

UET

Naturally Treating Water

Case Study

FQM Kanasanshi Mine

Zambia



Updated 2016

Basic Facts



- UET systems were installed at the FQM Kanasnshi mine in 2013
- The cooling towers on site have a combined recirculation rate of 5,000m³/h
- With very poor water quality, there are constant issues with scale and corrosion:
Supply water contains high concentrations of F, Fe ,Mn &Si, and low concentrations of Cl, Ca, Mg
- As they had very expensive chemical additive costs, the mine was looking for an alternative



About Kansanshi

The Kansanshi mine, the largest copper mine in Africa, is owned and operated by Kansanshi Mining PLC which is 80% owned by a First Quantum subsidiary. The remaining 20% is owned by a subsidiary of ZCCM. The mine is located approximately 10 kilometres north of the town of Solwezi and 180 kilometres to the northwest of the Copperbelt town of Chingola.

The mine has undergone several expansions since it began operating in 2005. From an initial production capacity of 110,000 tonnes of copper, Kansanshi is now capable of producing 340,000 tonnes of copper and more than 120,000 ounces of gold per year. A multi-stage expansion project aims to increase copper output capacity to approximately 400,000 tonnes by 2015.

The Cooling Tower

- Number of cooling towers: 2 cooling towers (3 cells + 4 cells)
- Cooling tower type: Direct contact heat exchanger
- Cooling circulation rate:
 - Acid Plant – 3,200 m³/h
 - Furnas – 1,800 m³/h



UET's Treatment Scope:

- Complete solution for scaling and corrosion in the water system
- Chemical elimination
- Water savings by increasing the cycles of concentration

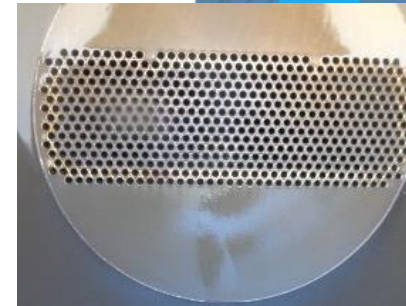
UET's Designed Solution

Set of UET units – to treat the cooling tower circulation



Summary of results from UET water treatment

- Clean heat exchangers.
- UET systems are removing 500Kg of scale every 2 months!
- Corrosion rate has significantly reduced by more than 90%!
- Costs has significantly reduced by up to 95%!



Total water saving –
~50,000 m³ per year

Total Cost Saving –
~\$400,000 per year



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