

## **Uncovering Deep Mineralization Using Seismic Reflection**

Greg Turner,<sup>1\*</sup> Graeme Hird,<sup>1</sup> Jai Kinkela,<sup>1</sup> Don Pridmore,<sup>1</sup> and Milovan Urosevic<sup>2</sup>

<sup>1</sup>HiSeis Pty Ltd, Suite 4, Enterprise Unit 3, 9 De Laeter Way, Bentley, WA 6102, Australia

<sup>2</sup>Curtin University, Bentley, WA 6102, Australia

\*E-mail, g.turner@hiseis.com

The seismic reflection method is gaining acceptance as a tool for targeting and delineating deeper mineral resources. A key advantage of the technique is the high resolution of the subsurface images that are generated. Unlike other geophysical techniques, resolution diminishes little with depth. Given the complexity of mineralized environments, this increased resolution creates a number of interpretational challenges. Geology is rarely as simple as the sections ubiquitously provided in company reports portray, whereas seismic tends to more closely represent the actual geological complexity present.

The interpretation of hard rock seismic data is in its infancy but has much in common with the interpretation of modern aeromagnetic data. Multiple images are often used to emphasize different aspects of the data. Interpretation involves the integration of other data sets, pattern recognition, and the detection of breaks. This interpretation needs to be guided by an understanding of the physical properties, image forming process, structural setting, and the ore genesis.

In our presentation we will use a number of case histories to demonstrate our developing approach to the interpretation of hard rock seismic data.