PROJECT NAME
Extension of the Vaalkop Water Treatment Plant

CLIENT
Joint initiative with Magalies Water, Barrick and Boynton

LOCATION
50 km's north-west of Brits in the North West Province

PROJECT VALUE
R 180 million

SERVICES
Preliminary design, detail design, tender documentation

TIME FRAME
June 2008 (On-going)

The Vaalkop water treatment plant consists of three separate plants with a joint capacity of some 200 Mℓ/d. New demands from the northern side of Vaalkop associated with mining activities and growth in communities necessitated an additional 30 Mℓ/d to be added to the current layout with a possible further 30 Mℓ/d to be available sometime in 2011. This meant that a new module (Vaalkop 4) had to be planned to complement the existing 3 treatment plants. An EIA had to be done to obtain approval from the North West Environmental Department and an application for additional water withdrawal from the Vaalkop Dam had to be made.

The Process Design focussed on the fact that increased pollution in the Elands, Hex and Roodekopjes feeding sources had to be catered or in designing applicable unit processes. The raw water indicated some increase in pollutants associated with (treated) sewage disposal, however, the inclusion of processes such as Ozone and GAC in the new treatment train could not be warranted at this stage. Provision is however made in the design for future inclusion of these technologies when required.

Provision is made for semi-automatic mode of operation where operators still need to initiate backwashes as well as perform jar tests on site to determine the optimum level of chemical dosing.

A new raw water pipeline will be required for Phase 2 of this project (Vaalkop 4) and additional raw water pumps must be allowed for. The processes to be added will be sedimentation, sand filtration, dissolved air flotation, primary disinfection with chlorine and secondary disinfection by means of chloramination.