

Australian Beef Processing Plant Reduces Carbon Footprint

An environmental initiative that aims to deliver greater energy security and a cleaner, greener future at one of Australia's largest beef processing plants was launched recently. The Covered High Rate Anaerobic Lagoon (COHRAL™) at Oakey Abattoir on Queensland's Darling Downs extracts biogas from its wastewater streams to replace millions of dollars' worth of natural gas currently consumed at the abattoir.

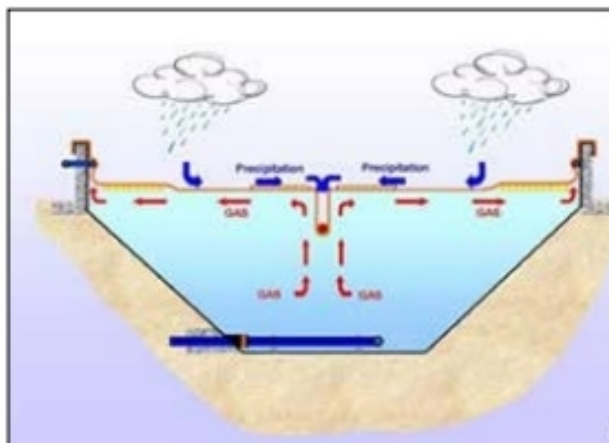
In addition to lowering the plant's dependence on increasingly expensive supplies of natural gas, the Global Water Engineering (GWE) anaerobic digestion plant will reduce the plant's carbon footprint and produce wastewater that is cleaner than that of typical waste lagoons. The plant is expected to repay construction costs within five years through gas-purchase savings in the millions of dollars, continuing to deliver benefits and profitability in perpetuity.

COHRAL technology uses concentrated anaerobic bacteria to digest 70% of the organic matter (chemical oxygen demand) in Oakey Abattoir's wastewater to produce effluent of higher quality than what is produced in typical open lagoons. The methane biogas produced within them not only is prevented from escaping into the atmosphere (where it is many times more damaging than CO₂ emissions) but is also harnessed to generate energy. Oakey Abattoir's plant will feature reuse of the biogas in its boilers.

COHRAL anaerobic lagoons consist of two zones, with the complete surface of the lagoon being covered

with an influent distribution system. The first and largest zone receives the major part of the incoming wastewater. This reaction zone is where the anaerobic digestion occurs. The second, smaller part of the lagoon serves as a postdigestion and presettling zone where a partial clarification of the effluent wastewater takes place. Settled sludge collected in this zone is pumped back to the inlet of the lagoon. Part of the anaerobic effluent is recycled back to the lagoon. The remaining effluent of the lagoon flows by gravity toward complementary technology.

Anaerobic digestion facilities have been recognized by the United Nations development program as one of the most useful decentralized sources of energy supply because they are less capital-intensive than are large power plants. They can also benefit local communities by providing local energy supplies and eliminate the need for large and often smelly and environmentally challenging settling lagoons.



Focused on having a more sustainable, environmentally friendly energy source, a beef processing plant in Australia has turned to a covered anaerobic lagoon as a solution. The process used in an anaerobic lagoon is shown in this illustration.