

# Adelaide Poultry



# Onsite WW Treatment

## **Brief Background**

- Prior to mid-2002, a DAFF plant was installed
- Tonkin Engineering was consulted to design an improved WWTP to overcome overloading, odour and regulatory compliance issues
- Baleen filter rigorously trialed onsite from mid-2002
- Extension to existing Feather Separator proposed, comprising automated tank-farm and Baleen filter unit(s) as a means to enhancing primary treatment from mid-2003

## **Initial Set-up**

- Waste & washdown water is directed to sump and pumped to a feather separator
- Screened water is collected by balance tanks in order to 'average' loading variations
- One Baleen filter installed to operate at approx. 125-microns prior to sewer discharge

## **Existing Set-up**

- Due to increased production a second Baleen filter unit was installed mid-2005
- Both filters commissioned to separate 100% of visible fines at approx. 90-microns

# Baleen Filters



# Spade-able Screenings



# Key Criteria for using Baleen

## Technical

- Simple to operate
- Low maintenance
- Compliments offal/feather separators – recovers waste as byproduct

## Operational

- Small footprint
- Low utility use (air 6CFM, power 4kWhr, water 3% of influent flow)
- Easy to expand with increasing production

## Performance

- Effective fine-solids recovery to remove ‘visible’ & ‘suspended’ solids
- Increased Byproduct recovery
- Able to meet regulatory requirements  
 (“in the past” without requirement for chemical assistance)

## Cost

- Low capital & operating costs
- Easy to install
- No ongoing chemical cost

# Water Quality

## Before Baleen\*

- SS 4080mg/L
- BOD 2150mg/L
- FOG (Grease) 2400mg/L

## After Baleen\*\*

- SS 1,340mg/L (grab sample avge redn 48%)
- BOD 1,850mg/L (grab sample avge redn 38%)
- FOG 820mg/L (grab sample avge redn 19%)

\* A Potent 'Grab' sample ex- feather separator

\*\*Daily Avge at 140-microns (prior to Optimisation Strategy)

# Current Developments

## Treatment Objectives

- Reduce SS Daily Average to <1,000mg/L (current regulatory limit)
- Maintain BOD Daily Average at <2,000mg/L “
- Reduce FOG Daily Average to <400mg/L “

## Optimisation Strategy

- Monitor/reduce Solids-flushing to floor drains to minimise load spikes
- Improve/monitor Screenings-collection to alleviate load recycling
- Optimise existing hydraulic-flow/storage system to limit dissolution of pollutants
- Explore filtration benefits at reduced micron-ratings (with and without chemicals)
- Target key Solids/Grease sources prior to dissolution with less potent streams

## Supporting Evidence

- Progressive WWTP results since 2002
- Enhanced pre-treatment by micro-screening reduces secondary treatment costs
- Inline micro-screening to less than 80-microns within the Meat Industry has shown positive results e.g. SS/BOD <1,000mg/L & FOG <500mg/L
- Use of flocculants inline, pre-Baleen within Meat Industry-applications has shown positive results e.g. SS/BOD <<500mg/L & FOG <<250mg/L