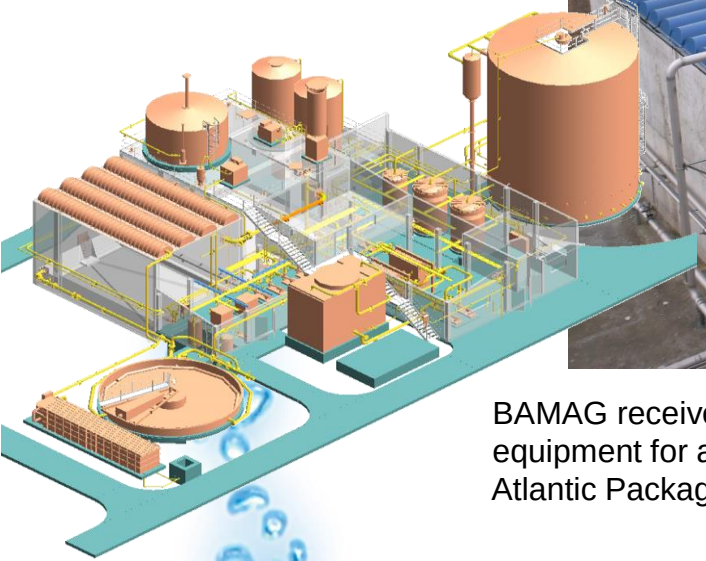
Biological Wastewater Treatment

Scarborough / Toronto

Canada

Industrial wastewater of a paper mill



BAMAG received an order for engineering and supply of the main equipment for a new wastewater treatment plant for the paper mill Atlantic Packaging located in Scarborough (Toronto), Canada.

The effluents from the paper mill will be purified in this plant. The key plant components comprise the cooling stage, the anaerobic treatment as well as the biogas treatment unit. The treated biogas will be utilized in the boiler house.

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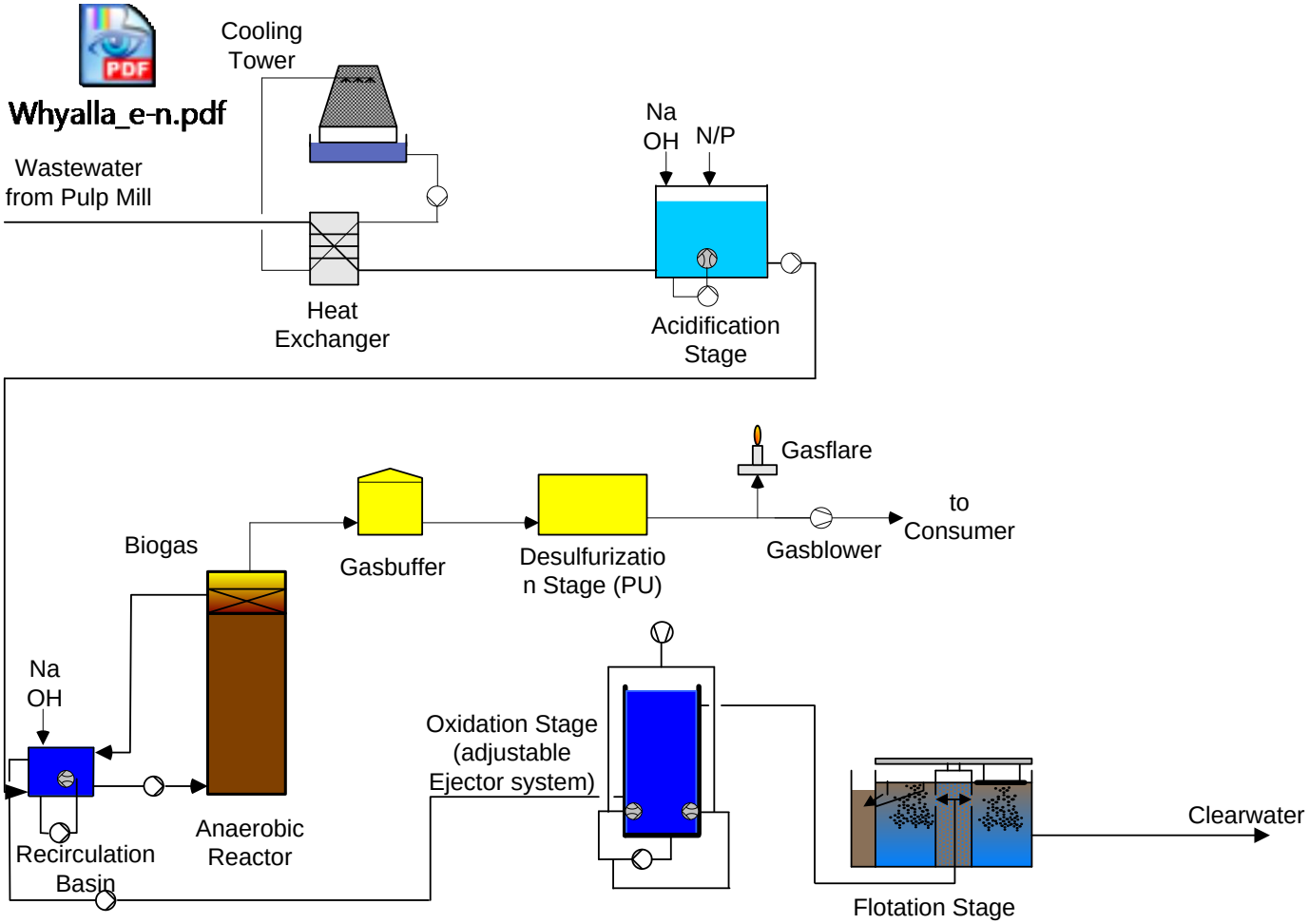

1. Objective

Construction of a new industrial waste water treatment plant to treat waste water of the new paper mill.

Design data waste water Paper mill:

Wastewater flow	10,000 m³/d
COD	28,500 kg/d
BOD_5	14,250 kg/d
Temp. inlet (max.)	47 °C

Treatment target indirect discharge

2. Plant concept

Process steps

- Cooling stage
- Acidification stage
- Anaerobic stage
- Oxidation stage
- Biogas stage
- Gasbuffer
- Desulphurization
- Gasflare
- Biogasblower

Miscellaneous:

- Waste air stage
- Flotation stage
- Chemical storage

Production effluent from the paper mill is cooled and routed to the anaerobic treatment stage and supplemented with nutrients in the acidification stage.

The purpose of the anaerobic treatment stage is economical reduction of COD while generating biogas.

Anaerobic pre-treatment takes place in one reactor using granulated biomass pellets. Separation of the gas-water-pellet mixture is accomplished by an integrated separator system.

The biogas recovered will be biologically desulphurised for use. The treated biogas will then compressed and delivered to the boiler house of the paper mill.

Final treatment takes place in an oxidation stage with a flotation tank to produce effluent of a grade suitable for indirect discharge to the municipal waste water treatment plant of the city of Toronto.

No additional odour emission will occur due to complete coverage of the oxidation, acidification and recirculation basin. The waste air will be sucked off and purified in a bio filter system.

3. Features

- High process stability due to designed-in flexibility
- High operational safety due to redundancy and reserve capacity in the treatment process
- Reduced sludge accumulation due to anaerobic pre-treatment
- Improved economy due to efficiency biogas utilisation in the boiler house of the paper mill
- Small space requirement due to compact design construction