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EXCLUSIVE MINERAL  
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## CHANGE COMING

What the IR overhaul means

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# Not just froth and bubble

SOMETIMES the layout rather than the technology makes the difference.

Take the example of OZ Mineral's Prominent Hill copper gold operation.

Recently the mine has been hitting the headlines for a number of reasons, not least being its role in derailing a recent takeover deal.

However, the way technologies have been brought together to create a high-grade copper-gold concentrate in a small footprint should also be noted.

The operation, 650 kilometres northwest of Adelaide and controversially close to the Woomera missile testing range, produced its first concentrate in February.

The mill is designed to regrind feed stream particles with 80% of them up to 106 microns to generate a product that was 80% made up of 24 micron particles.

Design mineralogical and metallurgical testwork determined the fluorine-bearing minerals needed regrinding followed by efficient entrainment rejection. This was achieved in a small space through combining Xstrata Technology's IsaMill and Jameson Cell with conventional grinding mills and flotation cells.

The IsaMill regrinds rougher concentrate in an inert grinding environment to provide optimum flotation performance by producing fresh, clean mineral surfaces.

The IsaMill chosen for this project was a M10,000 unit powered by a 3-megawatt electric motor using 3.5mm Keramax MT1 media. The Keramax MT1 media, supplied by Magotteaux, is made of an inert ceramic. It has high structural integrity and a smooth surface, maximising the energy used to grind the concentrate particles.

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The IsaMill product is then "flash" floated in a single Jameson Cell to quickly recover a high-grade froth-washed concentrate in a small space. The Jameson Cell in this case is the B5400/16, a small diameter cell that uses



The IsaMill and Jameson Cell at Prominent Hill has been married to conventional float cells to get high recovery in a small space.

above froth washing to remove entrained particles from the froth.

The high intensity interaction of the slurry and the bubbles induced into the downcomer creates favourable conditions for floating particles with a high flotation rate.

The Jameson Cell was supplied fully automated from Xstrata Technology. Tailings from the cell gravitate to conventional flotation cells to recover the remainder of the concentrate.

This combines the best of both flotation technologies. There is the high intensity fast flotation and low entrainment of the Jameson Cell. Then comes the long flotation time of conventional cells to remove slower floating particles.

Conventional cleaning is assisted by lower density and lower circulating loads because of the material already removed by the Jameson Cell. This results in a smaller, more efficient circuit.

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