

Asanko's Nkran gold mine achieves 100% reconciliation through blast movement monitoring

CASE STUDY

Commodity	Ore Grade	Geology	Powder Factor	Flitches	Location
Gold	High*	Structural	0.6 kg/m ³	2	West Africa

Asanko Gold's Nkran mine, located in Ghana, is an open pit operation located in the Kumasi Basin.

- Mineralisation is shear-hosted in a sedimentary basin with Granitic intrusions
- Blasts are fired in six-metre (20 ft) benches and mined in two flitches (3 m)
- A proven reserve of 4.4 Mt at 1.85 g/t gold, the site contains high grade ores (up to 2.0 g/t)

Challenges

Ore loss and dilution negatively impacted mill feed ore grade and ounces

- Ounces produced vs reserve model reconciliation was 18% below target
- Mill feed ore grade was 10% below reserve model expectation
- Blast movement, causing ore loss and dilution, was considered to be contributing factor

Results

100% reconciliation for ore grade and ounces produced

Nkran mine has achieved significant reserve model reconciliation improvements:

- Mill feed ore grade reconciliation variance of 102% (vs 88% over the previous period)
- Ounces produced variance of 100% (vs 96%)

Following is an example blast from Nkran that quantifies blast movement and additional value.

- Measured horizontal blast movement ranged from 1.5 to 11.6 m (5 to 38 ft) and vertical movement was up to 9.8 m (32 ft)

In this blast, the mine site **added US\$237,000 of value.**

- Maximized ore yield—recovered 2,800** tonnes of additional ore at a value of US\$137,000***
- Reduced dilution—diverted 5,500 tonnes of waste from the mill, avoiding US\$100,000**** of milling costs

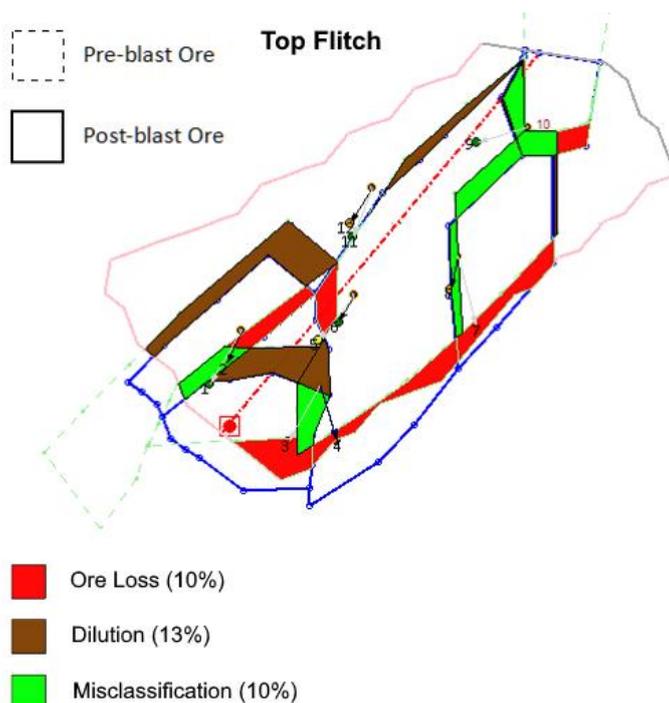
*Average grade of ore polygons; **Numbers are rounded; ***Calculated at a gold price of US\$1,250/oz.; ****Calculated from mill processing costs of US\$18 per tonne

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 System calculated new dig lines and areas of ore loss / dilution that would have occurred without monitoring

Accounting for blast movement added US\$237,000 of value—in one blast



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