

South Africa

English Translation

“The British Want to Purify Mine Water”

1. – Plan to produce drinkable quality water for sale

The Western Utilities Corporation (WUC), a British company, has just started with an environmental impact process to pump out polluted underground mine water from the Witwatersrand and to purify it to a drinkable water quality. The WUC, a subsidiary of Watermark Global, has recently announced that it plans to pump out and purify the severely polluted mine water which is accumulating in the four dolomitic basins which are situated on the East Rand, the Central Johannesburg area, the West Rand and the Far West Rand. At this stage, WUC are still in negotiations to sell this water to Rand Water.

he first phase of the project will only include the water from the Western, Central and Eastern basins. The plan is to pump the underground water from the Western and Eastern basins to the Central basin. At the Central basin (probably the old East Rand Proprietary Mines-ERPM) a plant will be built that can purify about 100 mega litres of water per day. Once most of the mines in the Witwatersrand have closed down, the capacity of the plant will double to 200 mega litres per day.

According to the WUC BID (background information document), mining activities on the Witwatersrand over the past 120 years have had an enormous impact on the environment, especially on the water (underground, as well as surface).

Most of the mines, as well as those which have already closed down, are and were active in the catchment area of the Tweelopies Spruit (that connects to the Crocodile River in the Limpopo Catchment area), the Wonderfontein Spruit on the West Rand, the Kliprivier (Central basin), as well in as the Blesbokspruit (Eastern basin). The Wonderfontein Spruit, Klipriver and Blesbok Spruit form part of the Vaal River Catchment area.

The WUC brochure also states that , since the beginning of the 20th century, mines have developed pump systems to pump out the water from the fertile dolomite basins so that mine workers could get access to the gold reefs. Although mining houses accomplished huge success with this method, it had an “unintentional” environmental impact consequence:

- The dolomitic formations were voided and the natural water flow from the one to the other subsided, and pushed up to the surface in other places causing sink holes.
- The quality of the water that made its way from the dolomite into the massive void, opened up by the mining, is very poor. The water then comes into contact with open drilled reefs, where it is polluted with various heavy metals.

- Now that some of the mines are closing down, the underground voids are again filling up with water which is pushing to the surface on the West Rand via an old ventilation shaft and bole-hole. This is called decanting. This (polluted) water then runs into the Tweelopies Spruit.
- According to the WUC brochure, there is a big concern regarding the survival of the Krugersdorp Wildlife Nature Reserve and the Sterkfontein Caves. “The acid mine water nevertheless holds a severe threat for the whole Witwatersrand area. The decanting of the Central basin can be expected within the next 2 years.” The document indicates that Western Utilities has come up with a sustainable and commercially viable solution for the re-use of acid mine water.

2 – Challenges Ahead

The Federation for a Sustainable Environment – an environmental organisation – say that big challenges lie ahead for WUC. They will, for instance:

- Need to determine how much water they can pump, not to harm the ecological reserve and empty the bole-holes. A lot of people living in the rural areas along the rivers are dependent on bole-hole water.
- Need to determine the seismic impact on the Central Basin if it is going to be pumped full of water (prior to this water being pumped out again).
- The technical viability of the project (plant) must be tested and alternatives must also be investigated.

3 – The WUC Objectives

- To assist the mining houses which want to close down with a regional closure strategy, thereby assisting them to comply with their environmental responsibilities.
- Job creation.
- To assist Government with the set up of its strategy for the regional closure strategy in the Witwatersrand.
- Provide available clean water for economic growth.
- Improve the water quality in the Vaal River.

During phase one of its operations, WUC plans to purify :

- about 12 mega litres of water from the West Rand
- about 43 mega litres from the Central Basin
- about 37 mega litres from the Eastern Basin

WUC plans to pump the purified water 20km from its plant to the Klipriviersberg Reservoir – provided that Rand Water buys the water. The water from the Western and Eastern basins will be pumped by means of a pipeline over 100km long to the Central basin.

WUC plans to be in operation by the end of 2010. The environmental impact study is being undertaken by Golder Associates Africa. More information on the process can be obtained from Vanessa Viljoen from Golder Associates. Her e-mail address is vviljoen@golder.co.za

4 - Picture Caption

Pamodzi Gold's Grootvlei mine (Eastern basin) pumps between 30 to 80 mega litres of water each day from its underground mine to enable mine workers to access mine workings. In future this water will likely be pumped to the Central Basin (via the ERPM mine in Boksburg) where it will be cleaned to potable water for sale to Rand Water.

Article written by Elize Tempelhoff of The Beeld