

# MONASH INDUSTRY TEAM INITIATIVE (MITI) (2016-2017)

## Water Efficiency and Optimisation Study

### FONTERRA DARNUM PARK

Fonterra's Darnum Park site started its operation on September 1997 and operates daily for 365 days a year. The site has the capacity to produce more than 300 tonnes of milk powder per day. This includes whole, skim and specialty nutritional milk powders for domestic and export markets.

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### PROJECT SCOPE

- Map water use and discharge across the plant to identify major contributors of wastewater
- Understand wastewater treatment and irrigation capability (back end)
- Identify concerns associated with increased water usage
- Explore various options in recovery/recycling of water



### WHAT IS CIP (Clean in Place)?



- An effective equipment cleaning method predominantly in the dairy industry
- Identified as major contributor of wastewater on site
- Equipment typically washed with caustic and acid solution
- Caustic solution – removes milk solids
- Acid solution – removes mineral and protein residues

### QUALITY OF CIP WATER



Quality of CIP water were taken at intervals and sampled to

- Optimise CIP processes
- Identify possible back end treatment options

### PROJECT OUTCOMES

#### Front End

- Designed a Front End Recovery (FER) system to recover final rinse water
- Optimised CIP programs without affecting quality of final product
- Reduces dependency on main water supply

#### Back End

- Identified non-compliance and reputational risks associated with increased water usage on site
- Devised a pre-treatment method to treat recovered water
- Integrate pre-treatment option with existing water treatment process to produce Class A water
- Reduces wastewater load to storage lagoons