

Media Release

AUSTRALIAN MANUFACTURERS LEVERAGE COSMIC RAYS AND HYPER SPECTRAL IMAGING IN MINING OPERATIONS

- *Two Australian manufacturers are leveraging spaceborne particles and hyperspectral imaging to boost the safety and productivity of mining operations both locally and abroad*
- *Backed by co-investment from the Advanced Manufacturing Growth Centre (AMGC), mDetect has commercialised a system to better manage tailings dams in mining*
- *EQ Resources has commercialised a system to detect and extract tungsten from previously unviable mining waste with assistance from AMGC*
- *The commercialised products are the result of two-year long projects co-invested in by AMGC and will generate substantial job and revenue opportunities onshore.*

It sounds like something out of Star Wars, yet cosmic rays and hyperspectral imaging are a central feature in two mining technology projects backed by the Advanced Manufacturing Growth Centre, with major implications for safety and access to strategically important materials.

mDetect is a Swinburne University spinout specialising in astrophysics research into muons, a type of subatomic particle that results from the Earth's atmosphere being hit by cosmic rays, which fall harmlessly and constantly down on us¹. They are sometimes described as the heavy cousin of electrons, with their mass helping them pass deep into objects; much further, for example, than ground penetrating radar.

The company has commercialised telescopic devices and software in a system that uses muon behaviour to monitor and map tailings dams, providing real-time information on stability of the critical infrastructure in mining operations.

Assisted by \$248,191 in co-funding from AMGC's Commercialisation Fund, mDetect has trialled its muography-based imaging system at Oz Minerals (now part of BHP), and leveraged key partner Swinburne to assist with development, documentation, design for manufacture, production automation and other input ahead of scale manufacture.

Co-Founder of mDetect, Dr Jerome Donovan said, "Thanks to AMGC, we've gone from idea to impact, developing our product for commercial sales, securing key agreements, and developing our design for scaling manufacturing – it has by far been our best government-funded program experience. With high-profile partnerships secured, mDetect is set to revolutionise global industries and enhance mining safety."

"Taking highly-technical IP – and which has heritage in dark matter research, no less – and delivering a market-ready product is never easy. But we are very nearly there thanks to the support from AMGC."

The project is expected to lead to \$7.7 million in revenues in the fifth year after completion and has already resulted in new jobs at the growing company.

AMGC Managing Director, Dr Jens Goennemann said: "An Australian manufacturer harnesses the power of space to protect lives on Earth. That's Australian manufacturing at its best – globally relevant, collaborative, and highly complex. mDetect is truly a leader in their field, poised to make a global impact."

From utilising space particles to leveraging electromagnetic imaging, EQ Resources, the owner of the formerly dormant Mount Carbine Tungsten Mine in North Queensland, has innovatively devised a method to identify and extract tungsten from waste sources, following its discovery at the site in the year 1895.

Today tungsten is recognised in the EU, US and elsewhere as a critical mineral². It is used to toughen steels for the space, defence and renewable energy sectors and is found in many products such as lighting and heating elements. An estimated 85 per cent of global supply is currently derived from China³.

AMGC supported EQ Resources (EQR) through \$600,000 in co-investment to support a project to recover tungsten from a mine waste stockpile and low-grade deposits, incorporating high-tech hyperspectral imaging sensors on a front-end loader, AI-assisted decision-making, and X-ray sorting technology.

The project linked EQR with Mt Carbine Quarrying Operations, Plotlogic, Tomra, Cronimet, and the University of Queensland. It has created an extra 20 jobs, upskilled 30 employees, and helped deliver an additional \$3.6 million in revenues since completion of the project.

Kevin MacNeill, CEO of EQ Resources said, "Early co-investment from AMGC allowed EQ Resources to accelerate the commercial development of our technology, furthermore it gave us the credibility to apply for follow-on programs and secure a \$6 million grant from the Critical Minerals Accelerator Initiative to move from pilot to operational scale."

"EQ Resources' hyperspectral imaging technology demonstrates that there is still significant life in historical mines where waste piles are mountains of opportunity – in this case 130-year-old piles of tungsten containing waste."

AMGC Managing Director, Dr Jens Goennemann said: "From lighting and heating our homes, to forging a path to space, tungsten is a crucial element in modern life. In taking a step back two centuries ago and looking at the resources we already have a hand, EQ Resources will be able to extract greater value from resources long-thought unusable both here in Australia and abroad."

References:

- [1 https://www.energy.gov/science/doe-explainsmuons](https://www.energy.gov/science/doe-explainsmuons)
- [2 https://www.industry.gov.au/publications/australias-critical-minerals-list](https://www.industry.gov.au/publications/australias-critical-minerals-list)
- [3 https://www.nasdaq.com/articles/top-10-tungsten-producing-countries-updated-2024](https://www.nasdaq.com/articles/top-10-tungsten-producing-countries-updated-2024)

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About mDetect.

mDetect uses subatomic particles called "muons" to provide intelligence on internal structures and substances of buildings, infrastructure as well as subterranean and aquatic features.

Built around small, robust and cost-effective devices, we provide the most adaptable and deployable technology platform to revolutionise your detection capabilities. With multiple devices, we can create a 3D image of the density structure allowing identification, monitoring and evaluation. <https://mdetect.com.au/>

About EQ Resources.

EQ Resources Limited (**ASX:EQR**) is a leading tungsten mining company dedicated to sustainable mining and processing practices. With a commitment to resourcing the new economy for a better tomorrow, EQR focuses on expanding its world-class tungsten assets at Mt Carbine Tungsten Mine, Far North Queensland (Australia) and at Saloro Tungsten Mine, Barruecopardo (Spain).

The Company evaluates corporate and exploration opportunities leveraging advanced mineral processing technologies and unexploited resources across multiple jurisdictions to establish itself as a globally leading supplier of the critical mineral, tungsten.

<https://www.eqresources.com.au/>

About Advanced Manufacturing Growth Centre (AMGC)

The Advanced Manufacturing Growth Centre (AMGC) is an industry-led, not-for-profit organisation established through the Australian Government's Industry Growth Centres Initiative. AMGC's vision is to transform Australian manufacturing to become an internationally competitive, dynamic and thriving industry with advanced capabilities and skills at its core.

Through the delivery of its world-leading research, Manufacturing Academy, workshops, and ground-breaking projects, AMGC aims to develop a highly skilled and resilient local manufacturing industry that delivers high-value products – via the integration of innovative technology – to domestic and international markets.

<http://www.amgc.org.au>

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