

TREATING DAIRY WASTEWATER FOR REUSE WHILE PRODUCING ENERGY

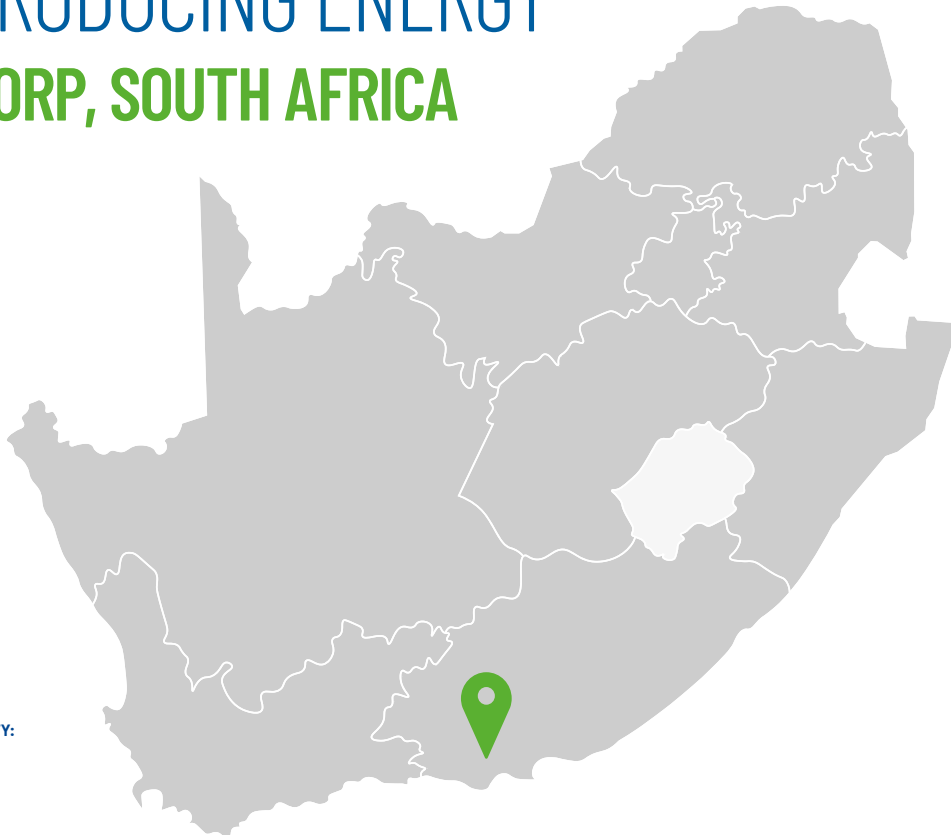
HUMANSDORP, SOUTH AFRICA



FOUR SKIDS



DESIGN CAPACITY:
1500 M³/DAY



PROBLEMS

- ◆ Woodlands Dairy has a processing plant in South Africa and is a local fresh milk processor that produces and packages high-quality dairy products. They want to take full responsibility for the environmental impact of their operations. Therefore, they adopted the Environmental Management System (EMS) to improve their energy efficiency and waste management and to decrease both emissions and use of natural resources.
- ◆ Woodlands Dairy identified the recycling of their medium to high-strength wastewater as a priority to improve their environmental impact.
- ◆ The most significant challenges identified included liquid effluent management, waste management and recycling, as well as water consumption.

SOLUTIONS

- ◆ Four skids, each equipped with 26 Pentair® X-Flow™ Compact 33V Helix Membrane Elements were installed in 2017.
- ◆ X-Flow Compact 33V Helix Membrane Elements support the separation of biological sludge where a high-quality effluent is required.
- ◆ The pore size of the membranes deliver a permeate free of suspended solids.



Bioreactor and filtration building.



Installation of four Pentair® X-Flow™ Reverta Skids in collaboration with Veolia Biothane.

PROJECT RESULTS

- ◆ Pentair X-Flow Skids help enable Woodlands Dairy's sustainability initiatives by complying with legislation and reducing the plant's environmental impact.
- ◆ Over 60 percent of the dairy wastewater is now being recycled. This means a considerable decrease in effluent discharge and even more importantly in an arid climate with increasingly scarce reserves a 60 percent decrease in the demand for fresh water.
- ◆ Biogas is a welcome bonus in this energy-intensive operation to heat the on-site boilers.
- ◆ With the Pentair X-Flow Skids the plant is now a Resource Recovery Plant (RRP) whereas all effluent from the various production processes used to end up in a combined effluent sump, the new plant is capable of processing 1.5 MLD. At a later stage, this is set to be upgraded to 2 MLD.

- ◆ The incoming feed stream with about 20,000 ppm of COD is turned into a high-quality effluent with less than 100 ppm.



WATER REUSE



BEFORE



AFTER



REDUCED COSTS FOR WATER TREATMENT



BEFORE



AFTER

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