Nickel mine generates $640,000 additional value in one blast

CASE STUDY

Commodity	Ore Grade	Geology	Powder Factor	Location
Nickel	0.6% *Ni**	Disseminated	0.7 kg/m³	Australia

This mine is one of the world's largest, low-grade Nickel open-pit operations.

- The mine resource is a sulphide deposit in ultramafic rocks
- Blasts are fired in 12-metre benches and mined in a single pass
- Grade control uses RC drill assays

Challenges

Talc contamination reduced *Ni* recovery; Lower than expected mill grades

- Talc ore, not accurately classified and stockpiled, was contaminating non-talc ore in the mill, which reduced *Ni* recovery
- Mining ore in narrow zones increased dilution
- Dilution impacted mill feed grades

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
- BMM Explorer software calculated new dig lines, and areas of ore loss, dilution and misclassification that would have occurred without monitoring

Results

Improved mill grade and *Ni* recovery; Added $640,000 of value in one blast

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

- Measured horizontal movement ranged from 2 to 6 m (6 to 20 ft) and vertical movement (heave) of up to 3.5 m (12 ft)

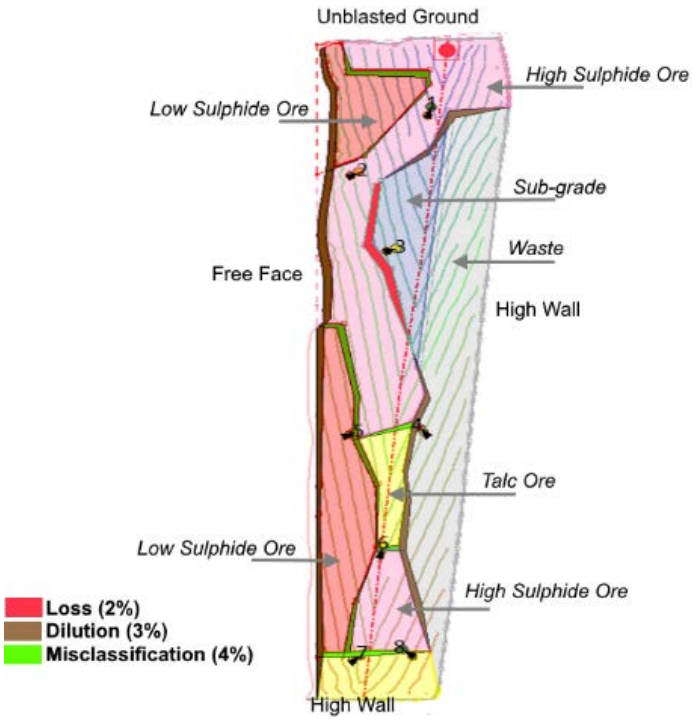
As a result of accurately accounting for blast movement, this mine:

- Correctly classified and treated talc-contaminated ore, improving *Ni* recovery
- Improved *Ni* grade from the mill when mining ore in narrow zones

In this example blast, the operation also

- Avoided misclassification of 24,500[1] tonnes of ore (4%)
- Recovered 12,500 tonnes of ore (2%), containing *Ni* valued at $640,000[2]
- Avoided dilution of 18,000 tonnes (3%)

In one blast, this Nickel operation increased ore recovery by 2%, reduced dilution and avoided misclassification of talc and sulphide ores



* Average grade of ore polygons
1. Numbers are rounded
2. Calculated at a commodity price of A$14,000 per tonne

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