

CASE STUDY

Inmet Mining - Troilus Mining Reserves without Reservation



“It was important to get access to remaining reserves at the bottom of the pit in a safe manner. Without the SSR we would have ceased operations earlier.”

Yves Beauchamp
Chief Mine Engineer



▲ Road down into the pit

Inmet Mining Corporation's Troilus Operation is an open pit gold mine located in northwest Quebec, Canada. The mine, which opened in 1995, is scheduled to close in 2009. In 2008 the mine produced 151,300 ounces of gold and 5,700 tonnes of copper. As operations are nearing end of mine life, the pit has become very deep with steep slope angles.

Troilus hired a GroundProbe Slope Stability Radar (SSR) in November 2008 to meet the following objectives:

- Provide early warning of failures to limit harm to personnel and equipment and improve operator confidence
- Increase end of mine life and ensure predictable mine planning

In addition to the radar Troilus also utilizes previously deployed extensometers and prisms in the mine according to potential failure areas.

Because of the aggressive pit wall angle and prejudicial rock structural features associated with the freeze-thaw cycle experienced during spring, Troilus needed to continuously monitor the west wall in order to get rapid feedback of the conditions and take action as quickly as possible to assure employee safety and maximum ore recovery.

Several 9000 tonne failures were observed in February and March 2009, which the SSR depicted with total displacement of 50-70 mm before failure. The accuracy and precision of the radar allowed Troilus to safely access remaining ore while protecting employees and equipment.

GroundProbe and Troilus also overcame challenges related to operating the radar in extreme cold weather conditions. The average temperature from January to March was about -22°C, however, there were days in which the temperature was as low as -35°C with a wind chill factor of -45°C. A wooden box was built around most of the moving parts of the radar to provide insulation and protection from the elements. Other sensitive parts were covered with plastic tarp. Heat was pumped into the wooden box and under the tarps. The system has continued to function reliably despite the weather conditions.



▲ Ice formations on mine pit walls



▲ Slope Stability Radar monitoring at Troilus pit

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