



case study

Location:

Palapye, Botswana

Customer:

Morupule Coal Mine

Industry:

Mining

Final water usage:

Irrigation, toilet flushing and dust suppression

Plant information:

100 KLPD containerized wastewater treatment plant

Problem

The rapid expansion of Morupule Coal Mine from a 1 Million Ton per annum operation to a 2.8 Million Ton per annum operation created wastewater management challenges due to high effluent contamination from solids, hydrocarbons, and coal duff. These factors impacted pH levels, retention times and biological growth, affecting COD reduction. Additionally, peak inflows during shift changes required optimized buffer capacities and dosing schedules to maintain treatment efficiency.



Solution

- Designing a treatment system capable of handling a flow rate of 100KLPD, with a 25kl buffer tank installed to accommodate peak periods during shift changes.
- Utilizing the IFAS process, which combines Moving Bed Bioreactor and Reactivated Sludge technologies to optimize digestion and reduce sludge waste.
- Ensuring the system was adaptable to fluctuations in contamination levels, tolerating COD levels as low as 500mg/L.
- Enabling reuse of the treated effluent for non-potable applications such as irrigation, toilet flushing and dust suppression, reducing environmental impact and enhancing water sustainability.

Benefits to the customer

- ✓ Improved Effluent Management
- ✓ Operational Efficiency
- ✓ Cost Savings
- ✓ Sustainability