

ENVIRONMENT

Case study



R40 million dam being constructed to avoid contamination of Vaal River

The West Complex tailings storage facility (TSF) is the repository for slurry produced from the gold extraction process at the Vaal River operations. Covering an area of 209.35 hectares, almost 133 million tonnes of slurry have been deposited on the TSF to date. To ensure dam stability, the water is drawn off and reticulated to a return water dam, the Bokkamp Dam, from where it is piped to the central spillage return water dam before transfer to the Kopanang gold plant for re-use in the gold extraction process.

While the design volume of the Bokkamp dam is 79,000m³, significant overflows from the Bokkamp water system occur annually, mainly owing to high quantities of rain water captured on the TSF during storm events. This excess water from the Bokkamp dam spills into the Vaal River - about 1,500m from the dam - contributing to the degradation of the quality of ground and surface water, and results in a breach of the mine's exemption granted by the Department of Water Affairs and Forestry (DWAF) in terms of not allowing water discharges from this facility.

The Bokkamp dam has been subject to a number of overflow incidents (See Report to Society 2005), which continued into 2006, notably between 10 January and 13 March, when overflows occurred following unusually high rainfall levels, and on one occasion measuring more than 140 millimetres overnight. Although the spills into the Vaal River are limited to the Vaal River lease area, they could potentially affect other land and water users downstream.

Corrective action is now under way to stop the water spillages into the Vaal River, by way of the construction of a new storm water containment dam to provide for excess storm water capacity and to allow for a controlled return water flow from the West Complex to the existing Bokkamp return water dam. This follows the completion of an environmental impact assessment (EIA), which is in the process of being revised to address comments received from all relevant government stakeholders, who have been part of the upgrade process from the outset.

Construction of the R40 million project has already started with the delivery of new pipes. Upgrading of the existing pipeline infrastructure started in January 2007, before construction of the new storm water dam proceeds in May 2007. The bulk of the project should be complete by the end of 2007 in time for commissioning in 2008. Final completion is expected in the latter half of 2009.

