INMINE GEOPHYSICS FOR MINE PLANNING

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This paper will provide case studies demonstrating how in-mine geophysics is now being routinely used in a number of mines in Western Australia to map mineralisation and structures ahead of mining. Refined equipment and procedures enable in-mine geophysics to be run in any drillhole or tunnel in an underground mine with minimal impact on the mining process. These geophysical techniques provide a much higher resolution than traditional exploration techniques, mapping interfaces to an accuracy of less than 1 m.

Two of these in-mine geophysical techniques are downhole electromagnetics and Borehole radar. Downhole electromagnetics is a proven geophysical technique that can be used to map planar conductive mineralised zones, for example massive sulphide. Borehole radar is a proven geophysical technique to map the topography or ore zones and structures that control mineralisation. Borehole radar can also be used in transmission mode to map breaks and offsets in ore ahead of mining.

This paper will show how in-mine geophysics can greatly increase the confidence in the delineation of an orebody directly ahead of mining.