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CASE STUDY

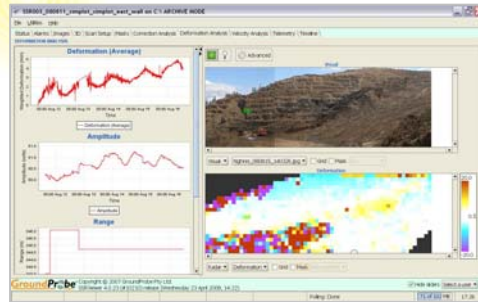
Smoky Canyon Mine

How a safety conscious mine salvaged 67 million dollars



▲ “We’re proud of what we do here, and how we do it. Our standard is simple – do it right.”

Dennis Facer,
General Manager



▲ Deformation figure from stable area of the pit wall



▲ Deformation figure for moving slope

GroundProbe's Slope Stability Radar (SSR)

provided the confidence to mine the high risk area within the company's strict safety standards with a high degree of profitability.

Dangerous Dollars

Smoky Canyon Mine, owned by J.R. Simplot, produces annually over 2 million tonnes of phosphate ore for use in fertilizer and other products. The Smoky Canyon Phosphate Resources is located in the rugged highlands of the Caribou National Forest in Idaho, approximately 20 miles from Afton, Wyoming (USA). Operations at Smoky Canyon consist primarily of open-pit mining. Once mined, the ore is milled and then diluted to form a slurry which is transported via an 87-mile underground pipeline to Pocatello, Idaho, where it is transformed into fertilizer at Simplot's Don Plant.

In 1992, the mine experienced a fatal slope failure. In a proactive measure to lessen the chance of such a tragedy reoccurring, the mine leadership went beyond the requirements of MSHA and other organisations and utilised a Slope Stability Radar to monitor an area they considered to be of moderate to high risk.

The mine had been experiencing considerable stress at the toe of a nose that rose from the bottom of the pit to a height of 400 feet (approximately 122 metres). In order to relieve the stress, an estimated 20,000 tonnes of overburden would have to be removed. It had been estimated that a failure in this area could potentially result in a loss of 200,000 – 350,000 tonnes of ore. Using an estimated 300,000 tonnes as an approximation and a value of US\$ 225.00/ton, the mine was poised to lose a potential \$67.5 million dollars.

Safety Above All

Mine management determined that mining the 20,000 tons without proper monitoring would be unsafe and they were unwilling to take on the risk. GroundProbe's Slope Stability Radar provided the necessary information for their risk management team to make confident decisions. A short term lease provided the confidence to mine the area within the company's strict safety standards with a high degree of profitability.

Smoky Canyon had been using prism systems but, with continuous movement, prisms were often lost around the area of acceleration. The mine had evaluated Optech and I-site systems but after some initial research opted for Topcon virtual prism monitoring system, and up until then the mine did not have a continuous, critical monitoring tool. For this situation, only the Slope Stability Radar provided the early warning signs as they continued to mine, and for this reason Smoky Canyon Mine opted for the SSR.

Craig Howes, Smoky Canyon's Mine Engineer, stated: "Managing risk can be a safe and profitable exercise, Smoky Canyon Mine has proved this concept."

Thank you to the management of Smoky Canyon for allowing the opportunity to produce this document.