



## Ventilation improvements yield some success at Obuasi

A combination of improving ventilation practices and the operation of approximately 7MW of the commissioned 15MW refrigeration plant at Obuasi mine's Kwesi Mensah Shaft in Ghana is assisting in improving underground ventilation conditions at the mine. According to Mentz Karsten, Ventilation and Rescue Manager at the mine, a positive feature of the Obuasi orebody is that the various blocks are independently ventilated. A challenge, however, is the fact that large parts of the mine and equipment are old and that some of the ventilation airways have closed over time, while some of the development fans and ventilation columns are not yet operating optimally.

Research has shown that higher temperatures in-stope and in development areas has a significant impact on safety, productivity, fatigue and job satisfaction.

The installation and commissioning of a new refrigeration plant, at a cost of \$25 million in January 2006, was a significant step forward. (See Report to Society 2005). But the plant has yet to reach its full potential as power cuts and load-shedding during the recent power crisis in Ghana has had an impact on it operating at full capacity. As the power situation in Ghana is being

resolved Karsten anticipates that the second of three refrigeration plants at the shaft will be switched on in January, with a third at another shaft to follow some time after that.

In the interim, though, the mine has continued with its programme of improving ventilation efficiencies. A key element here, says Karsten, is the increase in air volumes in operating and developing areas as many of the ventilation columns and ventilation fans have been replaced and upgraded. Sealing off old worked-out areas and opening up ventilation airways has also assisted the overall air flow. A problem, though, in recent months has been the damage caused to ventilation seals by small scale miners operating unlawfully and the need to repair this damage has had an impact on the pace of the overall programme.

The improvements achieved belie the problems experienced, says Karsten. In the third quarter of 2007 the average wet bulb stopping area temperature was 29.2°, with 29.7° C being achieved in development areas. This was down from the 2006 average of 29.7° in stopping areas and 29.9°C in development areas. And this was despite the power cuts which meant that the two sets of the refrigeration plant had to be shut down along with one large surface ventilation fan.

The longer term aim remains the achievement of in-stope temperatures of 28.5° and development temperatures of 29.0°C.

Other achievements by the ventilation team include the upgrading of skills and qualifications of Ventilation and Rescue department staff. During the past year, 85% of the on-mine ventilation achieved an intermediate certification in mine ventilation, a programme run under the auspices of the South African Chamber of Mines and the University of South Africa (UNISA). For most ventilation staff this was their first qualification in this field.

### **Obuasi's search and rescue teams lead the way in Ghana**

Rescue teams are a standard feature of most large mining operations, and Obuasi is no exception. The three dedicated and specialist full time teams at the mine have been called out on a number of occasions during the past year, most notably to assisting the community in a search and rescue effort when a building collapsed in regional capital Kumasi.

The three six-man teams are managed by Ventilation and Rescue Manager, Mentz Karsten, a former South African "proto" team member. In addition to ongoing training on-mine, two team members participated in advanced training at the renowned Rescue Training Service in South Africa during the year. A feature of Ghanaian mining legislation is the requirement that all supervisory staff are trained to some degree in mine rescue operations and so extensive resources are on hand should these be required.