



## PROFILES & VOLUMES FOR OPEN PIT MINING

### P&M COAL, KEMMERER, WY

#### PROJECT GOALS

- Conduct profile surveys of mine walls
- Produce contours and 2D drawings; calculate volume of mined material
- Perform comparison of *Cyrax* against current survey method

#### PROJECT FACTS

- 300-foot-wide by 40-foot-high wall in open pit coal mine
- One *Cyrax* setup for each of two consecutive days
- Set up 150 ft. from mine wall; two scans per setup
- Scan time: <1 hour
- Total modeling and volume calculation time: 1 hour
- Project performed July 1997 with *Cyrax* beta system

#### CYRAX BENEFITS

- Minimum 50% cost savings versus current method
- Improved safety with remote scanning

P&M Coal currently uses labor intensive methods to calculate the volume of coal and material that is mined from its open pit coal mine in Kemmerer, Wyoming. In the current method, a surveyor walks along the top and bottom of the mine wall to collect 3D points.

The volume of material removed is estimated by calculating the difference between Day One's surface and Day Two's surface. P&M Coal recognizes that this is a crude approximation. In addition, this method creates a safety concern associated with having a surveyor walk along the top edge of the mine to collect data.

The availability of a beta version of the *Cyrax*™ high-speed laser scanning system prompted a study to compare the *Cyrax* remote surface scanning method with the current GPS method.

The scanned area for each station was 12,000 sq. ft. of vertical mine surface. The scanner was set up on a ridge approximately 150 ft. from the mine wall. Two scans were done from the only setup point. After scanning and modeling were completed, 2D drawings were created and volumes were calculated.

*Cyrax* was also able to generate color intensity maps for geological mapping.

# CYRA

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