

# European multi-metal mine improves ore recovery through blast movement monitoring

## CASE STUDY

Commodity	Ore Grades	Geology	Powder Factor	Location
Ni, Zn	0.33% Ni Equivalent	Disseminated	0.95 kg/m <sup>3</sup>	Europe

One of the largest metal producers in Europe, this low-grade, low-cost operation mines nickel, zinc, cobalt and copper. With a strong focus on continuous improvement, the mine is also establishing itself as a best-practice leader in sustainable mining.

- The deposit is a large low-grade, black-shale hosted, polymetallic sulphidic resource
- Blasts are fired in 15m benches
- Metal extraction uses an energy-efficient leach-heap process

### Challenges

**Unaccounted blast movement increased the risk of ore loss and lower metal recovery**

- Mine operations were estimating the extent of blast movement and its effect on ore boundaries
- Loading maps were being modified by eye and grade control had no way to confirm that the adjustments were correct
- Continuous improvement required precise adjustment of ore contacts to minimise waste

### Solution

**BMM System accurately translated post-blast dig lines**

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

### Results

**Accurate adjustment of blast movement recovered €211,000<sup>1</sup> additional value in this blast**

Mine operations were able to accurately adjust loading maps to account for blast movement and minimise ore loss.

An example blast demonstrates the ore loss and dilution that would have occurred if blast movement was not accounted for. 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 11.2 – 41.7m

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

- Maximized ore yield—**6,900<sup>2</sup> tonnes of ore**, valued at **€211,285**, were recovered
- Avoided dilution—11,300 tonnes of waste were diverted from the mill, saving €136,000 in unnecessary milling costs

1. Numbers are rounded  
2. Calculated by BMM Explorer

*Accounting for blast movement added €211,285 of value—in one blast*

