



SYAMA GOLD MINE MALI

MILLING

BACKGROUND

Syama Gold Mine was a marginal mine operating way below optimum profitability. The milling capacity at Syama was 90 000 tonnes per month through a single dry SAG mill. Since the mine had the capacity in the rest of the plant for significantly greater throughput, it was decided to increase the milling capacity to 240 000 tonnes per month. This represented a 260% increase.



SCOPE OF WORK

MAED redesigned the existing mill circuit to incorporate a regrind Ball mill which was purchased from Benoni Gold Mine in South Africa. The Ball mill was completely refurbished and then shipped to Syama, where it was installed as a regrind mill. The mill is a 14 ft diameter by 22 ft long Vecor with a 1.8 MW 6.6 kV motor.

The mill has the capacity to regrind up to 120 tonnes per hour of dry SAG discharge to 70% - 75 microns. The new circuit immediately increased milled tonnage to 140 000 tonnes per month.

In addition, a completely new circuit with a wet SAG and a Ball mill for regrind was designed by MAED to further increase the tonnage milled to 240 000 tonnes per month. The new circuit consists of a 16 ft diameter by 36 ft long wet SAG mill purchased from Durban Deep Gold Mine, together with the second Vecor mill purchased from Benoni Gold Mine.

The wet SAG mill was originally manufactured in 1986 for ERPM but never commissioned. The mill is a Vecor mill with a 3.5 MW 6.6 kV motor with a shell weighing 120 tonnes. The shell was cut and flanged for transport to West Africa. Due to access constraints the total size and weight of the mill did not allow transport in one piece.

The regrind Ball mills were overhauled in South Africa and shipped to Syama.

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INCREASED OUTPUT

The new circuit is unique since it allows changeover with the existing circuit. In the event of either SAG mill not operating, both regrind mills are able to increase milling of the regrind product from the other SAG mill.

Both mill circuits are operated and controlled by state-of-the-art PLC systems. These systems are housed in a new control room that was built to control all plant functions.

The project was completed in 12 months at a total cost of \$14.4 million US.

