



CASE STUDY

Disseminated gold mine generated US\$340,000 additional value—in one blast

Commodity	Ore Grades	Geology	Powder Factor	Location
Gold	High and low	Disseminated Sulphide	1.15 kg/m ³	Russia

This disseminated sulphide mine is one of the top producing open-pit gold operations in Russia.

- Mineralisation is disseminated in sedimentary schists and shales
- Blasts are fired in a 10 metre bench
- The site contains high grade (3.5 g/t) and low grade ores

Challenges

Substantial movement of ore is not monitored or accounted for

- Misclassification of ore (i.e. high grade ore is stockpiled as low grade or low grade ore is sent to the mill as high grade)
- Ore loss, with gold being sent to the waste pile
- Dilution, with tonnes of waste being treated as ore

Solution

BMM System accurately translated 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
- Blast was fired and movement monitored
- 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 generated additional value of US\$340,000

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

- Measured horizontal movement ranged from 2.5 m to 14 m (8 to 46 ft) and vertical movement of up to 4.5 m (15 ft)

As a result of accurately accounting for blast movement in this blast, the mine:

- Avoided 13% dilution—3,800* tonnes of waste were diverted from the mill, saving US\$75,000**
- Maximised ore yield by recovering 2,600 tonnes of additional ore, valued at US\$265,000***

* Numbers are rounded
 ** Estimate based on mine milling costs of \$20 per tonne
 *** Calculated at a gold price of US\$1,250/oz.

Accounting for blast movement generated additional value of US\$340,000.

