr Weston said operators should direct fitting questions to the Continental Hydraulics Application Group.

Operators looking for guidance on hose and coupling assembly are encouraged to check the Crimp Specifications Manual, particularly to ensure they are compliant with warranty criteria. This can also be accessed through the Continental MyCrimp app.

Assemblies that don't use Continental matched hoses and fittings will not be covered under warranty and nor will assemblies that are not crimped in accordance with the company's process specifications.

While buyers may use different manufacturing specifications or attach additional or non-standard parts, they have sole responsibility to qualify the hose for these applications as necessary to ensure performance capability.

Mr Weston also reminded clients that using non Continental components may produce an assembly that does not meet rated performance and specifications.

ACROSS CONTINENTS

From humble beginnings that can be traced back to 1871 Germany, the Continental brand has evolved throughout the last century into a pillar of heavy duty industry around the world.

The company prides itself on offering functional and design-oriented solutions, as well as products and services with significant green credentials.

Hosting around 236,000 employees across operations in more than 58 countries, the business has proven itself to be a reliable global partner with capacity to accommodate industry on both the domestic and world stage.

Continental product mix is a diverse range spanning from basic solutions to high-end technologies and is conveniently complemented by the company's extensive knowledge of the industrial market.

At the core of the reputable multinational is industrial safety, with the company using a wide range of materials and expertise to provide innovative safety products for the harshest of working environments.

Each crucial product comes with important safety advise, enabling operators to create a safe, thriving and productive site.

**For more information,
visit ContiTech < Organization <
Company | Continental Industry <
(continental-industry.com)**

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Underground Coal Mining



FRAS PVC Hose

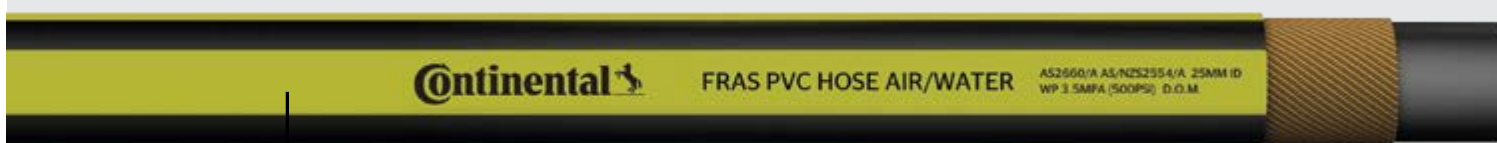
When your underground operations cannot afford unexpected downtime, you need a product you can rely on. Continental FRAS PVC Hose (Air/Water) is one thing you can count on.

APPLICATIONS

Underground air/water mining hose that is both fire resistant and anti-static. Its unique and premium construction offers optimum performance and longevity in the toughest underground mining and industrial applications.

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Cover:
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GEARING UP

With Valves and Controls Specialist Midwest

For over 21 years, Midwest Valves and Controls has built a reputation as a specialist supplier of industrial valves, pumps, hoses, process instruments and pneumatic products.

Located in Gulgong in the Central West region of New South Wales, the business leverages its partnership with world-class brands to deliver a comprehensive range of quality products for industrial and commercial applications.

Since kicking off in 2001 supplying valves, flow meters and pumps, Midwest has progressively evolved its product offer — from installing solar panels and pumps on rural properties, to supplying resistance temperature detectors for use in conveyor systems.

The business now resells most types of industrial valves, and manages enquiries relating to solenoid, gate, globe, ball, butter-

fly, non-return, needle and actuated valves, whether pneumatic or electric. It can also supply pressure relief, pressure sustaining, safety relief and pressure reducing valves.

Midwest has an in-house technical specialist that facilitates the calibration of industrial instruments through its partner Zenith Calibration and Sales.

According to Midwest Owner and Chemical Engineer, Peter Willis, fluid power engineering and hydraulics are integral components of equipment across multiple industries, from agriculture and manufacturing to mining and offshore oil drilling.

"No matter the application, we source and supply everything from instrumentation to diesel handling and lubrication gear, industrial valves and pumps," said Willis.

"As a leading industrial valve and pumps supplier, we're well positioned to supply our customers with both quality products and after-sales support. We can also supply precision products for equipment automation and control of air, liquids and gases within different applications."

Midwest is set to introduce a range of Flextool pumps and drive units into its product portfolio to meet the varied applications faced by customers in the mining and construction industry.

Flextool pumps are highly efficient submersible units that are operated by petrol or diesel portable drive units. These drive units are fitted with a quick action coupling for easy connection of a range of flexible shaft submersible pumps and concrete vibrators.

The pumps are completely self-priming with a robust design. The flexible shaft drive facilitates use in many situations where close coupled pumps would not be suitable. The new FP212 series now come with flexshaft support springs that protect

the drive shaft when operating over the sharp edge of excavation pits, dam, pier holes and trenches.

Aside from supplying Norgren air preparation equipment and air compressor products from Glenco Air & Power, Midwest also resells a range of Wilden pumps. Wilden is a recognised global leader in cost-effective, reliable and energy-efficient AODD pump technology.

A notable innovation is Wilden's Pro-Flo® SHIFT Air Distribution System, which has shifted pneumatic pump efficiency to a new level. This technology has eliminated the issue of wasted air once experienced in traditional air distribution systems, which also increased plant operation costs as a result.

To explore Midwest's comprehensive range of quality valves, controls and pumps, visit

<https://midwestvalves.com.au/>

or contact one of their technical experts on **02 6374 2808**.

AMR



Midwest Valves and Controls understands the Australian pneumatic product market for air preparation equipment.

For over 21 years, we have supplied market-leading brands such as Norgren, Process Systems and SMC to meet a wide range of industry applications.

We specialise in selecting industrial valves, pumps, hoses, process instruments and pneumatic systems for distribution nationally.

Contact Midwest today on 02 6374 2808 to speak with a technical expert, get a competitive quotation or book an efficient service.



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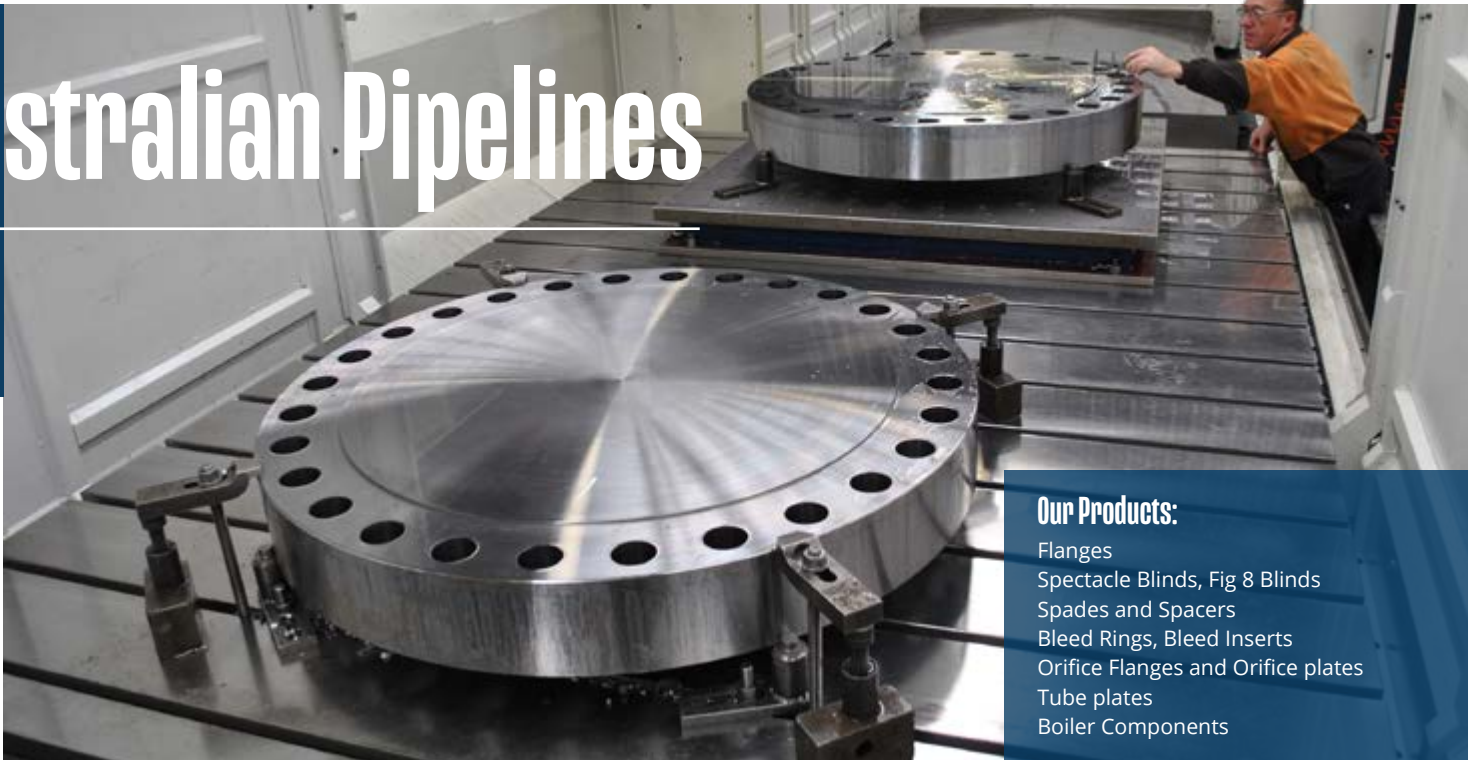
Caman Engineering is strengthening industry supply chains with solar-powered manufacturing – a move that has put a welcome green spin on flange production.

Following almost 70 years' of service, the Australian-owned company has pivoted to a sustainable production solution that accommodates the increasing number of operators prioritising environmentally friendly mine sites and suppliers.

The family business' in Sydney and Perth now has a 100kw solar system installed to power flange-making machines in its factories, which supports a variety of oil, gas, mining and petrochemical companies throughout Australia.

Caman Engineering Director Mark Cavanagh said the company boasted the nation's largest independent stockist of flanges and had become a mainstay in the mineral resources sector for its durable and well-designed products.

He said the flanges were manufactured to various standards to meet process conditions, but the company was more than capable of supporting clients with unique or complex requirements.



Our Products:

- Flanges
- Spectacle Blinds, Fig 8 Blinds
- Spades and Spacers
- Bleed Rings, Bleed Inserts
- Orifice Flanges and Orifice plates
- Tube plates
- Boiler Components

"If a specific engineering requirement dictates the need for special material or manufacture, we are absolutely able to meet that need," Mr Cavanagh said.

"We are a manufacturer with full ISO 9001 certification, and we can package flanges according to either engineering or project specification, capped off with remarkably short delivery times."

Caman Engineering's comprehensive flanges stock is matched only by its diverse range of valve products.

The major valve supplier leverages forged steel, stainless steel and cast steels to make unrivalled components for a range of mechanisms spanning screwed, flanged, and socketed.

The products can withstand a vast array of demanding and challenging environments, including extreme pressure, fire, and other high-temperature applications.

Clients unsure of the products best suited to their requirements are supported by a dedicated and highly experienced sales team, which provides data sheets and drawings detailing the capabilities of each product.

With investment in state-of-the-art computer operated drilling and turning machines and a holistic understanding of industry needs, Mr Cavanagh said Caman Engineering would only continue to be a trusted and key supplier to the mineral resources sector.

"Caman Engineering is 100 per cent Australian and owned by the same family that

started the company in 1954," Mr Cavanagh said.

"We have evolved with the Australian mining sector, with knowledge passed down through the generations.

"Our leadership have built and sustained a successful business centred on customer service and high-quality products.

"We are an accredited company and approved manufacturer and supplier, able to fulfil the needs of oil, gas, mining and petrochemical companies all across Australia."

For more information, visit www.camaneng.com.au

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QUALITY DRILLING AND SAMPLE RECOVERY

Raglan Drilling has the capacity and capability to work around Australia with 18 rigs specialising in RAB, Air Core, Reverse Circulation, Diamond, Auger and Lake Drilling.

The company has come a long way since 2006, when brothers Hugo and Gus Lacey started out with a one air-core rig in Kalgoorlie, WA.

Fifteen years later, Raglan Drilling has become well-known for delivering high-quality sample recovery and safe exploration drilling services.

Raglan Drilling director Gus Lacey started out in the mining industry as a geologist and has experience running resource definition programmes, grade control drilling, grade control modelling and ore extraction.

“With drilling experience from both sides of the industry, Raglan Drilling understands issues relating to poor sample recovery, hole deviation and the effects on resource estimation, head grade, block model calculations and dilution,” he said.

His brother Hugo started as a driller’s off-sider for McKay drilling and worked his way through to a driller in record time.

Hugo is also a competent RC & AC driller who provides a wealth of knowledge in all aspects of air drilling.

“Our long-term clients include AngloGold Ashanti, Apollo Consolidated, Breaker Resources, Horizon Minerals, Lefroy Explora-

tion, Nexus Minerals and St Barbara,” said Gus.

“We strive for effective and clear communication to ensure the best outcome for every drill program.”

With dedication and a ‘can do’ attitude, Raglan has gained a reputation for strong client relationship and satisfaction amongst a crew of 80 people.

Raglan Drilling’s commitment to the health and safety of its employees and the protection of the environment is demonstrated by four-plus years of ISO accredited systems.

The list of equipment that Raglan Drilling provides includes a fleet of modern Deep Hole RC rigs, Deep Hole Diamond and fully mobile small foot-print Air Core rigs.

With 10 years of Salt Lake Drilling, Raglan offers a full suite of drilling disciplines and specialty skills for those “hard to reach” exploration targets.

Raglan Drilling also supplies complete remote camp setups with either Explorex-type caravans or transportable buildings.

Every three months, Raglan Drilling holds geology lectures with the Goldfields geoscientific community in Kalgoorlie, WA.

Drop Raglan Drilling a line now on
08 9021 3833 or email
admin@raglandrilling.com.au
to find out more. **AMR**





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DRILLING

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www.raglandrilling.com.au





All Baseline Onsite staff are medically trained and can look after all aspects of worker health and safety, including emergency rescue and response, at remote mine sites.

THE BASELINE FOR SUCCESS



Baseline Onsite's team of over 300 specialists provide leading medical, security, safety and training services to its mining, energy and construction clients.

Mine site worker health and safety are paramount to an operation's or project's success.

Baseline Onsite is an integrated provider of medical, security and safety services for remote locations.

With over 300 team members based at more than 60 remote sites around Australia, Baseline Onsite project manager Tammie Lauritsen says the company is uniquely positioned as a health and safety partner for mine sites.

"We provide highly-trained staff, either through recruitment drives or contract placements, for all onsite medical, emergency response, risk management training and occupational support services," she said.

"Our medical teams provide immediate treatment and reduces unnecessary travel

off-site or in emergency situations, stabilise patients whilst waiting for help to arrive on-site.

"As trained emergency first responders, our personnel can get to locations immediately, reducing the risk of lost time, thereby saving lives.

"Our staff are all medically trained and we look after all aspects of employee health and safety, allowing workers to return to work quickly and safely with minimal to no impact on production targets or project deliverables."

Baseline Onsite has a long history of providing healthcare services through its team of dedicated doctors, paramedics, nurses and project staff to remote mining, energy and construction industries.

The company has helped improve efficien-

cies and maintain 'business as usual' for more than a decade through its onsite medical support, health screening, vaccinations and the creation of medical emergency response plans for employees.

"We provide customised solutions to clients to suit their requirements, taking into consideration their workforce size, site location, proximity to other medical services, risk profile as well as budget," Ms Lauritsen said.

"Baseline Onsite also manages the set up for their medical teams to obtain, supply and dispense medications under the Poisons Licence Act and in accordance with State-based legislation.

"Backed by our experienced clinical governance team, this further decreases risks onsite by lessening the requirement to transport patients to local health facilities and further enhancing efficiencies around

immediate treatment and assessment," Ms Lauritsen said.

About Baseline Onsite

Baseline Onsite was formed in 2010, initially servicing mines in Pilbara, WA.

Today, some of its clients include Fortescue Metals Group, BHP, Rio Tinto, Gold Fields and South32, spanning the country from WA and the Northern Territory to Queensland and South Australia.

Last year, Baseline Onsite acquired WEST Rescue, positioning itself as a one-stop shop for medical, emergency response, safety and risk management solutions, as well as a nationally accredited RTO.

Baseline Onsite is part of Jobfit Health Group, one of Australia's largest providers of occupational health and medicine services and a division of Partnered Health. **AMR**



Keeping your workforce healthy and safe

We understand mining sites are complex and high-risk operating environments, often in remote locations with limited local resources.

First and foremost we protect the health and safety of your people, improving efficiencies and minimising risk and business interruption on site. We provide customised solutions to suit your company's individual needs, considering your workforce size, site location, proximity to other medical services and budget. Our integrated on site solutions include:

- Onsite Medical & Clinical Support Services
- Emergency Response and Rescue
- Remote Site Security
- Safety Advisors
- Poisons Permit Management and Site Clinical Governance
- Onsite Training (RTO 51654)

Speak with us to learn how we can protect your workforce.

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baselineonsite.com.au





MST Steps up to Fill Critical Gap in Skills Supply

A new report has identified skills shortages as the biggest threat to Australia's mining industry.

AREEA, the Australian Resources & Energy Employer Association's recently published "Resources and Energy Workforce Forecast 2022 - 2027" report found that 107 major resources and energy projects, worth roughly \$130 billion, are currently advanced in Australia's investment pipeline. However, it suggested that skills shortages are not only threatening the continuity of operations but driving other issues including historic levels of staff turnover and spiralling sign-on and retention bonuses.

One local company that is investing heavily to play its role and helping to bring new people into the resources workforce is Malaga-based Mine Safety & Training (MST).

The Australian Mining Review recently caught up with MST's managing director, Peter Nicholls, who unveiled some of the exciting new developments the company has made this year.

"There is no doubt that there is a significant skills shortage at the moment, and one of the biggest concerns potential new employees have is, how do we get started? Mining companies are looking for people with skills, however, for a number of people, the question remains, how do I get those skills? Where do I start?"

Peter established MST after having spent 40 years working in the mining industry in Australia, Ghana, Mali, Egypt and South Africa performing various operational roles on the surface and underground, before moving into senior Safety management positions working with both contractors and owner operators.

He says it is very difficult for someone with no experience to just turn up at a mine site and that is why he has developed the MST "mine ready programme."

"We get the people in, we train them, give them a basic level of experience for what working underground is like, because there is nothing worse than turning up on site and finding out that it's not what you expected.

"They may never have worn a helmet before, or even worn a miner's belt. We teach them about the signals they may see on site, we give them an opportunity to feel how heavy drill rods are, etc.

"When they leave here, they'll have all the core competencies. We will have run through a whole range of things they can expect to see and hear when they go to a mine site. We give them all the emergency information, all the operating procedures, so they have a really good understanding and are prepared to work underground or at heights.



"We can take someone who is totally green, never been on a mine site possibly, and then taking them up to a level where they will have a significantly improved level of knowledge and confidence and are ready to go to the next level."

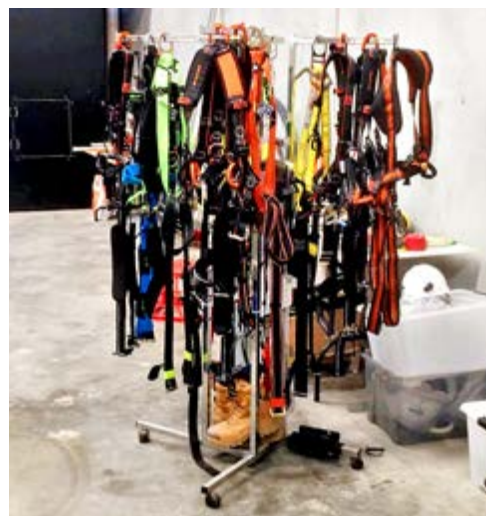
State-of-the-art training facility

In its Malaga facility, MST is not only offering the theoretical assistance to provide entry level skills, but the opportunity for newcomers to work with the latest in modern mine simulation equipment, providing trainees with a real hands-on experience.

This includes what is believed to be Australia's first ever, privately-owned "underground operator simulator."

The facility also has a mobile confined space training unit, a miner's refuge chamber and a confined space training area.

The upgraded facility is already attracting new interest with a major client recently visiting with the MST team.



"They want us to do all their inductions for their whole site. We will bring their new employees through here first, and whether they are experienced or green, they will come through here.

"It is important that new employees have that entry level knowledge. It's not the be-all and end-all because you can't beat hands on practical mine experience. But we've got one of the next best things in that we provide them with hands-on practical training in a safe, simulated environment."

MST also caters for employees who have had some mining experience.

"We also offer our clients who may be having some productivity issues where we can fine tune their operators. We can put them through here as on a DD 420 Jumbo or a Sandvik 517 loader, or a Sandvik truck and we can work on their skills."

MST's trainers have over 120 years combined mining experience and a wealth of experience and knowledge in the underground mining industry. MST also offers underground shotfirer training and competency.

With new projects continuing to grow and demand for new workers matching it, MST's expansion of its "mine ready programme" is particularly timely.

MST also offers Entering Confined Spaces training and Gas Testing Atmospheres training, along with Work Safety at Heights training both inhouse and mobile.

For further information all the courses MST offers visit:
<https://minesat.com.au/>

AMR

INDUSTRIAL CLEANING

the Perfect Diversification for a Mining Services Contractor

SMW Group has over two decades' experience in mine site heavy fabrication, field service and mobile/fixed plant repairs. Eight years ago, the company decided to diversify into other areas of the mining industry. Industrial cleaning was the perfect solution for SMW Group, who already had inducted staff, the right experience and site familiarity.

The industrial cleaning arm of the business, recently rebranded as Infra Techs Australia, has only gone from strength to strength since. It's even the biggest pathway for new-to-industry recruits to join the business.

With experience on dragline and shovel shutdown maintenance cleans, CHPP re-active and scheduled maintenance cleans, and even crib room and camp cleaning, Infra Techs Australia has capability across the whole mine site.

SMW Group's Chief Operating Officer, Cameron Tragardh, says their team of infrastructure technicians can take on any cleaning job for exceptional results.

"Infra Techs Australia pride ourselves on offering solutions to any challenges a site may encounter. From COVID cleaning and

coal dust removal to keep employees safe, or high-tech cleaning with our remote-operated blasting truck – safety is a priority every day."

And it's not just limited to mine site cleaning either – the SMW Group and Infra Techs team recently partnered with Adani Renewables to deliver a solar panel cleaning project at the Rugby Run Solar Farm. The project was named a finalist in this year's Queensland Mining Awards.

"We approached the solar panel cleaning just as we'd approach any job: combining

our industrial cleaning know-how and an innovative approach to design a solution that maximised productivity and uptime – with our remote cleaning technology delivering wins all around," said Mr Tragardh.

Today, as part of SMW Group's core offering, Infra Techs Australia is recruiting technicians for ongoing projects. There's also capacity to expand into other mining regions to service new and existing clients – with a solutions-first mindset, anything is possible.

AMR



INFRA TECHS

INFRASTRUCTURE TECHNICIANS

a part of the **smwgroup**

UNCOMPROMISING, EXPERT INDUSTRIAL CLEANING

Your choice for capable, quick-to-site infrastructure cleaning & maintenance

Our infrastructure technicians work across the Bowen and Galilee Basins, cleaning equipment, plant and infrastructure for:

- scheduled maintenance
- shutdowns and reactive maintenance
- pre-inspection or rehabilitation (after a flood, fire or disaster)



Scan this QR code to find out about our capabilities, equipment and team

DUST SUPPRESSION

CHOOSING THE RIGHT
MISTING SYSTEM
FOR THE JOB

Since 2005 CoolMist® Systems Australia, a locally owned and operated company, has been providing innovative and effective fit-for-purpose dust suppression solutions to help meet health, safety and environmental objectives of the mining industry and many other industries throughout Australia.

Good dust management is essential to mine operations. Any dust, no matter the size, can pose a threat to workers' health and the environment, as well as have a significant impact on the running costs of the operational plant.

When looking for effective, sustainable, and better dust suppression, the adage "less is more" is easily applied with CoolMist® solutions.

Our products are energy-efficient and have a low volume water output, lowering the impact on the environment while proving extremely effective for airborne dust control. Our systems can incorporate fog concentration at specific high dust points or cover large scale areas.

Using high-pressure misting systems and mist cannons that are combined with specifically designed and engineered nozzles, water is

atomized into micro-fine mist (optimized to the right size) to form a dense fog. Airborne dust particles are engulfed by the mist droplets to form a mass, increasing their weight and causing them to fall to the ground or back to the process area.

CASE STUDY 1:

Mobile mist cannons

Recently CoolMist® supplied mobile mist cannons at a large iron ore mining operation in the Pilbara region.

Our brief was to implement a dust suppression solution to minimize and mitigate the drift of dust from mine stockpiles onto areas of heritage and cultural significance, to lessen the residual impact, and to help preserve flora and fauna.

A total of 8 AJET® Mist Cannons were required. All were purpose-built for site needs:

- 4 cannons AJ80-SBH complete with control panel, generator and mounted to trailers
- 4 larger cannons AJ150-CLU complete with control panel and generator mounted on trucks
- Radio control handset for each cannon (operate easily at a safe distance)
- Each model has a throw of 80m & 150m respectively, without wind

- Robust construction, built for heavy duty work
- Automatic oscillation and generous vertical tilt allows wide-ranging area coverage
- Easy clean nozzles, mounted for easy access
- A two-stage water flow on the AJ150-CLU allows water flow adjustment as needed
- Multi flow water delivery can also be incorporated on the AJ80 cannons

Running long hours over each week, the mobile mist cannons prevent dust migration off-site, assisting with EPA compliance directives.

CASE STUDY 2:

High pressure misting system

Another project recently completed in the Pilbara region was for a large gold mining operation. Our brief was to provide a dust control solution for the general process plant.

High pressure mist/fogging systems were installed around the operation plant including:

- ROM bin
- primary feed crusher and vibrating grizzly

- secondary and tertiary crusher feed bins
- scalping screen
- sizing screen
- stockpile conveyor feed chute
- lime silo
- various conveyor belt sections as required

Most fabrication requirements were engineered and completed in our Perth facility.

As a result of the installation, less than 1/3 of water was used when compared with a traditional low-pressure system. Dust suppression increased significantly by reducing dust levels up to 80%+, with fugitive dust containing gold fines returning to the process area.

Built-for-purpose solutions, keeping it local

One of the main reasons customers choose CoolMist® is our ability to provide custom, built-for-purpose solutions with sound knowledge and skill set, and our strong focus on dealing with local companies for supporting components. **AMR**

For more information on CoolMist range of products and dust suppression solutions can be found at:
www.coolmist.com.au



EFFECTIVE DUST CONTROL WHEN YOU NEED IT



For professional advice, design, installation, and service contact:

Dust control over large open areas and inside buildings is vital to protecting your operation & staff.

CoolMist® Systems customised misting systems provide an affordable dust suppression solution in areas where extraction is not possible or cost-efficient.

Since 2005, we have supported numerous clients with our tailored dust control solutions.

Our industrial dust suppression misting systems are used throughout Australia in mining operations, waste transfer facilities, recycling facilities, bulk processing facilities, excavation, and construction sites, building demolition, and asbestos remediation work.

Phone:
1300 266 564

Email:
sales@coolmist.com.au

or visit our website:
www.coolmist.com.au

CHANGING *the* GAME

Collaborative robots, colloquially known as cobots, are changing the way welding operations can manage expansion and how to best leverage their existing skilled workers in a time of highly-skilled labour shortages.

While historically any robotic form of welding automation meant the tacit replacement of existing labour (or the prevention of introducing more labour for expansion), where cobot inclusions into welding operations differ from previous industrial robot welding automation is that they are not designed to replace labour, but to augment it. Ultimately, the welding cobot is a welder's mate.

The application of this augmentation is dependant upon your unique operational requirements: what are your existing welder's core strengths? What menial tasks are requiring extensive time for your welders to complete?

While it's intuitive to think of cobots as the smaller, more accessible form of their industrial robot ancestors, within the context of welding operations they are uniquely positioned to safely work alongside humans in close proximity – actually, they are specifically designed to do this and to do it safely. This collaboration allows for a multitude of potential applications that cobot welding has begun realising, but at the core of it is:

- Doubling your current welder's throughput.
- Reducing OHS risks and incidents.
- Eliminating the reworking of welds and improving consistent weld quality overall.



- Ideal for short run, high mix welds.

The above examples provide a perspective on what it means to introduce robotics into your operations that is wholly different than what is commonly understood in the robotics space – it's about leveraging your operational strengths through introducing systems that add to your existing capabilities. A cobot doesn't always need to complete the entirety of a task. It can work in unison with a human, with the cobot welding the repeatable portion of the

weld, while the skilled human takes care of the more complex areas of the task which essentially doubles the throughput when operating collaboratively.

The cobot itself occupies a small (essentially human-size) footprint and has a whole host of safety protocols in place that make it as safe as working alongside a careful, safety-conscious human. With torque-sensors on every one of its six (and occasionally as required, seven) axis joints, and the ability to set "safety zones" and preventative "speed

limits" around the cobot, you're looking at a robotics system that is designed explicitly for safe collaboration.

It's truly a ground-breaking addition to the automation space, as previously you only had humans and industrial robots to perform these tasks. Now you have humans on one end of the operational spectrum, industrial robotics on the other end, and finally a solution that sits between them – the cobot welder, or, as we refer to it, your Weld Mate. **AMR**



Automate Your Welding with Industrial Robots & Cobots

KAWASAKI INDUSTRIAL ROBOTS

DOOSAN COBOTS

Increase weld quality, repeatability, efficiencies, and productivity

High throughput potential

Ideal for short, long, and complicated welds

Large space required for deployment

Small space required for deployment

Requires caged-off area

Can operate safely alongside humans



LEARN MORE

Contact us and enquire
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A HEALTHY WORK ENVIRONMENT STARTS WITH FRESHFILTER



SmartTech Australia is raising the bar when it comes to workplace health and safety standards with their new Freshfilter systems, an innovation in cabin air filtration for the mineral resources sector.

The cutting edge products combine stainless steel durability with high grade HEPA filters and digital controllers, enabling operators to monitor cabin pressure, carbon dioxide levels and hydrocarbons.

Clients can choose from a variety of purpose-built systems, including the F20, F33-R and FF Multibox XS.

With a diameter of only 350mm, the F20 is a particularly compact solution for tight-fit arrangements, while the F33-R is also limited in height and considered perfect as a roof unit.

SmartTech Australia Sales Manager Brendan Villiers said the FF Multibox XS was designed specifically to protect operators against severe dusts and gasses, making it the ultimate safety solution for domestic mining projects.

He said the 3000 Series Controller unit was also a highly-sought after solution, and popular for its stainless steel components and optional hydrocarbon sensor.

"The Freshfilter 3000 series control system is the standard choice," Mr Villiers said.

"It's a robust, stainless steel design with capacity to regulate air flow to maintain cabin air pressure.

"It has audible and visual monitoring and can be upgraded with a hydrocarbon sensor.

"Meanwhile, the 6000 Series Control System is the advanced option in controllers.

"It's similar to the 3000 Series but can be upgraded with both a CO2 Monitoring and hydrocarbon sensor."

With offices nationwide and a highly experienced team, SmartTech Australia was trust-

ed to be the exclusive distributor of Freshfilter systems, underpinned by the ability to provide both installation and support for clients.

The company's extensive offering to the civil and mining sectors is backed by a highly experienced team with their finger on the pulse of the latest market and technological trends.

Launched in 2017, Australian specialist has its roots in SITECH WA, where it first expanded from with just four employees.

Within a year, the exciting new company had acquired LOADRITE dealerships across the Northern Territory, Queensland, Victoria, Tasmania and New South Wales.

Combined with SITECH WA, SmartTech Australia is now the world's biggest Trimble LOADRITE dealership and has grown to more than 20 experienced technicians.

Mr Villiers said his consulting teams offered clients a first rate experience that hit the mark every time on safety and budget, giving operators a strong competitive advantage.

"SmartTech Australia has you covered, no matter the tech you want to engage, data you need to collect, reporting you need to provide and the industry you are in," Mr Villiers said.

"Through us, you can learn how easy it is to utilise technology that makes significant improvements in project workflow and solves your biggest challenges

"With the addition of On-Board Weighing, Safety and Software solutions to your civil construction projects, you're in a stronger, more competitive position.

"You'll experience new levels of productivity that will enable you to earn the bid and be profitable, project after project.

"Only one partner offers the broadest, deepest and most advanced set of tools, advice and support to revolutionize your construction workflow – SmartTech Australia." **AMR**





THE BEST IN MINING AND CIVIL TECHNOLOGY

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Ground Masters is supporting mineral resources projects from the ground up with their comprehensive mining and exploration services.

Founded in early 2004, the Kalgoorlie-Boulder company is an earthmoving specialist with experience in the mining, environmental, civil and domestic sectors.

The company's handpicked team of skilled tradespeople have capacity to mobilise machines across Western Australia's south



MOVING THE EARTH FOR YOU

east, making them an ideal partner for the region's operators in gold, nickel, copper and other commodities.

The company is popular for its strong environmental focus, which includes a green-friendly fleet of front-end loaders and backhoes.

Operations Manager Evan Wakefield said these machines were proven performers in clearing grid lines and preparing pads and sumps for RC, Diamond and RAB Rigs.

He said it left clients feeling confident their exploration needs would be met at manageable costs and with appropriate consideration to the site itself.

"Our operators are aware of the responsibilities we have to certain areas, including places that may have endangered flora," Mr Wakefield said.

"We strictly follow government guidelines and have crafted our own minimum clearance policy to ensure responsible activities.

"Site rehabilitation - both current and historic - is also a core part of our offering, and we follow up all drilling activity by removing sample bags, filling in sumps and preparing ground for natural revegetation.

"Our purpose-built spring-loaded scarifiers are ideal for returning disturbed ground to a natural state, after which fallen and re-

moved vegetation is returned to site whenever possible to create seed traps and assist with erosion prevention.

"I'm pleased to share that areas we have rehabbed show excellent regeneration, without need for seeding or intervention."

Though sought-after for its excellent site rehabilitation results, Ground Masters' strong reputation is largely based on its earthwork services.

The company is engaged to support remote sites in trenching, construction of access roads, parking areas, camp setups, as well as delivery of materials and equipment.

While based in the Goldfields, Ground Masters has a footprint that extends across the State and beyond, including Darwin, the Gascoyne, the Murchison and the Pilbara.

For more information, visit
<http://www.groundmasters.com.au>
AMR



GROUND MASTERS

08 9093 3555 enquiries@groundmasters.com.au www.groundmasters.com.au

EXPERTS IN MINERAL EXPLORATION AND CIVIL CONSTRUCTIONS

Exploration Clearing, Site Preparation and Rehabilitation





AUSTRALIAN MADE FOR AUSTRALIAN CONDITIONS

OTR Australia is keeping the wheels of the mineral resources sector turning with their comprehensive manufactured offerings - a range of products and services for the mining, construction and agricultural markets.

Backed by a team of highly experienced staff, the Australian company works to ensure OTR wheels and rims longevity, workplace safety and minimal equipment downtime with their regular maintenance and servicing regime.

OTR Australia offers wheel and rim inspection, reporting, advice, repairs and certification services for all markets.

The business works closely with clients to develop an optimal maintenance schedule that strengthens fleet efficiency and compliance, while minimising pre-emptive inspections.

OTR Australia General Manager – Sales, Travis Parsons said one of the company's most popular offerings was their non-destructive testing service, used to identify corrosion, cracks, burrs or other imperfections.

He said this was achieved through Ultrasonic and Magnetic Particle Testing, which gave clients extremely accurate results on wheel,

and rim conditions.

"In essence, we look for anything that might prevent the wheel or rim performing optimally," Mr Parsons said.

"Safely reducing our client's downtime is the heart of these operations"

"Our workshop team will inspect and assess your wheels and rims to ensure any defects are identified and provide advice on the best course of action for repair".

"Nationally our facilities are wide spread and located in areas to best suit our customer base."

Aside from holistic maintenance and repair services, OTR Australia is also gaining popularity amongst domestic industry operators for their ability to extend wheel life.

"There are now a range of products available to maximise the life of a wheel, these heavy duty options allow for extended service intervals, which in turn safely saves our clients downtime"

"Depending on our client's scope, lightweight wheels may be the option as they enable higher payload by reducing tare machine weight. With our in house engineering

and manufacturing we are designing and manufacturing new items every month"

"We can help you identify whether you need a heavy duty or a lightweight wheel"

Operators looking for a fresh set of wheels can also engage OTR Australia for purpose-built solutions designed and manufactured in Australia.

Specially crafted to thrive in Australian terrain, the wheels and rims are a more durable product engineered to the unique mineral resources sector environment.

Mr Parsons said Australian-made products meant clients enjoyed easy sourcing and high quality products made with local knowledge.

He said the company offered a complete

range of wheels, stretching from 6 inches to 63 inches in diameter, including fixed welded wheels, adjustable bolted tractor wheels and demountable rim options.

"We manufacture and carry a complete axle assembly and spare parts range, too," Mr Parsons said.

"It's so we can also support our OEM and aftermarket clients."

"Within our Australia owned business group, we can supply tyres, solid fill, tyre fitting and advice for all tyre requirements also. It's a real one stop shop so to speak"

"We understand your fleet is critical to your business, and it all starts with the wheels.

"Get in touch with us today to find out how we can support you." **AMR**



OTR AUSTRALIA WHEEL TESTING & REPAIRS

**BLAST | MAGNETIC PARTICLE TEST | VISUAL INSPECTIONS | CRACK TEST REPORT
PAINTING | STAMPING OF DATES | CONFORMANCE CERTIFICATES**

ABILITY TO INSPECT OTR WHEELS & RIMS WITHIN A 5-7 DAY PERIOD

The process of testing a Wheel/Rim is critical and generally made up of three parts, being Blasting, Testing and Re-Painting, however a critical part to any testing process is the continual visual inspection carried out throughout the testing process. This includes checking for wear, corrosion and mechanical damage. Throughout the years, OTR Australia has been involved in the development of the Australian Standards for "earthmoving machinery - off-the-road wheels, rims and tyres - maintenance & repair". OTR Australia adheres to AS4457.1-2007, along with its own repair and maintenance guidelines document.

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FORMERLY **TITAN**
AUSTRALIA

OTR Australia
TYRES • WHEELS • AXLES

your Mate in Safety

SafeMate Anti-Slip is reducing workplace accidents with its innovative range of anti-slip solutions. Our products are developed specifically with the mining, oil and gas industry in mind.

Founded in 1974, the veteran company were the first to bring Australian- designed and manufactured non-slip floor and stair products to market and has since remained an industry leader in safe workplace solutions.

The purpose-built products are backed by a ten-year manufacturer's warranty. They are designed to be self-installed by in-house maintenance personnel.

A SafeMate spokesman said the company not only wanted to provide easy-to-use products, but also a valuable and efficient service.

"Our technical support team advise and design bespoke solutions based on customer requirements," the spokesperson said.

"We understand how costly downtime can be, so we ensure a fast turnaround service".

"We are Australian owned, and we sell our Australian Made anti-slip products to Australia, Asia, Europe, North America, and the Middle East to some of the biggest corporations and government organisations in the world".

"What sets us apart is our commitment to innovation in reducing slips and trips in the workplace, particularly focusing on the mining and oil/gas sector".

"We don't just sell products – we research, we innovate, we manufacture, and we get it right".

SafeMate Anti-Slip covers various workplace applications and decreases hazards caused by dirt, oils, food scraps, moisture or worn surfaces.

The company's non-slip stair nosings are particularly popular for their high-visibility

safety yellow colour and their ability to withstand harsh conditions. All SafeMate anti-slip products are also available in GlowMate, a photoluminescent glow-in-the-dark solution which provides visibility in the event of unexpected power failures and blackouts. GlowMate is ideal for fire escapes in which the emergency lighting has been known to fail especially during fires.

Similarly sought-after are SafeMate's non-slip ladder solutions, they provide grip and stability in wet areas and for external applications

Mining operators also favour the company's safe plate range to increase the safety of their walkways/ramps and stair landings.

"We have a strong product offering to suit any budget requirements and workplace needs, including metal-backed and FRP solutions", the spokesperson said.

"We have a selection of colours and nonslip

grit-size options, and the materials we use are resistant to chemicals, dirt, oils, moisture, UV light, vehicular traffic, and heavy impact. We also offer a colour matching for custom requirements or corporate colours".

All products are manufactured to strict quality requirements and SafeMate is an ISO 9001:2015 registered company. All products are tested AU-NZ Standard 4583-2013 and have P5/R13 rating.

The spokesperson said SafeMate's primary goal was to enhance workplace safety through affordable, reliable and durable solutions.

"We're here to protect your team from slips and trips," the spokesperson said.

"Please don't hesitate to reach out."

**For more information,
visit www.safemate.com
or call 1800 337 706.**

AMR

SafeMate!

A N T I S L I P



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STAY SAFE AT WORK WITH SAFE MATE

Safemate manufacture and supply a wide range of antislip systems designed to protect your staff from slips and falls on walkways, decks, ladders, stairs and more.

Our antislip products can be self-installed saving you time and money, not to mention giving you complete peace of mind.

Our quality nonslip products will help ensure your workplace is accident-free and complies with all relevant OH & S requirements worldwide.

WE ARE YOUR MATE IN SAFETY– GET IN TOUCH WITH US TODAY!



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KSB PUMPS DELIVER EFFICIENCY & SUSTAINABILITY



KSB has long led the mining industry with its line of GIW® slurry pumps, which are designed to meet the application-specific needs of its customers. These pumps frequently solve problems shared by many in the industry, allowing for the translation of custom designs into full product lines for the benefit of many customers.

Responding to customer demand for larger slurry pumps, KSB is designing and manufacturing pumps that are bigger and more energy-efficient — all in the name of sustainability.

Recognising a need for larger pumps

Partnering with customers builds close

working relationships, which fosters open communication from customers regarding current pump performance, and how a different solution may better meet their present and growing needs. According to Jonathan Samuel, President and CEO of GIW Industries (A KSB Company), “As the head grade of ores drop, customers have to process more and more ore to have a greater yield.”

When customers come to KSB with these needs, it spurs the production of larger pump models, and KSB is one of the few companies able to design and successfully produce models of the necessary size. With a comprehensive understanding of what

drives the need for larger pumps — and a strong sense of responsibility to the environment — KSB engineers slurry pumps with energy efficiency and sustainability in mind.

Energy efficiency in pumps

Designing and manufacturing pumps for energy efficiency requires the highest quality materials, expertise acquired from long experience, and continuous research and development. Ongoing R&D allows for consistent improvements in wear technology and hydraulic design for maximum pump efficacy and efficiency. Mechanical design improvements are aimed at increasing pump efficiency while decreasing energy

consumption. Energy conservation is increasingly critical, so there is a consistent goal for more efficiency in slurry transport.

Sustainability

Designing and manufacturing energy-efficient pumps is only the beginning. High-quality materials, sustainable production processes, and alternative energy solutions help to complete the picture.

KSB is doing its part by buying back white iron scrap to melt down and reuse in the manufacture of new slurry pumps. It also offers services to refurbish old equipment, which is a cost saving and sustainable solution. **AMR**

LIVES FOR HARD ROCK.



MDX - Mill duty extra heavy pump for **severe mill duty applications**

The KSB GIW® MDX is equipped to tackle the most extreme slurry pumping duty conditions. With its patented wearing parts and material technology, the MDX matches operating cycle times with scheduled mill outages meaning fewer disruptions and increased operational efficiency.

Learn more at www.ksb.com.au or speak with a KSB representative 1300 073 887.

KSB
MINING



FLOODED MINES

...AUSSIE PUMPS IS THERE



CONTRIBUTED BY JOHN HALES, AUSTRALIAN
PUMP INDUSTRIES CHIEF ENGINEER.

If Australia's mining industry is the backbone of our economy, and most of us know that it is, then the weather events of the northern hemisphere over the last six months have sharpened our understanding of what could be the biggest danger to continuity of production in Australia's most important industry!

Here Australian Pumps Chief Engineer, John Hales, talks us through the need for mines to take preventative action to avoid what could be complete wipe out of production for weeks, or even months!

UNCONTROLLABLE WEATHER EVENTS

Here in Australia, we are used to bushfires, drought and in some parts of the country, monsoonal rains. What we're not used to is similar affects, not just in the northern half of the country, Capricornia, but even as far south as Tasmania!

The reality is the weather is unstable and we've seen that in major events in the northern hemisphere over the last months. Floods, too many to report but noticeable in Germany, the UK (can you believe the Underground was flooded) and more recently, South Sudan and in late August, devastating floods in Pakistan.

Most of us remember the horrific floods in Queensland in 2011 when much of Australia's coal mining industry was put out of action for some months. Open cut mines were flooded, machines submerged and work stopped. The reality was there simply weren't enough pumps in the country at the time and mines were not properly prepared for such an event.

The point of this story is to stress that those weather events may be far more frequent in the future, just as we see bushfires becoming more frequent and virulent!

WHAT AUSSIE IS DOING

Because we operate on an international basis, we are often called on to react fast to what we have to believe is the effects of Climate Change. Those events may be droughts, bushfires, and floods.

Because Australian Pump Industries is focused on self priming pumps, we have put a lot of our time and R & D into developing products that are capable of fast mobilisation for emergencies. For example, when

the South Sudan flooded again in July, we were able to move swiftly to air freight big diesel engine drive self priming flood lifters to Juba!

Those three pumps joined 20 big Aussie MQ600TD 6,000 lpm heavy duty trash pumps already there in operation. Those pumps are doing a sterling job in moving huge amounts of water fast away from flooded villages!

The worst news is that the Monsoon season is coming in another four months' time to the same area so a repeat of this Sudanese tragedy is likely to occur again in early 2023! Pakistan has a different requirement where we're trying to build pumps as fast as we can to do what is possible to support the international efforts for those in need.

WHY SELF PRIMING TRASH PUMPS?

Why are these simple, heavy duty self priming trash pumps are chosen for these types of flood mitigation applications? We think it's because of their capacity to move loads of dirty water fast, often contaminated and loaded with sewage!

That may not be applicable to flooded mines, but you get the picture. Aussie's trash pumps are so popular because of the simplicity of their operation. For example, unlike dry prime pumps, there is no priming aid required to get the pump working.

No compressors, no vacuum pumps, no hand pumps, nothing accept the pump itself!

HOW SELF PRIMING WORKS

You'll never get an end suction pump to prime itself. Self priming pumps are a completely different concept and design, owing a lot to the development work of legendary pump designers like Al Marlow and Jim Gorman. Those Americans, working in the 1930s and 40s, realised that the convenience factor of self priming was something valuable, not just to farmers, but to mining and construction markets as well.

Here's how it works. First of all, the pump design itself has to have an integrated water tank built into the bowl. This is a standard feature on virtually all of the huge range of speciality pumps built by Australian Pump Industries at our Castle Hill factory.

A classic example of this is the MQ600TD with that huge tank built into the cast iron body! With that factor, and a super heavy duty check valve built into the suction port,

the pump is ready to start its life as a self primer! Here it is step by step.

- 1. The operator fills the pump body with water, pouring the liquid through the priming port in the top of the pump body. That liquid is trapped inside the bowl by the check valve, the other side of the pump's inlet, the suction port.**
- 2. Once the engine is started, the water in the body is expelled through the delivery port.**
- 3. When the water is expelled, a vacuum is created within the pump body.**
- 4. At that point, the check valve will open, drawing water up through the suction hose, just like drinking through a straw.**

Once the pump has got that continuous flow of water, there is a virtual 'siphon effect' taking place and the pump just keeps working, sucking and pumping water to wherever it needs to go.

The major point is there's no attachment required to actually prime the pump. It's all there in the very simple process with a minimum number of components. The only thing that can possibly go wrong is an air leak on the suction line.

Presuming that the operator has followed instructions and closed the priming port tight in the top of the body, the only other place that air can leak in is through the suction port or an air leak in the suction hose. There can be a number of causes for this that range from the gasket in the camlock or Bayer coupling being missing, a hose clip not tight enough around the hose or, even a faulty hose with a tiny crack or hole that can suck air in.

The suction hose does literally try to fill that vacuum. If air can get in, it's air that will go into the pump, not water. So making sure the suction line integrity of 100% is vital.

BIG VOLUME... DIRTY WATER

That's a tough criteria to have to fill but the Aussie trash pumps do provide a solution. First of all, big pumps like the 6" MQ600TD have a huge open non clog style impeller that will handle up to 3" spherical solids in suspension.

A huge front clean out port is also built into the pump's front casing so that 'chokes' can be removed easily without disconnection of pipework. That's a huge advantage to operators. Imagine having a problem with a choked non self priming pump where you have to disconnect all pipework before you can pull the pump apart. With the self priming trash pump concept, it becomes a matter of minutes, sometimes only seconds!

DRIVING THE BEAST

Big pumps like the Aussie MQ600TD that can produce huge flows of 36,000 litres an hour, need a lot of horsepower to drive them. Australian Pump selected Deutz' F4L series 80 hp air cooled diesel engine as the key driver.

That way, we can directly couple the pump to the engine flywheel, mounted in a heavy duty steel fabricated frame and build the other essential components around that base unit. Our simple lock to open up pump chamber is easy. That's why the clean out process is so fast! No tools are required!

The drain plug at the bottom of the pump case can be used to drain silt out, and even easier task because of its design. As these pumps may need to run continuously day after day, we build in an 11 hour diesel fuel tank, 152 litre capacity, into the base of the skid mount!

An integrated lift bar is standard, enabling the machine to be moved around on site by excavators, cranes or any similar lifting device. To make it mobile, it's a simple process of bolting a heavy duty draw bar and purpose designed axle kit that turns it into a trailer mount with two jack stands and the option of either a 2" ball towing hitch or a 3" pintle eye.

Just when you think we've thought of everything, there's even more. For example, the mechanical seal is a tungsten titanium carbide assembly, operating in an oil bath chamber.

CONTROLS AND ENGINE PROTECTION

All of the Deutz powered machines are fitted with a LOFA engine control that includes low oil pressure, oil temperature and V-belt failure shutdown. A shock mounted control panel is also fitted to the machine in a water resistant housing, that includes hour meter, ammeter, tachometer and alternator failure light. We think the designers have thought about everything to make these pumps the



Aussie's 8" trash pump will move 9000 litres per minute!

most simple, trouble free and low maintenance mining flood pumps in the world. If there's anything we haven't thought of, we'd like to know from users what that might be!

CORROSIVE LIQUIDS, WE DO THAT TOO!

Self priming pumps for tankers are also part of Aussie's mining package. The Aussie GMP product line, available in either hydraulic or diesel engine drive configuration, will move up to 2,200 lpm and provide heads as high as 30 metres.

Those pumps are not only available in cast iron trash pump configuration, but can also be supplied in Nickel aluminium bronze or even in 316 stainless steel. Drillers love the smaller versions, normally 2" or 3" because of their reliability, simple design concept and their ability to self prime! It's that self priming feature that everybody loves and those pumps can play their part in flood control as well.

HIGH HEAD TRASH PUMPS

It seems beyond our normal imagination to think about electric drive motor pumps, set up for handling contaminated water or even effluent, that can also operate at high head. No, they're not multistage but just have one big open impeller, in either cast iron or 316 stainless steel, to do the job.

A relatively new product for Australia's mining industry, these pumps will handle highly corrosive liquids, sometimes even containing silt or abrasive slurry, without effort. A classic example is Aussie's high head motor pump, imaginatively called the 'B3ZPMA-ST'. This pump is available with either close coupled three phase 415 volt, 18.8 kW or 22 kW motor, will produce heads as high as 78 metres.

Applied on a horizontal or low angle application, they will pump liquids a long way. Maximum flow of this heavy duty model is 1250 lpm but, Aussie's GMP self priming products are also available in up to 8" configuration, with flows as high as 9000 lpm.

The big 8" self priming pump is only available in cast iron but can be outfitted with a 316 stainless steel open impeller as standard equipment. It also has a front opening port and is available in either bare shaft or long coupled to a 65 hp three phase motor. That big pump, with its front opening port convenience, will shift up to 540,000 litres of water per hour!

FREE EXTENDED WARRANTIES

We know how sensitive the mining industry



is about reliability. We build that into all of our products and that is why we offer free extended warranties that other manufacturers simply don't have the confidence to do.

For example, our full range of Aussie 2", 3" and 4" self priming centrifugal trash pumps and our fire pumps, many of which are found on mines all through Australia, are guaranteed to be free of faulty workmanship or material for a period of five years.

That doesn't cover the engine but only the pump end of the product. The engine is covered by the engine manufacturer's warranty. For example, Deutz, Yanmar Kohler or Kubota will handle their end of it through their dealer network but Aussie always handles to pump end of the warranty on a direct basis.

Aussie GMP pumps have a warranty of three years. Their heavy duty cast iron construction makes them ideal for mining applications.

BE PREPARED

Surprise flooding events can be catastrophic. The hire industry does its best to react but, even those hire fleets of highly professional pump kits can be limited in terms of emergency response. We recommend mines seriously consider the idea of standby pumps, big water movers like Aussie's big 6" and 8" pumps appear to be a sound investment!

WHY AUSSIE PUMPS WORK

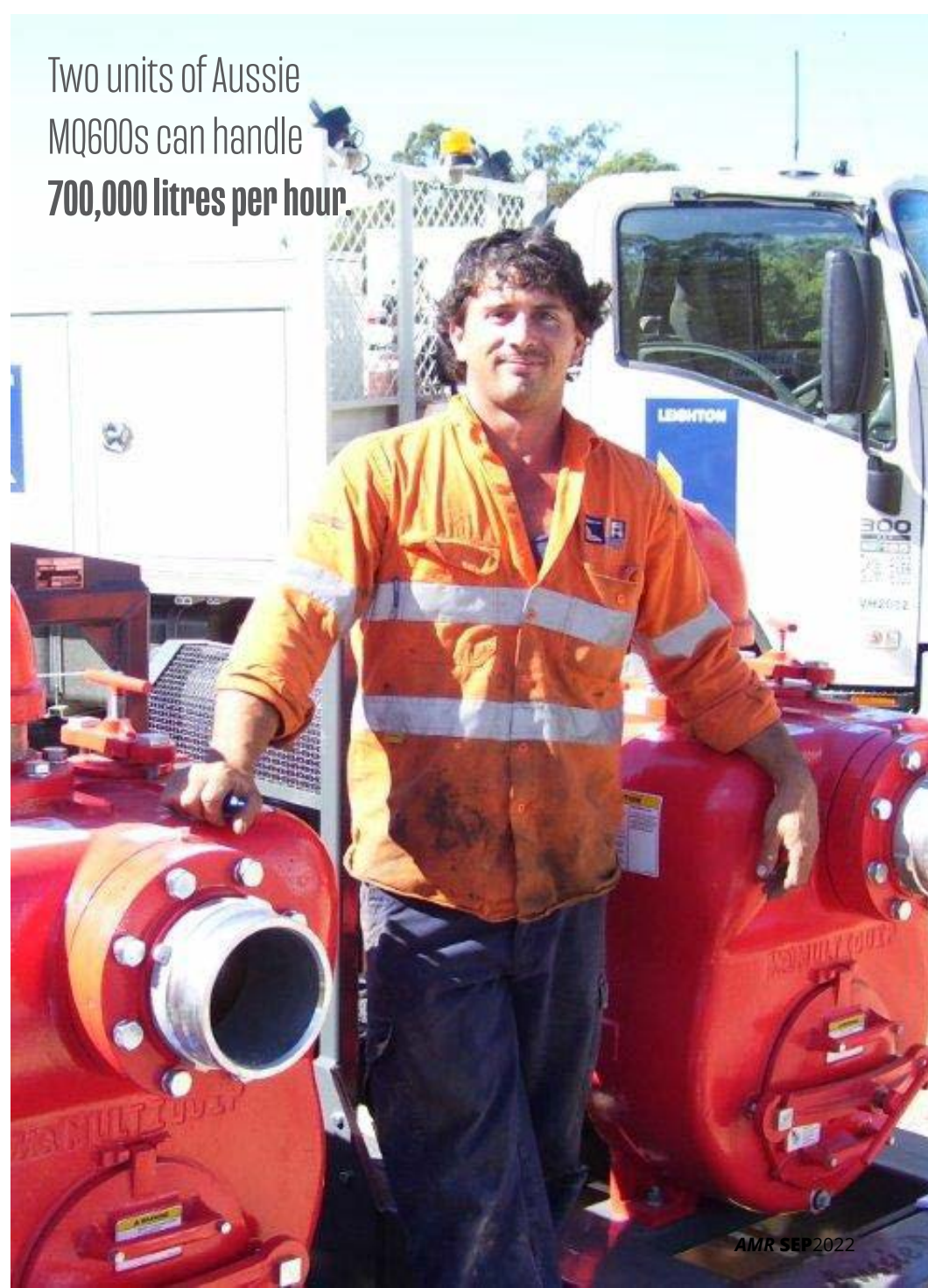
Australian Pump is a relatively new company, founded only 28 years ago with the basic premise to build a team of professionals that were able to analyse customer requirements, listen, understand information and produce products that are orientated towards users, not voracious shareholders.

We're not exactly anti-corporation! We know that most of Australia's most successful miners are big corporations but, when it comes to speciality products like ours, we have the luxury of being able to design and build products that don't require shareholders or a board of directors to approve.

That freedom gives us the ability to do what we want and that is why our customers are often surprised at how creative we can be.

Our thanks to John Hales for his contribution. aussiepumps.com.au

AMR



Two units of Aussie MQ600s can handle 700,000 litres per hour.

DUST SUPPRESSION HAS NEVER

From autonomous haulage systems to the electrification revolution, investment in new technology is helping companies push the boundaries.

Whether in mining, manufacturing, agriculture or renewable energy, advances in automation are accelerating product development in different applications.

Mining companies are constantly searching for innovative solutions that drive cost efficiencies, boost productivity, and maximise equipment life, whilst improving safety and maintaining strict sustainability agendas.

The demand for more sophisticated hardware and connectivity is becoming increasingly prevalent in the continuous improvement of haul road dust suppression to tackle challenges related to obstacle detection and collisions when autonomous mine trucks are in operation.

The application of dust suppression systems is critical in mining and resources, civil construction, agriculture, and environmental management. Companies need to be actively developing new products and solutions that improve the way in which they manage environmental issues onsite.

Global Road Technology (GRT) is one company leading the automation race with the launch of its SMART (Sustainable, Mine, Autonomous, Reporting, Technology) dosing units, which have become a game changer in mine water management and dust suppression.

GRT has invested heavily in the automation of their dust suppression products for both above ground and underground operations. These products support mining companies in keeping their workers and surrounding communities safe.

SMART Automation in Dust Suppression

GRT SMART Dosing Units are the key hardware component of its industry-leading dust suppression systems offering the most effective haul road management and dust control.

Designed and assembled by GRT's engineers, these

Australian made SMART Dosing Units consist of a central control and communication module combined with electrical and mechanical hardware that allows remotely controls and automates product dosage, error detection, and flow rates – using the Internet of Things (IoT) technology.

According to GRT Managing Director, Troy Adams, the investment in automation is intended to provide resource companies with a turnkey dust control solution that protects onsite workers and communities located nearby.

"Our products are designed to stop the spread of dust particles generated by mining activity and the SMART Dosing Units take it to the next level by using data and automation to improve dust control outcomes," said Adams.

"GRT's dosing units have the capability to utilise both 5G and satellite with preference -

ence of the latter which enables remote management and communication with the remote-operations control centre of the mine."

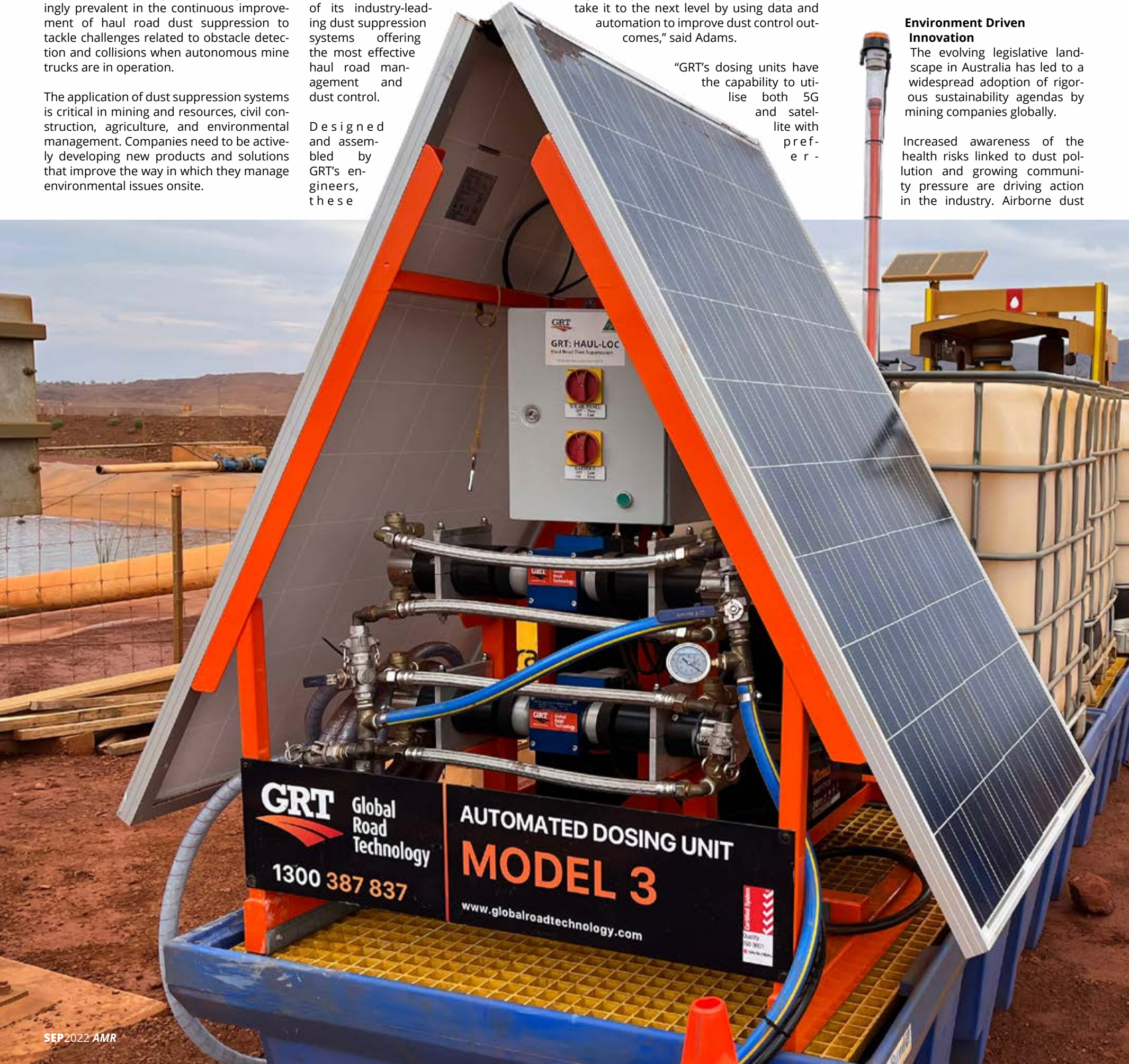
"We have designed products like GRT: Haul-Loc and GRT: Activate that dovetail into these autonomous systems, to deliver effective dust control and provide critical data currently missing onsite."

GRT's significant investment in R&D and innovation, combined with specialist expertise in dust control, soil stabilisation, erosion control, and water management, have reinforced its reputation as a global leader in dust suppression in mining and construction.

Environment Driven Innovation

The evolving legislative landscape in Australia has led to a widespread adoption of rigorous sustainability agendas by mining companies globally.

Increased awareness of the health risks linked to dust pollution and growing community pressure are driving action in the industry. Airborne dust



R BEEN SMARTER

pollution and dust-related lung diseases such as silicosis are at the top of the list for companies as they face pressure to be more proactive in reducing exposure to life threatening dust particles. A critical point of difference with GRT's SMART Dosing Units is the use of technology to help them effectively deal with the issue of airborne dust.

"In addition to accurately dosing our dust control products, our latest SMART Dosing Units include telemetry, which acts as a data hub and enables direct reporting, tracking, and dosage control, all within a user-friendly app interface," said Adams.

"This powerful data includes water consumption, water truck operational efficiencies, product levels, dosage rates and the overall effectiveness of the supporting gear such as pumps and power units that provide these services.

"This offering is designed to replace traditional water-based methods or outdated dust control chemicals employed by miners to manage dust – for us the SMART product suite further showcases where we can go as a sector."

GRT's dust control, soil stabilisation, erosion

control and water management solutions have been designed with both end-user applications and the environment in mind.

From underground mines seeking to protect workers from dust-related health issues, to resource companies in need of durable access roads all year round, to military personnel requiring all weather, dust-free campgrounds, to farmers protecting cattle and horses, to construction sites preventing erosion — you can be assured GRT's solutions will achieve the required outcomes.

GRT: 12X is the latest example of the company's relentless pursuit to design products that protect workers. It has been independently verified by Australia's leading universities to be 12 times more effective than water alone in suppressing coal dust and other fine dust.

Its innovative product range has been formulated in world-class laboratories and tested in the toughest environments, helping companies create safer, more reliable, and resilient operations.

More information on GRT's SMART dosing units and dust suppression solutions for the mining industry is available at www.globalroadtechnology.com



RAINSTORM

SUPRESSES DUST WITH SCIENCE

Airborne dust particles from mining activities impact site infrastructure, equipment, workers' health, the environment and surrounding communities. This creates more frequent and costly maintenance, downtime and operational delays.

Dust is generated from the mechanical disturbance of rock and soil materials by draglines or shovels, bulldozing, blasting, vehicles on dirt roads as well as wind blowing over bare ground and different types of stockpiles.

It's never been more important for asset owners to implement effective dust control measures to prevent dust accumulation at the source.

Perth-based dust specialist Rainstorm has been a pioneer of dust control for 28 years and has long been at the forefront of developing products to tackle dust issues around

mining roads, open areas, materials handling and site rehabilitation.

The Australian Mining Review spoke to Rainstorm Group Technical Sales and Marketing Manager, Mason Trouchet, about determining the source of dust – roads, wind, materials handling or blasting – and the scientifically-based solutions available that mitigate these dust issues.

"As an industry, we need to look at dust suppression and management in a more holistic and integrated way by engaging the science and understanding the chemistries behind dust when it presents itself," said Trouchet.

"It's no different from adding chemicals such as flocculants in mineral or water treatment processes. Rainstorm excels in having deep technical expertise and understanding the science behind every single chemical process we've ever produced. We advise our

clients what it is and why they should or should not be using a specific solution from an evidence-based perspective."

Rainstorm focuses on presenting clients with innovative ways of dispensing products as well as changing the industry's perspective on dust.

"Dust and water shortages are a major issue, and we are continually inventing new ways to help mine sites tackle dust and generate more revenue at the same time.

"We leverage data insights to support the use of dust suppression products. There are dust monitors that attach to the front and rear of a long vehicle or road train. The front monitor measures the amount of ambient dust per cubic metre, and the rear measures what comes off the vehicle movement. This level of real-world data is critical to a complete dust management strategy."

Applying Innovation to Blasting

The dust control specialist has expanded its reach to control dust resulting from rock blasts.

Trouchet says dust generation from blasting is a recurring issue in the mining industry. Blasts send a huge plume of dust upwards, which becomes an accumulation and concentration of point-source dust.

"With mine sites often blasting as many as 500 holes a day, 27 days a month, natural factors such as weather inversions can push dust out to neighbouring communities and subsequently halt the blasting process for days at a time," he said.

In response to this problem, Rainstorm, is a distributor for Shockwave that has a unique blasting product called STEMGEL, an advanced polymer capable of dramatically reducing noise and dust after detonation.



Dustmag results in no dust.



Dustmag Application Following water cart.



Rainstorm Karratha manufacturing facility.



Rainstorm vehicles can be seen on a number of project sites.

This patented technology is the latest example of Rainstorm's commitment to achieve industry best practice in dust suppression.

"The polymer turns the water in STEMGEL into a solid, not a jelly but more like snow with discrete particles of water which you can effectively stand on," he said.

"When the pressure wave comes up in advance of the gas, it is impeded when it hits the STEMGEL and can't travel at the same speed through STEMGEL, making the S-wave, another type of power wave, simply stop at that point.

"When the gas comes through milliseconds

later, the rest of it gets shot out of the hole like a big vapour steam.

One exciting innovation used in these applications is its PDX Super Flow product for wet and sticky ores, which lowers dust extinction moisture levels.

"When blended with ore types, PDX alters the physical and chemical characteristics of the material without affecting downstream processing," said Trouchet.

"PDX is most effective when added to an ore body early in the materials handling process. When applied to ultra-fine grade ores the resultant lower moisture content

aids wettability, friability and workability, optimising material handling and export capacity. It also requires incredibly low dosage rates."

The innovation in dust suppression will continue to keep pace with the vast technological leaps experienced by the mining sector in recent decades. It's just a question of the right technical expertise combined with an ongoing mandate for improvement.

More information on Rainstorm's range of dust control solutions for the mining industry is available at
<https://www.rainstorm.com.au/>

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[rainstorm.com.au](https://www.rainstorm.com.au)



RainStorm
The Dust Control Professionals

PERTH: A DIGITAL GATEWAY TO GLOBAL MARKETS

Perth is a strategic part of Australia's internet infrastructure due to its proximity to Southeast Asia and direct connectivity with Asia-Pacific, European, Middle East and Africa regions via subsea cables.

As the alternative path from Sydney for redundancy and a faster route to key global markets, the city is a strategic location for global cloud, network and over-the-top (OTT) providers, as well as Australian governments, mining and the resources sectors.

The West Australian (WWA) state government has released its Digital Strategy Roadmap, which includes multiple projects funded through the \$500 million Digital Capability Fund. This includes the delivery of better services and supporting digital foundations to future-proof the government's internal operations.

The Fund, announced in September 2021, drives strategic and targeted investment in digital transformation across the sector and accelerates the delivery of the Digital Strategy.

To support the continued acceleration of digitisation in both the public and private sectors, meet the growing demand for private low-latency connectivity and provide

greater access to the digital infrastructure building blocks, Equinix recently opened a its third International Business Exchange data centre in Perth, Named PE3, it strengthens Perth's position as the digital gateway between Australia, Asia-Pacific and the Middle East.

Interconnected with Equinix's facilities in Australia, PE3 provides customers with access to more than 1,000 organisations, including 215 networks and 395 cloud providers, who utilise Platform Equinix to address the rising demand from digital leaders that need essential digital infrastructure to ensure future business success.

This includes an on-demand, SDN-enabled interconnection service to connect an organisation's own distributed infrastructure and any other company's distributed infrastructure, including some of the world's largest network service and cloud providers. This means Perth-based organisations can set up direct connectivity with international and local cloud service providers such as AWS, Google Cloud and Microsoft Azure, as well as major network service providers like Telstra, Optus and Vocus.

At the opening of PE3, Rebecca Brown, Director General, Department of Jobs, Tourism, Science and Innovation (JTSI), WA Gov-

ernment, said: "JTSI's Invest and Trade WA team welcomes Equinix's investment in the State and the positioning of Perth's growing importance as a digital gateway to global markets as the State develops a thriving local technology industry."

The Perth Equinix campus also provides direct access to multiple subsea cables, including the Australian Singapore Cable, Indigo Cable systems, and in September, the Oman Australia Cable (OAC), which connects Perth to Muscat in Oman.

The OAC is the first express submarine network to link Australia to the European, Middle East and Africa (EMEA) region. The OAC lands in Equinix facilities in both Perth and Muscat and will help organisations reduce their risk with diverse, stable and redundant capacity to Asia and EMEA. This is an important milestone that creates a new digital corridor and will provide industry sectors, such as mining and resources, with unparalleled access to carrier-neutral digital infrastructure.

TECHNOLOGY PROPELLING AUSTRALIA'S MINING INDUSTRY FORWARD

With a global reputation for excellence, the mining sector continues to expand operations and develop new mines, with Africa a

popular destination with its potential wealth of resources.

With mining sites and locations now becoming more distributed globally, there is increased demand for enhanced digital infrastructure to support remote connectivity and the global exchange of information, which is vital to successful automation and real-time data analysis, as mine sites generate and capture significant volumes of data daily.

Mining organisations are increasingly coming to Equinix to access all the necessary essential infrastructure required to create a digital advantage, and with continued investment in subsea cables, Perth is a key gateway for digital expansion and collaboration into Asia-Pacific and the Middle East, enabling our customers and partners to expand into new regions, countries and metros around the world

The sub-sea cables provide low-latency connectivity between the continents and provide essential access to digital infrastructure to support increased demand from organisations accelerating their digital transformation plans. In the mining and resources sector, this enables businesses to easily connect, transfer and share data, whether with headquarters or at overseas mining sites.



Additionally, while hybrid cloud (data centre and public cloud) environments are well established, there is a growing shift to create distributed cloud environments with a focus on edge locations. These edge applications typically require real-time or near real-time processing and must adapt to leverage a partner ecosystem that can vary by geography.

This infrastructure will play an important role in the future mine, with automation, AI, IoT and other advanced technologies considered essential to both enhance operations on-site and move certain functions off-site.

Technology will also play a critical role in other ways, such as the use of digital twins and data analytics in hypothesis testing, prediction and exploration and improving supply chain efficiency.

In our Equinix Mining Technology Report 2021-22, 93 per cent of the mining leaders surveyed intend to ramp up digitalisation efforts, with almost 44 per cent saying they will significantly increase technology investments - data analytics (20 per cent), digital connectivity (20 per cent) and integrated automation (19 per cent) were the top investment areas. More importantly, technology was identified as crucial to

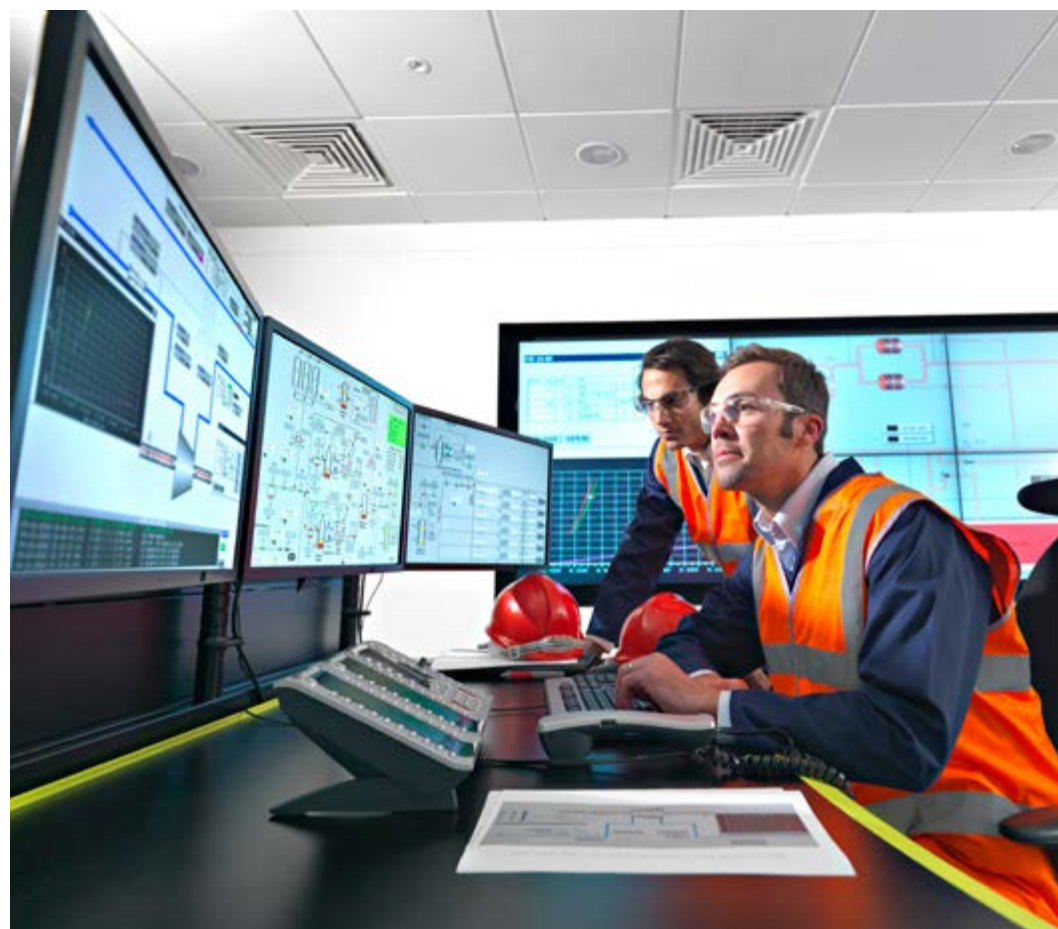
overcoming critical challenges in mining, including driving the environmental, social and governance agenda and CAPEX management.

Interviewed for the report, Tania Constable, CEO of the Minerals Council of Australia, said connectivity could be a game changer. "Technology must be at the forefront of our thinking because it plays a key role in today's increased safety considerations, the need for greater sustainability, and the fact that we need to decarbonise as a society at a domestic level, but also internationally."

For the Australian mining industry to continue to move forward and grow, mining, oil and gas companies need to ensure they're in the best place possible to make the most of emerging market opportunities through better connectivity, smart adoption and implementation of technology, and collaboration with partners. We believe that in this way, miners can hone a competitive edge by taking a digital-first approach to the future.

AMR

For further information please contact Brooke Smith on
EMAIL: brsmith@ap.equinix.com
MOBILE: +61 430 042 132
WEBSITE: www.equinix.com.au



NEVER A DOUBT WITH DOWDENS



It's no surprise that mining is fraught with danger. Miners face an endless number of health and safety risks, from operating mobile plant equipment to hazardous airborne particles produced during mineral processing activities.

One such risk is flooding caused by the mining method itself as well as environmental factors, including heavy rainfall and a rising water table, which threatens site safety, productivity and performance. In order to overcome this challenge, dewatering plays a critical role in maintaining a safe, reliable and efficient operation by removing water from surface and underground locations.

Dewatering on a commercial scale demands highly specialised pump systems engineered to meet different project applications within specific mine environments. Selecting the appropriate dewatering system is key to sustaining long-term productivity and profitability.

From humble beginnings in 1973 in Mackay, Queensland pumping and water treatment specialist Dowdens has become a renowned solutions provider to the mining industry.

The company runs multiple operations – Brisbane, Rockhampton, Proserpine, and their head office in Mackay – delivering a world-class suite of brands and products for water, pneumatic and industrial applica-

Purpose-Built to Pump Productivity

Entering its 50th year, Dowdens Pumping & Water Treatment draws on their engineering experience to deliver a range of dewatering solutions for open-cut high wall and longwall underground applications – from fish tanks, pods and pontoons to trailer and skid-mounted portable pumping stations, AODD pumps, borehole pump systems and electric/pneumatic submersibles.

The company also supplies water and sewerage treatment plants, truck fill points, fittings, pumps, piping, water filters, valves, storage tanks, hoses, and control modules just to name a few.

According to Dowdens Matt Dalton, the company offers specifically designed, practical solutions for most, if not all, pumping and water treatment applications.

"We understand the challenges associated with mining, oil and gas assets and the need to minimise downtime wherever possible. There is a real need for quality, fit-for-purpose dewatering solutions that meet the specific applications of our customers," said Dalton.

Dowdens covers all aspects of water engineering and fluid handling resource management for mining, agricultural, domestic, commercial and industrial sectors across Queensland.

"We have a dedicated in-house team of engineers, drafts people, project managers, sales and service personnel, as well as trade specialists including fitters, plumbers, machinists, electricians and boiler makers across a number of fully equipped workshops".

200Kw 1000v Test Bay

"To increase our capabilities, we are currently installing a purpose built test bay that will allow us to function test pumps with electric motors up to and including 200kW 1000v. We can also test pumps with diesel engines of any size. This test bay will be fully operational in the 4th quarter of 2022".

"Our capability extends from design and manufacture to installation and servicing for all our equipment. We also ensure our dewatering solutions are adaptable based on customer requirements and changing industry regulations."

Underground Dewatering Solutions

Dowden's range of portable dewatering fish tanks are engineered for underground mining applications and feature capacities of up to 14,000 litres. Additionally, they have successfully designed and installed multiple underground pump stations and borehole dewatering systems for the life of mine operations, which demonstrate their capability of designing purpose-built equipment.

"These systems are critical to the mine being able to produce 24/7. Each application is unique and requires a specific solution which is what Dowdens pride ourselves on delivering," he said. "This can be as simple as a single AODD pump in a roll frame or a complex system to pump water from pit bottom to the surface".

"We also fabricate and fit out a range of pressure reducing stations widely used in underground mining to prevent over-pressurising of the pipe systems."



No Power? No Worries.

It's common to experience underground power outages, whether it be through faults or planned outages. This has an immediate impact on a mine's dewatering capabilities. Compressed air-operated pump systems are generally the only backup to prevent flooding and overflows to roadways and workings.

"An alternative dewatering strategy using compressed air can make all the difference," said Dalton.

"We have done a lot of work around improving the efficiency of air-operated pumping equipment. Essentially, if a mine can provide the air pressure, we can match it with pumped pressure.

With lead times for electrical components and electric motors becoming longer, and the cost of powering hazardous areas increasing, Dowdens are exploring completely non-powered solutions to help keep their clients' operations on track.

Dowdens Underground Dewatering Air Only Solution

The development and successful trial of a completely air-operated underground dewatering pump pod has recently been completed. Like a regular underground pump pod, it has all the normal physical features, minus all the electrical functions. The standard unit is equipped with a QDS lifting attachment, forklift slots and a 2500 litre tank capacity.

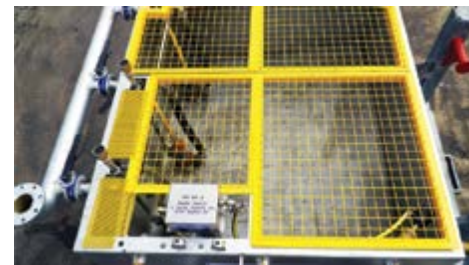
Three pneumatically operated, submersible, vortex pumps are fitted inside the tank and can be individually isolated to operate in a variety of duty/standby scenarios, as well as allow for the ability to remove a single pump in the instance where it needs to be serviced.

To optimise air consumption efficiency, the pump equipment is started and stopped using the rise and fall of the water level without the need for mechanical or electrical float devices.

"This air logic automation is undergoing additional development as a stand-alone accessory, to create solutions for automating a single AODD pump to large multi-air pump skids," said Dalton.

"Our non-powered liquid level sensor is being further adapted for installations into sumps and sink holes, and for retrofitting to existing pump pods and tanks. Even where electricity exists, the pneumatic controls can be

overridden, so they are in an off state when energised and on/auto when the power supply to conventional electrical pump equipment is interrupted."



Engineering a Complete Package

Experience is everything when it comes to the successful delivery of a large-scale commercial project. You need a dedicated team that not only supplies products but one that understands how your site operates and has the capability to engineer a solution aligned to your unique needs.

Dowdens has an engineering, procurement and construction arm that supports asset owners from the design stage through to the sourcing of specialised equipment and final project commissioning.

In recent years, Dowdens has successfully delivered key projects such as Nebo Township 2 ML/day WTP, a variety of BMA and Anglo American underground dewatering systems, multiple centre pivot and linear irrigators, containerised fire pumps, longwall boost pumps, various STP's and WTP's to name a few.

"We offer a holistic approach to our customers to help them achieve their goals from project inception to completion," said Dalton.

"Project continuity is key. It's all about consolidating the number of contractors our customers have to deal with, which in turn reduces the chances of any complications.

"We procure the highest quality equipment and raw materials from our key partners and leverage our own workshops to custom fabricate where required."

To learn more about Dowden's extensive capabilities and dewatering solutions for the mining industry, visit the Dowdens Pumping & Water Treatment website.





Australian Distributor for ATS 2000 Lube-Free Sump Pumps

Since 2007, Dowdens has been the exclusive Australian distributor of the ATS 2000 Vortex range of heavy-duty submersible lubrication-free pneumatic pumps.

These compact, lightweight pumps are designed to operate in extreme mining conditions, feature low air consumption, rust-free technology, and provide a balance of toughness, durability and versatility.

Several models are available featuring a single pump weighing just 17kg and a maximum head of 80m, and a maximum flow of 764 L/min. The Tandem set-up can achieve a maximum head of 140m, which has never previously been seen in a pneumatic submersible pump.

Dowdens Pneumatic Level Control Valve

Pneumatically operated pumps are the intrinsically safe option when dewatering in an underground coal mine. These pumps are often connected to the air supply and left to run non-stop, whether there is water or not.

This results in excess air being wasted, which is not only a cost to the company for the air, but increases the maintenance costs of the pump as it is operating when it is not required.

To optimise air consumption efficiency and reduce maintenance costs, Dowdens has successfully developed a system that will start and stop the pneumatic pump using the rise and fall of the water level without the need for a mechanical or electrical float device.



Dowdens Underground Dewatering Fish Tanks

Portable Fish Tanks are used in underground mines as part of the water management process. Mine water is collected from sumps and wet areas by pumps and delivered to the fish tank.

Standard capacity options of 2,000L, 4,000L, 6,000L, 10,000L and 14,000 litre tanks are designed to minimisemaintenance. The bottom shape of the fish tank allows a self-cleaning action that dramatically reduces the retention of solids.

Flameproof or IP Rated models are available with pump and motor configurations selected based on the application requirements.



Authorised Queensland Distributor for Tsurumi Pumps

Dowdens are also authorised distributors of the Tsurumi electrical submersible pump range. These premium Japanese quality pumps have been manufactured since 1924, and feature patented, cutting-edge technology, making them one of the most reliable, trusted pumps on the market.

The pump sizes range from 0.4kW up to 185kW and are available in 240v, 415v and 1000v, as well as an explosion-proof range. With flows up to an impressive 233 L/sec and head pressure of just over 240m, these pumps are designed to withstand the harshest environments.

Tsurumi Reliability

Dowdens were contacted in 2019 by a local coal mine to provide a solution for their process water dam. The dam, supplying clarifier and general purpose/fire water using different brand pumps, was experiencing frequent breakdowns as water demand and coal fines concentrations increased over time. Constantly replacing these units proved costly for the mine, and subsequently impacted production onsite.

Following a site assessment and review of the current system, Dowdens selected two KRS822 Tsurumi units in parallel, with Tsurumi's original technologies such as the anti-wick-ing cable, motor protector, dual inside mechanical seals with silicon carbide faces, oil lifter. Site operators now see continuous trouble-free operating intervals of 30-plus months.

Dowdens Pneumatic Dewatering Pod

Overview

The Dowdens Pneumatic Dewatering Pod was developed to offer clients a dewatering solution in times where there was no power available due to a planned outage or fault.

Coupled with the ever-increasing lead times for electrical components and motors and the cost of powering hazardous areas, this non-powered solution will assist our clients with keeping their operations on track.

Mine site water is collected from around the mine from sumps and wet areas, then delivered to the pod where the pumps transfer the collected mine water to a main station, dam or to another pod.

Features

This unit has all the standard physical features of an underground pump pod, without all the electrical requirements.

The unit is fitted with a Dowdens Pneumatic Level Control Valve to control the pumps through the rise and fall of the water level. The standard unit is fitted with three submersible vortex pumps that are designed to handle the coal, rock, and dirt that are typically present in the mine water.

With all three pumps operating, a flow rate of 105m3/hr can be achieved. These pumps are also capable of achieving in excess of 50m head pressure.



PRODUCT INFORMATION

<https://promotions.dowdens.com.au/dowdens-dewatering-solutions/>

TOTAL ROCKBREAKING SOLUTIONS (TRS)

has **Boom Automation** under control with **BoomSafe®**

When it comes to rugged mining locations, Western Australia's Pilbara region is high on the list of tough locations.

Stifling heat, ultra-hard rocks and abrasive dust ensure that any piece of machinery has to be built tough to survive.

Already recognised as the most reliable and cost-effective boom automation and remote operation system on the market, Total Rockbreaking Solutions' BoomSafe® has been proven over many years and many installations to be strong, reliable and durable in these difficult conditions.

TRS BoomSafe® has been developed specifically for hydraulic boom systems to provide safe and reliable remote operation and incorporates automated movements and advanced collision prevention to improve the

safety of any fixed pedestal boom system.

Increased Safety and Reduced Downtime
Safety is a primary objective for all modern mines and increasingly, mine operators are turning to technology and remote operation to reduce exposure to risk for operators and nearby personnel.

As its name suggests, BoomSafe® is designed to not only help miners improve their productivity, but this state-of-the-art boom automation and control system also helps to ensure workers go home safe every day. With simple remote operation connectivity, multiple rockbreakers can be operated from a single workstation from anywhere in the world through the plant network – without any operator being exposed danger.

With easy set-up and configuration tools, BoomSafe® will also help reduce downtime. High speed automated movement sequences can be configured and optimised by site-based maintenance staff using the us-

er-friendly touchscreen.

Safety and collision prevention

At the heart of BoomSafe® is an automated collision prevention system allowing your maintenance staff to set up a safe work area where the boom is allowed to operate.

All commands from either the local radio control or remote operation station are supervised by BoomSafe® to avoid damage to the boom and surrounding infrastructure, preventing all movements which would result in the boom moving outside the designated safe work area.

Additionally, BoomSafe's® unique 'Operator Assist' function automatically corrects and adjusts the human operator-initiated movements to direct the boom back into the safe

work area instead of halting the boom operation and requiring further operator intervention to continue.

Remote Operation

BoomSafe's® remote operation feature allows operators to control all of their network-connected rockbreaker boom systems from a single workstation – a truly multi-operation solution.

Remote operators can execute automated movements (such as 'Park', 'Deploy', 'Tool Replacement Position', 'Hammer Change Position') with a single button press, improving speed and precision.

For example, when parking on a small platform, BoomSafe® reduces the chance of equipment damage that could easily be caused by operator fatigue or error.

Customise onsite

Site maintenance staff can set up and mod-



ify BoomSafe® movement sequences and adjust the allowed area of operation when needed using the menu-driven configuration system.

BoomSafe® can also be integrated with other sensor systems on site, such as perimeter safety gates, traffic lights or truck detection systems. It also has configurable inputs that can be set up to operate and integrate other plant or equipment, for example, opening and closing a crusher cover.

Simple maintenance

If maintenance is required, all BoomSafe® components can be replaced in minutes using only hand tools on site without specialist technicians. Sensors are mounted independently to the boom hydraulic components and are easily accessible.

With TRS BoomSafe®, users can set the direction, acceleration, maximum speed, and minimum creep speed for each joint of the hydraulic boom independently. This level of control enhances the boom system's perfor-

mance, improves ease of operation for local and remote operators and reduces unnecessary wear and tear on mechanical components.

About Total Rockbreaking Solutions

Total Rockbreaking Solutions (TRS) is a wholly Western Australian owned company, focused entirely on the design, sales and service of hard rock mining boom systems, hydraulic power units and a large range of specialist hydraulic attachments for the mining, construction and recycling industries.

TRS' highly experienced in-house engineering and project management team specialise in the mechanical and hydraulic design of Australian made, heavy duty pedestal mounted boom systems complete with high specification hydraulic power units ideal for large scale mining operations. **AMR**

For further information please visit:
<https://www.totalrockbreaking.com.au/>

Or contact us via:
P: +61 1300 921 498
E: sales@trswa.com.au





- Specifically engineered for high duty, hardworking applications
- Australian designed and manufactured
- Heavy duty, quality components
- High reliability design reduces downtime
- High speed of operation minimises total rockbreaking time
- Protected by BoomSafe® - the industry leader in reliable rockbreaker control systems
- Simple to configure collision avoidance system and automated movements
- True multi-user remote operation available
- 'Zero - Tension' connecting hose solutions
- Various proven systems for safe and fast hammer or tool changing
- Models ranging from 22.5 to 25.8 tonne with reaches up to 17.8m



smart boom technology

TRS HD Series

BoomSafe® protected Boom Systems

The TRS range of HD Series Boom Systems represents the next generation of pedestal mounted boom systems. Specifically engineered for the world's toughest mining environments TRS HD Booms maximise reliability and availability in high duty, hardworking applications.

Protected by our industry leading BoomSafe® automation and control system, operators can enjoy one-touch PARK and DEPLOY movements and maintainers can rest assured that collision with surrounding infrastructure is prevented with our easy to configure BoomSafe® Smart Limits® system.



PERFORMANCE



| SAFETY



| RELIABILITY



| EASY MAINTENANCE

1300 921 498 | engineering@trswa.com.au | totalrockbreaking.com.au





AN INNOVATION IN FILTRATION

Australian Industrial Vacuum is handing operators the right tools to fight silica dust with their impressive DHV range; products purposefully designed to mitigate health and safety risks in the workplace.

Based in Victoria, the company is a one-stop-shop for superior cleaning systems, designed to support even the most challenging industrial settings.

This includes project operators working with certain types of stone, rock, sand, gravel, and clay, which can cause the release of fine dust known as respirable crystalline silica.

According to Cancer Council, the dust is extremely harmful for workers and can lead to development of lung cancer, silicosis, kidney disease and obstructive pulmonary disease.

Australian Industrial Vacuum Managing Director Ken Schafer said his team were dedicated to reducing harm posed by silica in the workplace and offered just the right tools to do it.

"Silica dust is harmful when inhaled into your lungs," he said.

"It is 100 times smaller than a grain of sand, meaning you can be breathing it in for years without knowing the damage it's doing, until it is too late.

"Strict regulations have been put in place all across Australia where the exposure standard must not exceed 0.05 mg/m3 at an eight hour time weighted average.

"At Australian Industrial Vacuum, we can keep you compliant with that.

"Just check out our DHV range."

THE BEST IN THE BUSINESS

Providing maximum suction performance and reliability, the Australian industrial Vacuum DHV range has fast become the product of choice for mineral resources operators.

The solutions are easy to use, have substantial collection capacity and offer a comprehensive control mechanism against silica dust exposure.

The vacuum's primary strength is arguably its secondary filter, where HEPA filtration can be deployed.

HEPA filtration is one of the safest and most effective methods against silica dust exposure, which are individually tested in line with EN1822, the international filter standard.

The mechanism comes with up to a 99.995 per cent filtration efficiency for particles of 0.3 micron.

Mr Schafer said almost all Australian Industrial Vacuum offerings came with ability to upgrade to HEPA filtration, which was a popular choice among clients.

"These powerful cleaners are a real blessing for any business," Mr Schafer said.

"They banish cleaning woes with exceptional functionality.

"They eliminate 99.995 per cent of dust particles as minuscule as 0.3 microns.

"Considering that dust microns can be between 1 and 100 microns this means that HEPA filtration efficiency is really rather mind-blowing.

"Sanitation and spotlessness are absolute pillars in many industries which is why it's critical that proper equipment is used to ensure optimal cleanliness.

"For high performance, a HEPA filter vacuum is a must-have."

DESIGNED FOR INTENSIVE USE

Aside from its world-class filter, Mr Schafer said Australian Industrial Vacuum's DHV range was built to last and capable of intensive and continuous use.

The solutions provide safe and efficient handling of large quantities of dusty or dense





SAVING YOU TIME & MONEY

A large industrial vacuum cleaner will save you time because its size is capable of cleaning large areas relatively quickly. They are also more powerful, which makes the job easier. It also means that you may have to employ fewer people to clean for you, saving your business money.

With an industrial cleaner, you can also look forward to a healthier environment for your colleagues to work in, and this could result in less time off sick. At Australian Industrial Vacuum, we ensure that we use properly functioning filtration, which results in a long lifespan and low maintenance costs, which will be music to the ears of anyone who owns a business.

An industrial vacuum will also ensure that you get better results because it offers deep cleaning each time.

materials in heavy industries and are especially useful in dry recovery.

The systems are typically deployed in settings prone to spills of cement, stone, abrasive materials, foundry sand or woodchips where spills are 1 cubic meter or larger.

Project operators also use the vacuums to control and recover spills at conveyor transfer points and for the quick discharge of debris into bulk bags or large bins.

Mr Schafer said DHV systems were considered an essential part of the overall maintenance and cleaning work in heavy industries, due to their ability to provide maximum suction performance.

He said their on-job reliability and durable design meant they were the ultimate workplace health and safety solution.

"We have ducted options available and we offer personalised ducted layouts designed by our qualified engineering team," he said.

"This is in accordance with your specific site layout and collection requirements.

"We can accommodate long distances, multiple stories and from different points of the same plant.

"The possibility to convey material with a piping system from all areas of the same plant into a single collection point guarantees the highest efficiency and optimisation of space whilst reducing injury risks and improving safety for all workers.

"We want our vacuums to fit in seamlessly with your worksite and our highly experienced technicians know just how to make that happen."

TICKING ALL THE BOXES

Australian Industrial Vacuum's DHV range can be provided with IECEx Certification, which deems the equipment safe to use with combustible dusts, such as coal dust.

The certification is recognised in Australia and elevates DHV vacuums to the only certified solution in the high powered vacuum market,

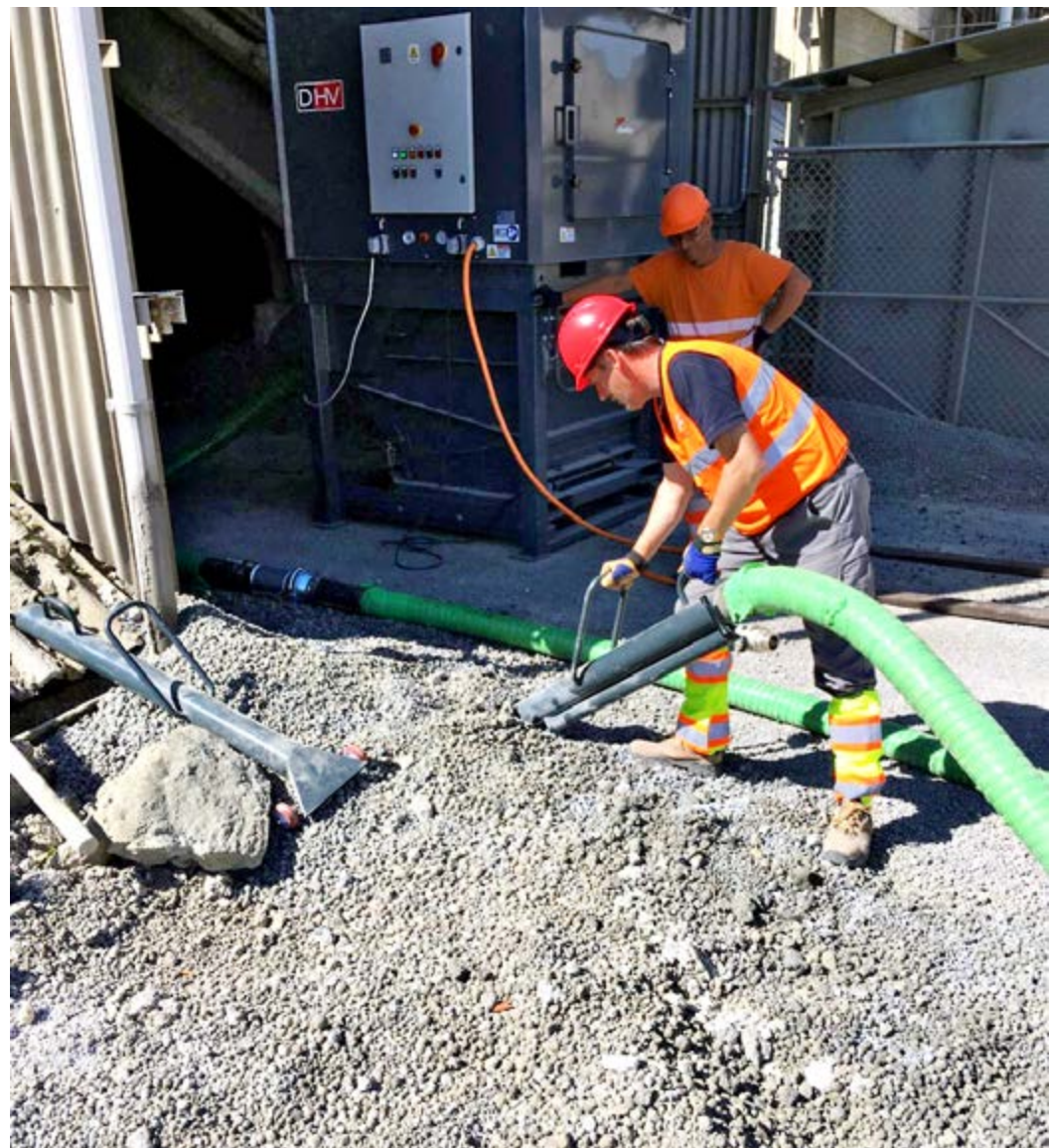
The cleaners are equipped with detachable containers are easily moved by forklift, guaranteeing maximum simplicity and safety of use. The material is unloaded thanks to activation safety bars.

Clients can also rely on self-cooled pumps, which guarantee high vacuum values and maximum airflows.

Meanwhile, the suction unit is protected by polyester filters and class M safety cartridges, for dust as small as 1 micron.

An automatic alternating chamber filter cleaning system strengthens the filtration capacity further, while HEPA filter enables better handling of toxic dusts. **AMR**

AIV Australian Industrial Vacuum **delfin**



Australian Mines and Services Handbook 2023



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Achieve optimal tooling performance with Boart Longyear's rugged and reliable top hammer drilling products. The new DriftMaster™ line of rods and bits boasts increased load handling capability for maximum endurance.

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INCREASED STRENGTH

Featuring premium carbide inserts, heat-treated, high-grade steel bits and RazorBack™ reamers pack a punch enabling more drilling time and more productivity.



BUILT TO LAST

Designed with a unique tapered thread profile and deep case hardening, DriftMaster rods maximise resistance to wear, reduce stresses, and offer superior rod-bit make-up and breakout characteristics.



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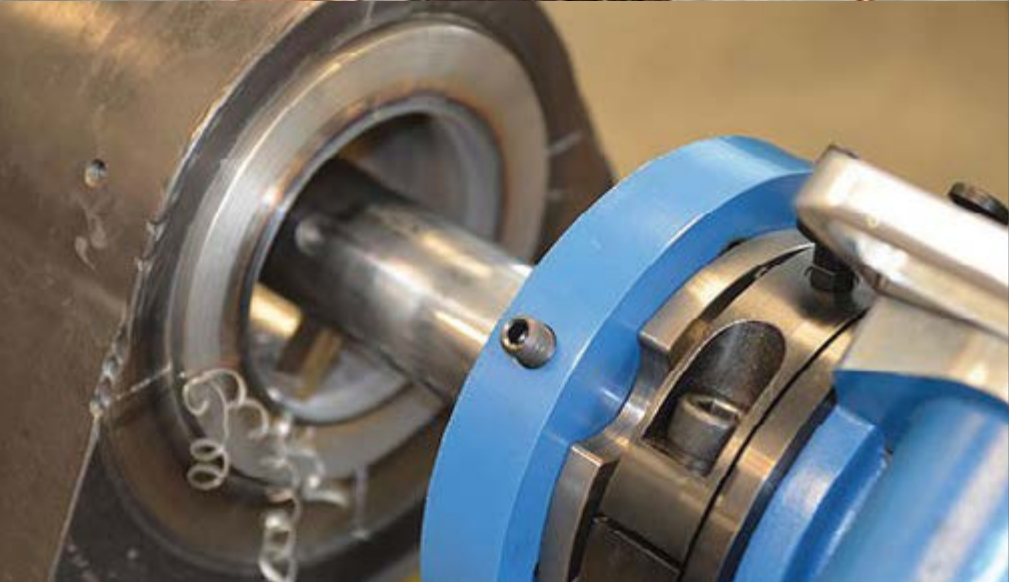
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Melbourne	Brisbane	Perth
Unit 1, 53-57 Rimfire Drive, Hallam VIC 3803	Address: Unit 2, 5 Percy Drive, Brendale QLD 4500	Unit 3, 48 Hardey Road, Belmont WA 6104
P (03) 9703 2250	P (07) 3889 7622	P (08) 9470 6088
F (03) 9703 2285	F (07) 3889 7621	F (08) 9470 6388
E sales@fmt.com.au	E sales@fmt.com.au	E sales@fmt.com.au

fmt.com.au