



Closure and rehabilitation of tailings storage facility at Navachab

Following extensive rehabilitation, the old tailings storage facility (TSF) at Navachab mine is reaching the final stages of closure. The TSF, commissioned in 1989 to store tailings from the gold extraction process, is located in a mountain valley approximately three kilometres from the Navachab gold plant. Utilising the natural features of the valley, the dam was constructed initially with only one wall. Over the years, however, it became necessary to extend the height of the dam by building additional walls in order to increase its capacity. After having pumped some 17 million tonnes of tailings on to the dam, the TSF's maximum capacity was finally reached in 2003 when a decision was made to close and rehabilitate the dam.

Because there is as yet no blueprint under Namibian legislation for the closure of mines, AngloGold Ashanti's technical services department embarked on a trial closure programme in consultation with international consultants, Golder Associates.

Obsolete TSF infrastructure was dismantled and remnant pipes and cable sold to scrap dealers. Once the area was cleared of all water and rubbish, an earthmoving company was contracted to rehabilitate the walls and pond area. The dam walls were stabilised with waste

rock and concrete drains were built to prevent erosion. Indigenous trees, cultivated at an on-site nursery, were then planted on the walls.

The TSF footprint measures around 300,000m², with around 160,000m² surface area of capped tailings; it is monitored on a quarterly basis and audited annually. Boreholes near the site, as well as the seepage pond on the western side of the dam, are also monitored for any possible cyanide, SO₄ and NO₃ contamination. Only isolated instances of contamination have been recorded at levels well below the legislated threshold.

Total rehabilitation costs to date are in the region of US\$1.1 million. After closure, expenses should be limited to monitoring and erosion repair. A measure of the success of the rehabilitation efforts is that herds of kudu, zebra and klipspringer are now grazing on the covered pond area and dam slopes.

The Chamber of Mines of Namibia has recently established a consultative committee to discuss a process for rehabilitation and closure of mines with a view to assisting the government to institute appropriate legislation. With the committee's focus on site-specific closure methods, Navachab's experience has been shared and discussed with other members.

Navachab's new TSF was commissioned in 2003 and will be in use until 2009 when it is due to reach full capacity.

