



CASE STUDY

Disseminated gold mine added US\$215,000 of value in one blast

Commodity	Ore Grades	Geology	Powder Factor	Location
Gold	0.025 oz/ton**	Disseminated	0.33 lb/yd ³	North America

This low-grade, disseminated gold mine is one of the top producing open-pit operations in the world.

- The mine drills 20 or 40 ft (6 or 12 m) benches that are mined in a single pass
- Current grade control method uses blast hole assays to create an ore control model
- The soft, sedimentary rock-hosted deposits (density 0.07 ton/ft³) require a low powder factor to achieve sufficient fragmentation

Challenges

Blast movement did not appear to be a contributing factor to poor ore yield

- Measurable dilution negatively affected reconciliation despite the low powder factor used in the pit
- Mid-bench blast movement contributed to ore loss, with gold being sent to the waste pile

Solution

The BMM System accurately measured blast movement and translates post-blast dig lines

- Blast movement monitors (BMMs) were installed in monitoring holes throughout the shot
- Installation and detection as per site standard operating procedures
- BMM Explorer software calculated new dig lines, and areas of ore loss and dilution that would have occurred without monitoring

Results

Less dilution and more ore

Additional US\$215,000 of value from this blast

Significant movement occurs within all blasts. Variation of $\pm 50\%$ from the mean horizontal movement is common, and occurred in this blast.

- Measured horizontal movement ranged from 3 to 13.5 ft (1 to 4 m) and vertical movement up to 3 ft (1 m)

By accurately accounting for blast movement, this mine:

- Avoided unnecessary milling costs of US\$135,000,*** reducing dilution by 9% and avoided 4,500* tons (4,100 tonnes) of waste being treated as ore
- Recovered an additional 5% of ore, 2,900 tons (2,630 tonnes), valued at US\$80,000

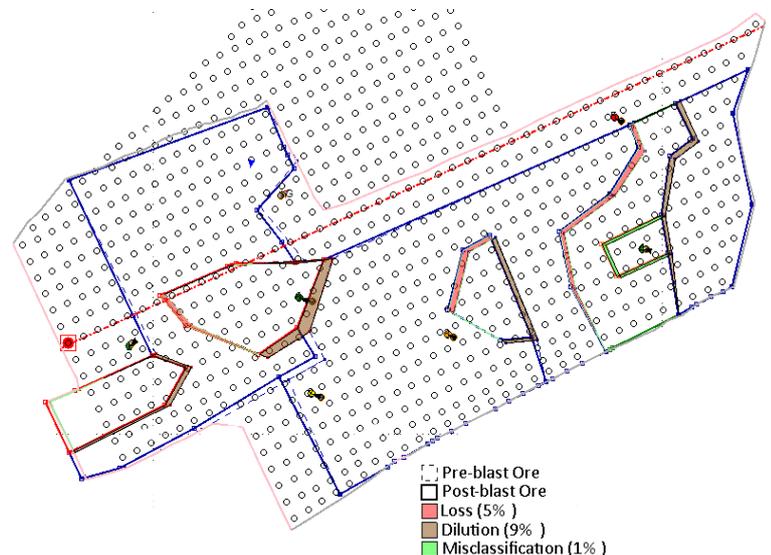
* Numbers are rounded;

** Average grade of ore polygons;

*** Estimated from mine milling costs of US\$30 per ton;

**** Calculated at a gold price of US\$1,250/oz.

Accounting for blast movement generated US\$215,000—in one blast



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