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P9 Partner Awarded Industry Grant

A research partner for AMIRA International's P9 mineral processing project has been awarded a AUD\$150,000 research grant by Queensland Environment Minister, John Mickel.

The University of Queensland's Julius Kruttschnitt Mineral Research Centre (JKMRC), which is dedicated to enhancing energy efficiency in the mining industry, was one of eight groups who received funding from round six of the Environmental Protection Agency's Queensland Sustainable Energy Innovation Fund.

The grant will be used as part of the High Pressure Grinding Rolls (HPGR) project, which is one of the major components of the P9N project. The P9N project is an extremely successful long running program with the overall aim of improving the efficiency of sponsors' mineral processing circuits. The project is sponsored by more than 25 of the worlds leading mineral processing companies – including the two leading manufacturers of HPGR equipment, Humboldt Wedag and Polysius.

The announcement was made by Minister Mickel at a function held on Thursday 29 April 2004 at the University of Southern Queensland's Toowoomba campus. David Stribley, Coordinator of P9 and business manager for sustainable development at AMIRA, was there to accept the award on behalf of sponsors. He said the grant would be used to leverage industry money, which would then fast track the HPGR project to demonstrate the optimum use of the grinding rolls in mineral processing circuits.

"The award is recognition that HPGR's are now being acknowledged as a comminution tool that can be used to reduce overall comminution energy requirements when used in the appropriate circuit configuration. This is a definite bonus to the P9N project, and ensures further leveraging to industry funding," said Mr Stribley.



The JKMRC was one of eight research groups to recently share in excess of AUD \$1million funding from the Queensland Government's Sustainable Energy Innovation Fund. From left are PhD researcher Mike Daniel, AMIRA International Business Manager David Stribley, Queensland Environment Minister John Mickel and JKMRC P9 research leader Emmy Manlapig.

JKMRC Mineral Processing Research Manager Professor J-P Franzidis said that the funds will help secure the use of an energy-efficient device to trial its application in Queensland's minerals sector.

HPGR's are already used in cement manufacture and the diamond extraction industry. The broader scale use of HPGR's for metalliferous minerals has only recently been considered, with preliminary research in this area being conducted by JKMRC PhD researcher Mike Daniel.

HPGR's have a number of potential benefits, both economic and environmental, including: -

- Substantial reductions in water requirements for processing minerals – the HPGR is a dry processing device.
- Substantial reductions in process energy requirements – the HPGR is more energy efficient than conventional mills in some applications.
- Substantial waste reduction in mining through a process of 'enhanced liberation' obtained with the HPGR which targets and extracts minerals in an ore body more efficiently.

Professor Franzidis said that access to water is a critical issue for many mining operations in regional areas of Australia, particularly in Queensland.

"Any new technology that potentially reduces the requirements for water and power to process ore would be a welcome inclusion at the processing plant," he said.

The HPGR has yet to be proven in production as an appropriate alternative for large base and precious metal mining operations in Queensland and elsewhere around Australia and internationally.

One challenge is to see how useful the HPGR will be when called upon to treat harder ore with lower grade from new ore bodies.

"To make the change from existing milling equipment – such as semi-autogenous and ball mills – to high pressure grinding rolls would also require major refits and major expense," Professor Franzidis said.

The JKMRC team aim to demonstrate the benefits of the HPGR's by acquiring with EPA funding a pilot scale version of the device and running trials at various mine sites around Queensland.

Professor Franzidis said the EPA grant would help the JKMRC carry out this work as part of the world's longest running minerals processing project – Project P9 – which is coordinated by AMIRA International.

The EPA grant is the third significant source of funds awarded to the JKMRC over the past two years by the Queensland Government, demonstrating confidence in the research group's ability to make valuable contributions to the state's mining and allied industries.

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