BiOWiSH® TECHNOLOGIES

Case Study

BiOWiSH® Aqua FOG

Reducing Odor Emissions and Sludge Build-up at Kemp Meats, Australia

Background

Kemp Meats Pty Limited is a highly accredited meat processing facility situated in Sarina, North Queensland, Australia. The company is privately owned and has been in operation since 1999.

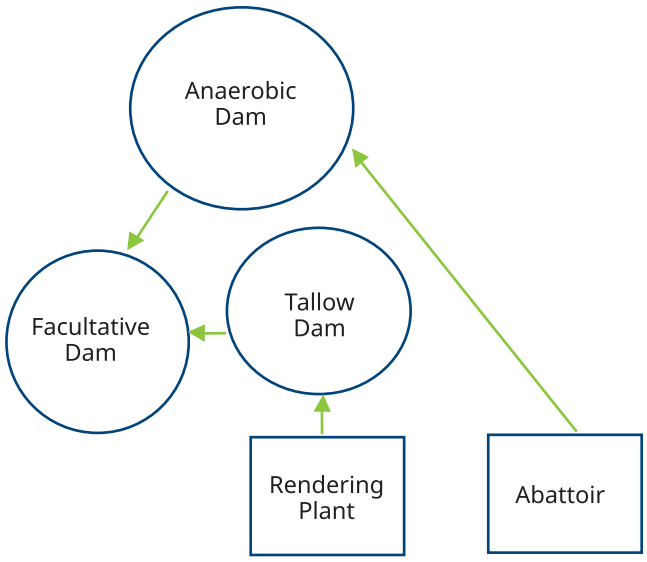
The owners of the plant, Andrew and Brenda Kemp, are well known within the red meat industry for their innovative and progressive approach to the local area's stringent environmental regulations. The facility has been the recipient of many industry awards, the most recent being the Meat & Livestock Association's 2009 Environmental and Sustainability Award.

Plant Operations

The facility incorporates an abattoir and integrated rendering plant which uses animal by-products to produce meat meal and animal tallow. It currently processes approximately 50 beef per week, 80 pigs per week, and wholesale lambs as required.

Animal tallow produced in the rendering plant is currently used to run the site's energy and heating systems and has resulted in a 50% reduction in energy consumption.

Wastewater from the abattoir and rendering plant is treated in a series of dams (as per the below diagram).



BiOWiSH® Aqua FOG

- Rapidly reduces fats, oils, and grease
- Reduces sludge production and handling
- Increases plant capacity
- Reduces odors
- Reduces aeration requirements
- Reduces need for chemical additives
- Improves plant stability
- Reduces hydrogen sulfide, ammonia, and nitrates
- Pre-treats influent in collection systems
- Natural and non-toxic

Available Sizes

- 100g/3.5oz
- 1kg/2.2lbs
- 5kg/11lbs
- 10kg/22lbs

Issues

Recent legislative changes have placed greater responsibility on processing facilities to reduce their environmental impact. Two of the main areas of change are the minimization of emissions and the establishment of acceptable effluent standards. Traditionally, incumbent treatment processes often fail to meet minimum requirements.

In order to comply with new, stringent environmental regulations and to improve ongoing plant operations, Andrew and Brenda Kemp needed to address two main issues.

Odor Emissions

The first issue was to address odor emissions from the anaerobic, facultative, and tallow dams which had risen to unacceptable levels. Historically, controlling odor from these types of dams has been notoriously difficult as commonly used treatments such as lime dosing are often accompanied by negative side effects. Adding lime to a dam causes pH levels to rise to a point where microbial activity is all but eliminated. By eliminating microbial activity, organic waste is prevented from breaking down, which in turn means no odor is produced. The negative side effect of this process is that natural microbial decomposition of accumulated sludge is inhibited.

Sludge Build-up

The second issue was to address sludge build up and heavy crusting on the tallow dam which was threatening the volume and flow of treated effluent passing through the waste water treatment system. The traditional method used to remove accumulated sludge is mechanical excavation. This is expensive, time intensive, and has a number of environmental implications, such as emissions from heavy machinery and disposal of the solid waste.

Solution

Andrew and Brenda approached Graham Smyth of Champion Liquid Feeds in July 2009 seeking his assistance in sourcing an environmentally friendly, sustainable and cost effective solution to their problems. As an authorized distributor of BiOWiSH Technologies, Graham recommended BiOWiSH® Aqua FOG as the ideal solution.

BiOWiSH® Aqua FOG utilizes a high speed biocatalyst to rapidly break down organic waste and odor causing compounds. It is particularly effective for treating waste water that contains a high fat, oil, and grease content, such as that of Kemp Meats.

Graham recommended using BiOWiSH® Aqua FOG, as it would assist Kemp Meats in reducing total Volatile Organic Compounds (odors), accumulated waste water dam sludge and total suspended solids, as well as BOD (Biological Oxygen Demand) and excess Nitrogen without the need to continually add lime, or excavate excess sludge.

Implementation Program

Taking into account the site's existing waste water treatment set up, Graham Smyth recommended establishing two dosing systems through a simple set up of 10.5Gal (40L) drums which empty into the drains.

The first dosing system was established in the rendering plant, where BiOWiSH® Aqua FOG was mixed into solution and flushed through the drains on a daily basis. The drains in the rendering plant run into the tallow dam where dissolved fats, oils and greases are separated prior to entering the waste water system.

The second dosing system was established on the abattoir's processing floor, with BiOWiSH® Aqua FOG being discharged directly into drain outlets on a daily basis. Drains on the processing floor flow directly into the anaerobic dam.

For best results, Graham recommended adding a daily dose of BiOWiSH® Aqua FOG to the waste water streams via both dosing systems.

Dosing Tank

Results

- Visible reduction of severe crusting on tallow dam
- Reduction in general site odors
- Significant reduction in odor from waste water pond system
- Reduced sludge build up in waste water pond system
- Significantly cleaner and sanitized drainage system
- Reduction in dam/drain maintenance costs
- Reduction in environmental cost

Tallow Dam Before

Severe crusting on the dam is causing effluent to run off onto the ground surrounding the dam, rendering it useless.

Tallow Dam After

BiOWiSH® formed a hole in the crust on the surface of the dam. With continued use, this crust will be completely broken down.

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