

## **Results from the Field Trials of a new Borehole Gravity Meter**

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The value of borehole gravity data for determination and monitoring of bulk densities beyond the borehole and for remote target detection has been recognized in the literature for at least 60 years. The L&R Borehole Gravity Meter is over 30 years old. It is still being used effectively for oil and gas exploration, both onshore and offshore, but it is limited to large, vertical holes, and the logging rate is slow. Data quality is very good and the use of the L&R BHG in large diameter, vertical geotechnical holes is increasing.

Scintrex's development of the new Graviglog borehole gravimeter provides, for the first time, wireline gravity measurements in smaller diameter, inclined boreholes, typical in exploration industries. The Graviglog borehole gravity meter has been successfully deployed to 2,000 m depth in an inclined borehole with an ID of 55 mm (2.1"), making it possible, for instance, to use this new tool inside standard NQ drill rods for mining and geotechnical applications. The Graviglog probe measures gravity in the borehole using a modified Scintrex CG-5 quartz sensor. The probe is designed for borehole deviations of up to 60 deg from vertical. École Polytechnique of Montreal has developed forward modelling software for borehole gravity data.

The first field test of the prototype probe was successfully conducted in December 2008 for Vale in a deep borehole located in Norman township near Sudbury, Ontario. The results of this test show a large amplitude bipolar residual gravity anomaly, with the crossover at the location where the borehole intersected sulphides. A repeat log of the hole indicates that the Graviglog system has achieved operational specifications very close to its targets.

The second field test of the Graviglog probe was conducted in March 2009 for AREVA in northern Saskatchewan, near the Cluff Lake uranium mine. Two more field tests are scheduled for Q2 2009: in Queensland, Australia for BHPB, and at Prudhoe Bay, Alaska for Schlumberger. Upon completion of the field tests, the Graviglog system will be commercially available.

With permission from the sponsors, data from the Graviglog field tests will be presented in this talk.