

## MAGALIES WATER VAALKOP PLANT N<sup>o</sup> 1

### New Ozone Plant

SUMMARY OF WORKS	
Type of Works	Water Treatment works
Location of Works	Rustenburg
Size of Works (Mℓ/D)	30 ML/D
Date of Award	1 March 2005
Date of Completion	1 April 2007
Completion Value (Including VAT)	R 10 488 005.94
Client	Magalies Water
Conditions of Contract	GCC 2004

The inclusion of ozone as an advanced treatment option was necessary at Vaalkop # 1 station as a result of deteriorating raw water source as well as the recycled waste water that contains elevated levels of taste and odour causing compounds as well as high concentrations of organisms that were resistant to the existing treatment process.

The addition of ozone in to the process is divided into a preozonation stage and a main ozonation stage with a maximum combined ozone dosing capacity of 18 Kg/hr from air.

The objectives of the preozone are, oxidation of soluble iron and manganese, oxidation of organic substances and conditioning of the water to improve flocculation and subsequent organic precipitation.

The objectives of the main ozonation are, bacterial disinfection, inactivation of parasites and pathogens and oxidation of organic compounds to more biodegradable substances.



**Ozone Generator**



**Receiver and Dryers**

**Paterson Candy International (SA) (Pty) Ltd, trading as PCI Africa**

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Directors: MJ Hughes, CO Azih, G Burton-Durham

PCI AFRICA supplied, installed and commissioned as part of this project.

- Two x 9Kg/hr air feed ozone generators complete with control panels.
- Two thermo catalytic ozone destructors, one for prezone and one for the main ozonation stage.
- Two complete air preparation systems each comprising of 750 M<sup>3</sup>/Hr compressors, air receivers, refrigerant dryers, and desiccant dryers. The dew point of the air being fed to the ozone generators is –70 Celsius.
- Ozone injection system comprising of 4x injection pumps, S/S venturi mixers and liquid jet mixers positioned in the contact chamber and control valves to regulate the dosing rate.
- Ozone generators cooling water system comprising 3 x cooling water pumps and valves.
- MCC, PLC and all instrumentation to control and monitor the complete ozone system.



**Ozone Room**



**Receiver and Dryers**