

MONASH INDUSTRY TEAM INITIATIVE (MITI)

Review and reduction of water use in a unique dairy manufacturing facility

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INTRODUCTION

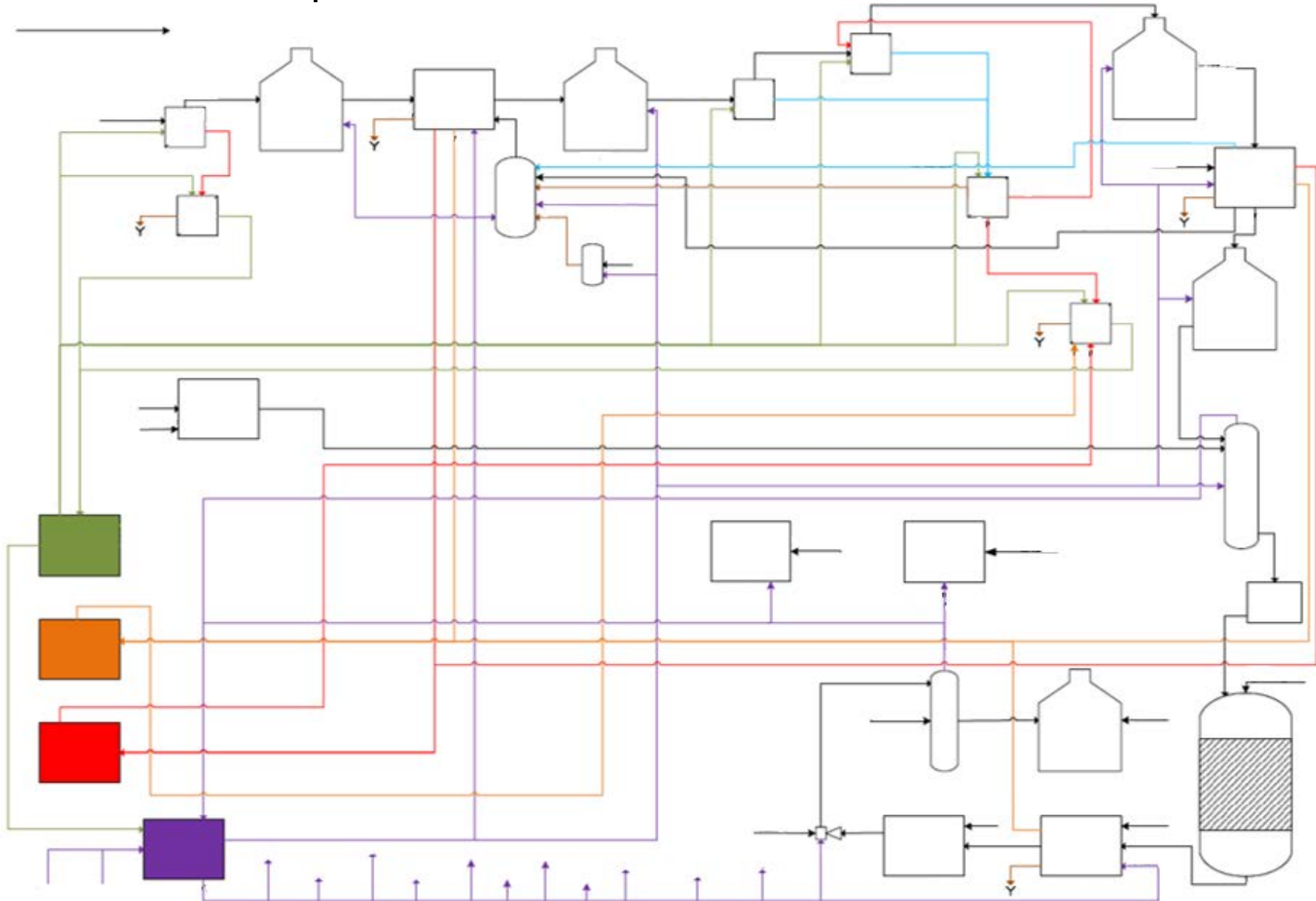
PROJECT AIM

- Produce a detailed report outlining opportunities for the implementation of in-line instrumentation to enable the logging and monitoring of wastewater and process water volumes.
- Produce a detailed report outlining opportunities for immediate implementation that will reduce water and chemical usage.

OUTCOMES

WATER FLOW DIAGRAM OF PLANT

As required by the Saputo quality team, a diagram was developed to show all routes of product and water.



CREATING AN OVERALL WATER BALANCE

The team analysed plant inlet flows, outlet flows and tank accumulations to create a daily report showing overall water movement.

REDUCTIONS IN WATER USAGE

Each component was reviewed and the team produced a report detailing a number of recommendations. Various trials were performed and dollar savings were calculated to evaluate each of their viabilities.

- The team created a trial to reduce the CIP frequency for the water polishing unit. Pre-trial data was collected to be used as a control and to obtain approval from stakeholders.
- The team implemented a trial to increase the workload on the water polishing unit. This will enable more water to be reused in the plant.

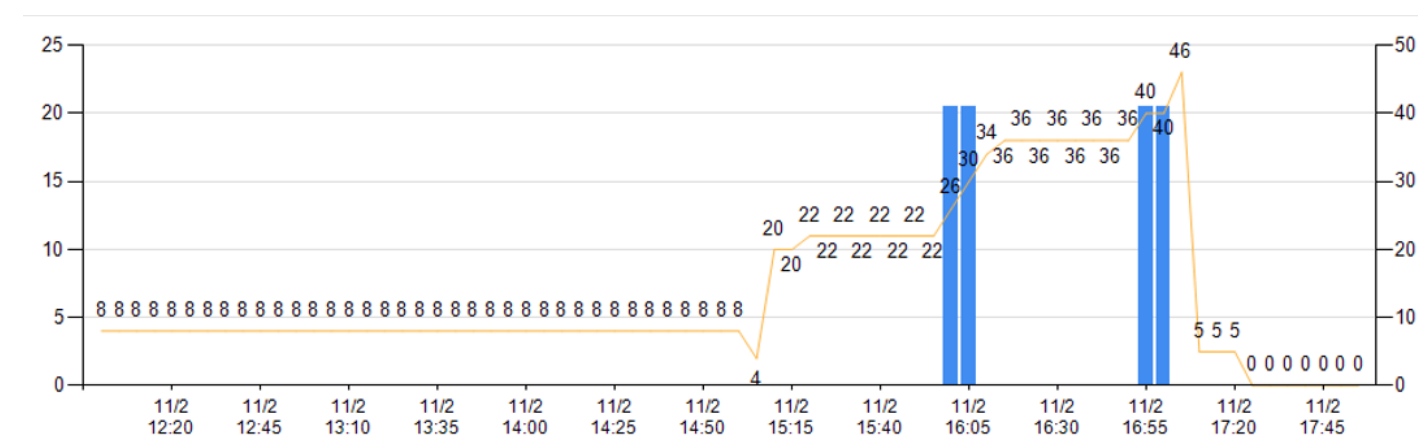
COMPANY BACKGROUND

Saputo Dairy Australia produces, markets and distributes a wide range of high quality dairy products for the domestic and international markets. The Allansford site, at which this project was undertaken, first manufactured dairy products as Warrnambool Cheese and Butter (WCB) in 1888. Saputo acquired WCB in 2014 and Murray Goulburn Co-operative Co. Ltd. in 2018 to become Australia's largest dairy processor.

ESTABLISHING DAILY WATER REPORT

A daily reporting system was developed to compute the total plant wastewater output from each individual unit operation and Clean-in-Place (CIP) route. It quantifies the duration and volume, and identifies the source of water sent to the treatment plant. The report will be used to ensure consistent plant operation and identify any irregularities. It allows a user to find the specific time and step in which an abnormal amount of wastewater was produced.

Each component of the plant was individually assessed. Through analysis of schematics and automation, 130 routes to drain were identified. The system uses valve movements, flowmeters and level transmitters to automatically generate the report.



SEPARATOR TRIAL

The wastewater plant trialled a new separator unit. The team created a trial plan, assisted with testing samples and evaluated data. A report was produced in order to help determine if it is a viable investment.

RECOMMENDATIONS

- Installation of eleven flow meters to complete the reporting system
- Alteration of control setpoints in the CIP Kitchen
- Automation of the timing adjustment for water tank cleaning
- Creation of a functional drain button for Polished Water Tank
- Removal of excess chemical cleaning steps
- Utilisation of daily wastewater report