

# MONASH INDUSTRY TEAM INITIATIVE (MITI) CIP Validation & Verification (2020-21)

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## BACKGROUND

The Fonterra Darnum site operates as a paediatric nutritional powder facility where Clean In Place (CIP) processes require frequent verification and validation in order to comply with strict quality and safety standards. The CIP system consists of more than 100 pieces of equipment (circuits) which are usually verified and validated as part of a long-term schedule over the course of a number of years. By working with the MITI team, this process was fast-tracked and completed more efficiently within a much shorter time-frame.



## PROJECT SCOPE

- Verification of as many CIP circuits as possible in the 12 weeks
- Integration of MES CIP reporting for CIP circuits verified
- Identification of areas for financial savings
- Identification of CIP non-conformances and related recommendations

## PROJECT OUTCOMES

### CIRCUIT VERIFICATION

CIP verifications were completed on more than 70 CIP circuits across the manufacturing plant. Deviations from Fonterra's CIP standards were recorded for each verification and implementation actions were devised to establish wash conformance in the future. Deviations from standard included items such as temperature, chemical concentration, recirculation time, flow rate, as well as detection of acidic residue and live microbes at the end of the wash.

### MANUFACTURING EXECUTION SYSTEM (MES) LIBRARY

The MES CIP system is a tool used to provide oversight and analysis of CIP washes. At the Darnum site, however, the MES library had several missing tags resulting in the absence of many circuits from the tool. These tags were procured in the first few weeks, which not only allowed for full functionality of the MES tool but also provided an opportunity for us to familiarise ourselves with the site human machine interface (HMI).

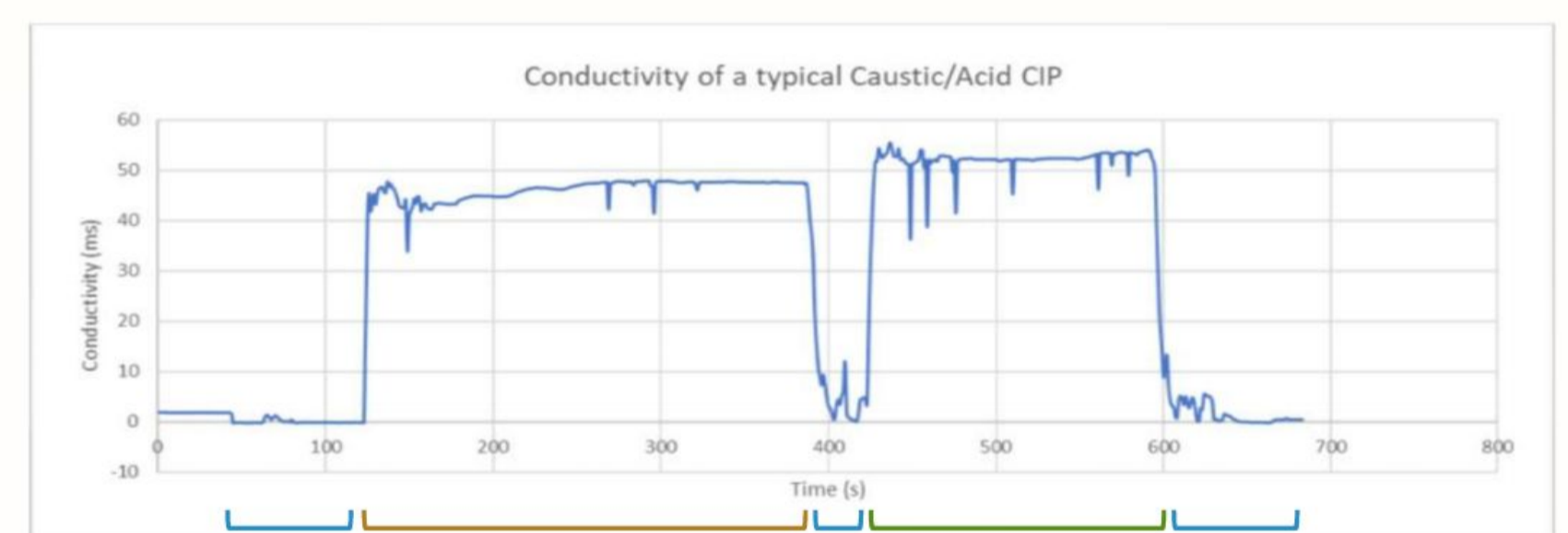
### ADDITIONAL OUTCOMES

- Developed CIP verification Standard Operating Procedures
- Worked with Water Savings team to create a software change proposal aimed at reducing Dryer CIP water usage

## RECOMMENDATIONS AND FINDINGS

Non-Conformance actions include:

- Set point changes
- Timer changes
- Addition of new instrumentation (flowmeters, conductivity meters etc.)



STAGES: 1 Pre-Rinse, 2 Caustic, 3 Mid-Rinse, 4 Acid, 5 Final Rinse

*A typical caustic/acid wash assessed and verified.*

## EXPERIENCE GAINED

- Familiarisation with the operation of a complete, operating plant;
- An appreciation for the wide range of skills required for working in the food industry, specifically in dairy;
- Self-directed implementation of a full-scale project;

## ACKNOWLEDGEMENTS

We would love to thank the Darnum team, specifically the process operators and our project leaders Sam, Russell, and Brett, for being so generous with their time and for their commitment to supporting us at every opportunity. We would also like to extend our gratitude to the MITI team who were resolute in their goal to ensure the projects went ahead this year despite unrivaled challenges. We cannot thank you enough.