



CASE STUDY: Newmont Mining

MAKING MINING SAFER

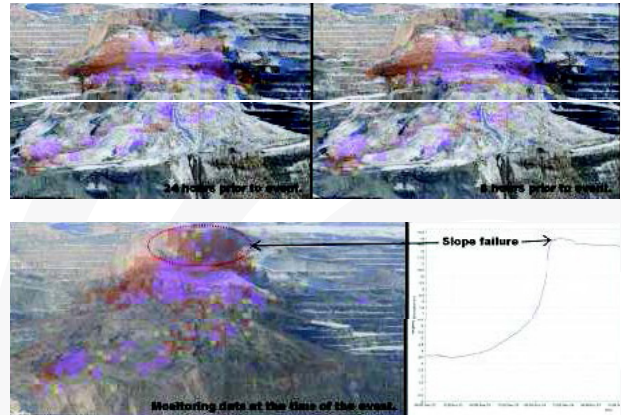
SLOPE STABILITY RADAR (SSR™) – BENEFITS OF EARLY WARNING DATA - GOLD QUARRY OPEN PIT, NEWMONT MINING CORPORATION, CARLIN (NV), USA

In July 2009, Newmont's Carlin Surface Operation deployed a GroundProbe SSR-X system at its Gold Quarry open pit to monitor on-going slope instability while remediation mining activities were underway.

Newmont had previous experience at Gold Quarry with a GroundProbe SSR unit in 2007, as well as, in 2006 at the Lone Tree Operation in north-central Nevada.

TIMELY AND ACCURATE SSR DATA ENABLES KEY DECISIONS TO BE MADE WITH CONFIDENCE

A slope failure occurred in late April 2009. This instability was monitored and predicted with an automated prism surveying system; however, a majority of the survey prisms were lost within the slide mass. The capability to monitor the slope going-forward would be critical for implementing a safe remediation plan. With a need to re-establish safe slope monitoring without having field personnel at risk, the situation appeared to be an application for radar slope monitoring technology.



Detailed safety protocols for slope remediation were developed incorporating the SSR-X. The protocols encompassed many aspects: visual inspections, work area procedures, spotters, 24 hour a day observation of incoming SSR-X data, and slope movement alarms transmitted to Mine Dispatch and Geotechnical Staff. The integrated approach proved invaluable.

In the early morning hours of December 24th, the SSR-X detected increasing movement within the slope; the acceleration soon triggered displacement alarms the changing slope conditions. Work area procedures were initiated immediately to evacuate personnel and to visually inspect the slope. A catastrophic slope failure occurred after all personnel were pulled out of the area.

SSR-VIEWER ALLOWS FOR IMPORTANT DATA ANALYSIS DURING AND AFTER SITE EVENTS

Russell Sheets, Senior Geotechnical Engineer responsible for managing the SSR commented that, "The SSR-X provided observations during the period of darkness over which the slope was accelerating toward an impending failure. Mine personnel were able to assess changing slope conditions while visual observations were hindered by darkness and to make the necessary decision to evacuate personnel from the pit."