



An Australian MEAT INDUSTRY Case Study

Introduction

Baleen Filters, an Australian manufacturer of an innovative self-cleaning filtration system, has been successfully employed over numerous industries and applications within Australasia, North America and the Middle East. Protected by international patents and universally recognised through numerous peak awards and plaudits, Baleen offers broad application from greywater to trade wastewater streams enabling the end-user to recover traditionally troublesome constituents from virtually any water treatment stage.

The inherent self-cleaning capabilities of the Baleen filter technology owes its fame to the name and characteristic nature of the whalebone belonging to a group of filter feeding whales. This is achieved through collecting suspended matter from a water stream whilst automatic reversal of filtrate-flow enables separated matter to be swept away for collection without shut-down maintenance or periodic backwash of the filter-element. The very nature of this unique approach both averts potential blinding of the filter-element and consequently alleviates the need for constant monitoring and unnecessary man-hours otherwise inherent in 'dead-end' filtration systems.

Through complementary workings with primary filtration processes, the Baleen technology is capable of fine screening to 25 micron independent of chemical usage. When employed together with certain chemical agents however, trials have shown the Baleen filter to be effective to as low as 3 micron.

Dependent on application and requirements, the Baleen technology can either be used alongside existing treatments, or fitted to work independently. In consideration of client needs, the Baleen filter is able to cater for selective, absolute separation of matter to a specific micron rating.

Meat Industry Participant

Midfield Meat International is one such client who has utilised the Baleen technology in the screening operations of their Warrnambool based abattoir operations since mid 2002. Recognised as an innovative leader within the Australian meat industry, Midfield is involved with the full sphere of meat production, incorporating livestock management, slaughter, rendering and meat wholesale.

Midfield's mantra "We aim to be the Best" embraces all aspects of their operations, including a commitment to the environment and the role which their wastewater treatment plays in upholding this consideration. Historically, Midfield's environmental policies have been sympathetically adhered to by clever, systematic employment of a staged screening system that both alleviates the need for aerobic and anaerobic treatments and arguably positions the company as an enviable example to other players within the meat-industry. Midfield endorses an environment-friendly, chemically-independent and well managed wastewater treatment facility that goes against associated burdens of conventional biologically based wastewater treatment practices traditionally employed by the industry.

Baleen was the logical next step for Midfield who had already successfully employed fine-screening to less than 1-mm in previous years for removal of coarse solid matter such as offal remnants and paunch debris. Subsequent to site familiarisation, and indicative benefits promoted by onsite sampling analyses, onsite trial work using a demonstration Baleen filter unit commenced by mid 2001, leading to pre-installation scale-up requirements and cost benefit justification later in the year.



As a result of these investigations, it was mutually established that complementary micro-screening to less than 100-micron would offer Midfield tangible realisation that payback benefits inside an operating period 24-months was practical.

See Figure #1 – Photograph of Midfield Meats' Warrnambool Operations



Site Description

Midfield Meat employ inline screw augers to first remove bulk solids greater than 5mm from both the Red and Green streams, immediately followed by inline run-down screens and dewatering drum to then primarily remove paunch matter down to 1.3mm in particle size from the Green stream alone. Rotating drum screens operating to a fraction of a millimetre are then utilised to remove fine solids from both the Red and Green streams. Total solids recovered inline at this stage of proceedings equates to approx. 20 to 30m³/day (of spade-able consistency) from a total abattoir outflow of 1.5ML/day. Daily wastewater quality exiting these primary treatments (in terms of both BOD and SS) lies between 1,000 to 1,400mg/L. Baleen is subsequently employed inline at 65-micron for both the Red and Green streams to further remove (on average) a further 30% and 45% for BOD and SS respectively to arrive at a daily average wastewater quality of between 600 to 700 mg/L. Baleen collects approximately a further 10m³/day (of fine paunch and greasy solids of spade-able consistency). The combined solid mass is collected periodically for value-added purposes by a local byproduct processing facility.

Benefits from Installation

Midfield's implementation of Baleen within their progressively applied separation-based approach to wastewater treatment has favourably positioned its Warrnambool operations in terms of reduced operating costs and improved production efficiency.

Timely compliance with environmental parameters set by the local water authority have provided direct and impressive cost-savings resulting in a payback period for the Baleen filter equipment of less than 12-months. Midfield is exploring other applications for Baleen within their meat processing and rendering operations where cost-savings may result from reduced plant maintenance, or where water recycling and re-use may provide added savings or value-added by-product recovery opportunities.



Baleen Filters
The Future in Micro-Screening

"The Baleen filter system has provided us with the solution we were looking for – A low maintenance, self cleaning system with very low operating costs. Baleen has complimented what was already in place and has allowed us to reduce our wastewater loads considerably."

...Andrew Westlake, Operations Manager

See Figure #2 – Photograph of Baleen filter(s) at Midfield's Operations





Baleen Filters
The Future in Micro-Screening

See Figure #3 – Photograph of Collected Spade-able Solids



Midfield has recently conducted trials involving Baleen's micro-screening technology in application to flocculation approaches in response to company policy directives and future environmental considerations. Results from these trials offer promising potential for extension of separation-based water treatment approaches into Midfield's rendering operations.

Pre-scheduled onsite industry presentations at Midfield Meats are planned in 2004 to facilitate industry-awareness. Baleen Filters is keen to hear from offshore companies interested in becoming licensees or distributors for their innovative product range.

Further Information

Across industry Baleen offers impressive capital cost savings to its end-users, value-added benefits may include reclamation of land previously dedicated to settling ponds thereby alleviating odour problems. Suitable for all waste water problems, Baleen is able to offer tangible improvement to your existing treatment system.

Further details can be found on the company's website at www.baleen.com. If you are interested in obtaining additional information and would like to discuss how Baleen may be applied to suit individual requirements you may do so either via the contact page on the website or by email at info@baleenfilters.com, or by telephone on +61 (0)8 8354 4511.