

MAGALIES WATER VAALKOP PLANT N^o 1 Mechanical Refurbishment

SUMMARY OF WORKS	
Type of Works	Water Treatment Works
Location of Works	Rustenburg
Size of Works	30 ML/D
Date of Award	1 March 2005
Date Completed	1 January 2007
Completion Value (Including VAT)	R 16 151 339.00
Client	Magalies Water
Conditions of Contract	GCC 2004

This project involved the complete mechanical refurbishment and upgrade of the existing 30ML/d plant N^o 1 at Vaalkop Water Purification Works to cope with deteriorating raw water quality. The flow into the plant is a blended combination of raw water from Vaalkop Dam and supernatant water generated from the backwash and de-sludging operations.

The new process stream involves pre-ozonation, flocculation, dissolved air floatation, inter-ozonation (2 stages), sand filtration, GAC filtration, disinfection and chemical dosing (Ferric chloride, polymer, lime and chlorination).

As part of the project PCI supplied:

- One new raw water pump valves and pipework, capable of delivering 1314 m³/hr at 26m head
- Twelve new filter floors and underdrain systems complete with all filter pipework and electric actuators (Seven Sand and Five GAC filters).
- Complete chemical dosing system comprising of Ferric Chloride (primary and secondary), polyelectolyte (primary and secondary).
- Dry lime system comprising of a 40 M3 silo, 2 x 1M3 daybins, complete transfer system and feeder system
- Two new Archimedes screw pumps preceding the rapid gravity sand filters
- Two new Archimedes screw pumps preceding the GAC filters
- Complete chlorine system including an emergency drum shut-off system
- Backwash and air blower pump station including all pipework and valves.



**PRIMARY & SECONDARY FERRIC DOSING
STATION**



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- Complete DAF system comprising of recirculation pumps, compressors, saturator vessel and all distribution pipework for 4 x tanks.
- Transfer pumpstation comprising of 2 x axial flow pumps capable of a transfer rate of 1250 m³/hr at 8.1M head.



FILTER GALLERY PIPEWORK



SATURATOR VESSEL & DAF TANKS