

Power Industry Wastewater Treatment

Medupi Power Station, Lephalale, Limpopo Province, RSA

How we created value

- Capacity: treating 10,440m³ of condensate per hour
- Operation: automated plant
- Many years of experience



Medupi - means 'rain that soaks parched lands'.

Background

The Medupi Power Station is a coal fired high pressure boiler system designed to produce 4788MW of total power or 798MW from each of its six boiler units. Source water for the boilers will be piped from a raw water reservoir.

Process

Aqua Engineering SA is supplying a 26Ml/d water treatment plant. The scope is the design of the plant (both process and mechanical engineering), supply and installation of all

equipment, commissioning and setting the plant to work. Design of the water treatment plant was in part-based on a similar but smaller installation for the Komati Power Station.

The high pressure boilers require highly purified water, requiring pretreatment of source water to remove dissolved organics and suspended solids by clarification and organic scavenging. The clarifier, a Denslator, utilises inclined sheets, and the organic scavenger is resin-based ion exchange plant utilizing salt regeneration. The treated water then passes through ultrafiltration, reverse

osmosis, gas transfer membranes and electrodialysis to achieve the high purity water required by the boilers. Feed water as well as make-up and treated water is stored in glass lined steel tanks. Condensate polishing is provided by our sister company Kennicott.

The power station is currently expected to cost over R100 Billion. Medupi will be supplied by coal from Exxaro's Grootegeluk coal mine, located to the north of the site. Eskom has placed a contract with Exxaro to supply 14.6 MT coal per year for 40 years.

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