



## BUZWAGI MINE



Change management program provides 25% improvement in output

### Background

Buzwagi Gold Mine is an open cut gold mine in the Shinyanga Region of Tanzania, located 6 kilometres southeast from the town of Kahama. It is operated by African Barrick Gold.

Barrick acquired Buzwagi, alongside Tulawaka, as part of its acquisition of Pangea Goldfields Inc. in 2000. The mine, the second largest mining operation and the largest single open cut mine in Tanzania, opened in 2009.

The mine was constructed for Buzwagi at a cost of approximately \$400 million, and employs more than 3,000 people. It consists of an open cut mine, ore processing facilities, a waste rock storage facility, a tailings storage facility, as well as water management and other ancillary facilities.



### The Challenge

The Jamieson Group review identified that whilst the plant monitoring was being done, the volatility in the circuit and the non-compliance to the agreed set points was both chronic and endemic. The project objective was therefore to reduce this volatility as well as the duration of non-compliant interludes by converting a passive test and log system into an active short interval control in which human intervention was the primary lever for driving output and recovery improvements.

The transparency of the existing system was also an identified weakness. Because the log sheets were manual there was no simple way of overviewing or analysing the enormous volume of daily data contained therein. The volume of data inputting required in order to conduct a simple spread sheet variance analysis was effectively prohibitive for a time constrained management team. As a consequence specialists and management effectively did not use this material at all. We were told that these log sheets should be abandoned for all the use they were as management and diagnostic tools.

Obviously as management did not use these resources (outside the minimalist requirements of the daily report) a culture of poor compliance and passivity built up amongst the operators/caused

### Project at a Glance

#### REGION

Africa - Tanzania

#### INDUSTRY

Mining

#### COMMODITY

Gold/Copper

#### MINE TYPE

Open Cut

#### PROJECT FOCUS

Increase tonnages by means of improved productivities

#### KEY ACHIEVEMENTS

- 25% improvement in gold output
- 18% improvement in tonnage throughput
- Annualised savings of \$28 million
- 5.3% improvement in gold recoveries
- 9.3% reduction in cost/oz
- 56% reduction in operational downtime



supervisors and a negative feedback loop of poor performance gained momentum due to the lack of transparency and the resulting lack of accountability. At the top team level the morning meeting was an exchange of unsupported views conducted in the dark. It was a review that was completely devoid of metrics and even lacked an action plan.

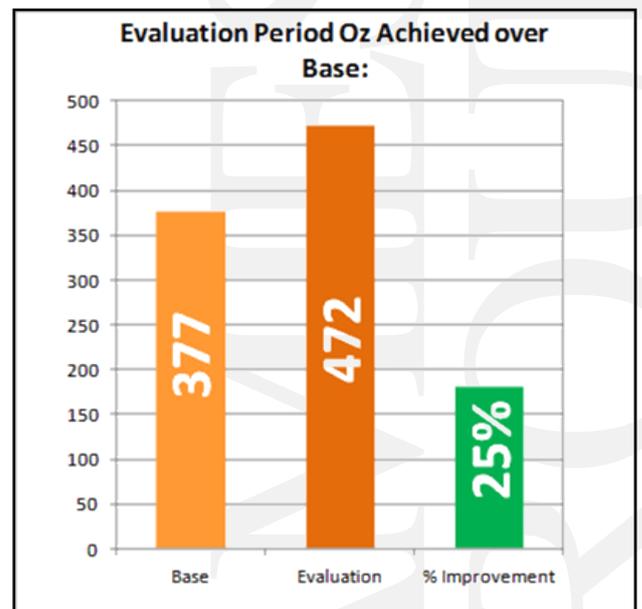
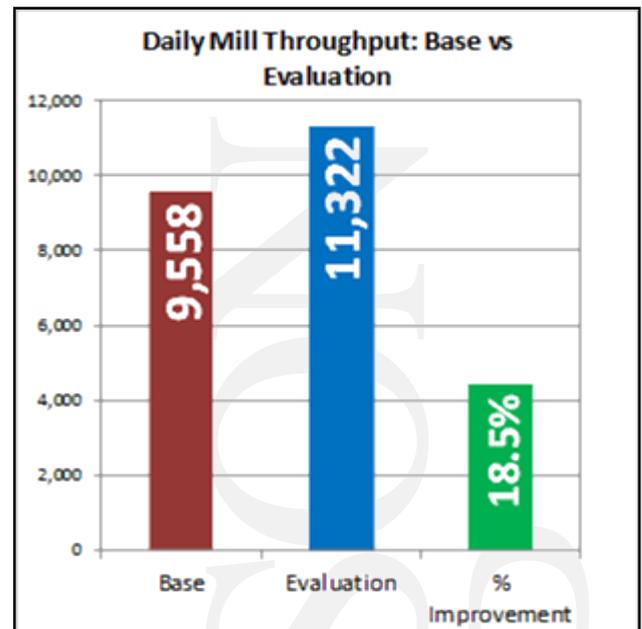
## The Approach

Accordingly the primary project task was to convert the valuable elements of the existing logs into a transparent integrated dashboard of related graphs that permitted (at a glance) an overview of dozens of critical KPI's. This would allow metallurgists and managers to zone in on the variances and on any deficiencies which needed immediate high level attention. The senior management team and the Jamieson Group consultants worked together to achieve the behavioural change and drive the improvements. There was no culture of defensiveness that so often inhibits the early embrace of constructive change in improvement projects of this kind. In particular, the new Plant Manager demonstrated a steely determination to completely revolutionise the top team review process.

## The Success

The 26 week project to increase plant throughput and recoveries was extremely successful. The milled tonnes were improved from a base level of 9,558 per day to 11,322 per day; an 18.5% improvement.

- Recoveries have improved from 84.6% at base to 89.1% - a 5.3% improvement
- Ounces have increased from a daily average of 377 at base to 472 (using base grades). This is a 25% like for like improvement in gold production.
- Fixed costs/ Oz have reduced from \$671 - \$532 – a reduction of \$139/ Oz (9.3%)
- There has been a 56% reduction in operational downtime and a 15% reduction in no feed downtime.



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