

MIPPS 2026 Student Placement: 50-Word Summaries

Company	Student Summary
DuPont	DuPont Memcor is a leading manufacturer of advanced wastewater treatment technology, specialising in hollow fibre membrane ultrafiltration and membrane bioreactor (MBR) systems to deliver high-quality water. This project investigates the optimisation of chemical cleaning regimes and operating conditions in MBRs to reduce their energy and chemical footprint. By altering dosing chemistries and process strategies, the project quantifies cost and performance impacts and develops data-driven recommendations to optimise performance, sustainability and ownership costs.
BlueScope Steel	My project with BlueScope Steel investigates residence time distributions in sinter plant recycle and product streams using a chemical tracer trial. It improves the understanding of transient chemistry, supporting better process control and operator decision-making. A highlight was conducting a full plant-scale trial and analysing real production data.
TRILITY	I completed my MIPPS placement with TRILITY at the Macarthur Water Filtration Plant in Appin, NSW. My project focused on designing a mobile granular activated carbon (GAC) treatment system to reduce trihalomethanes (THMs) in Sydney Water reservoirs. The work cements TRILITY's role in leading water treatment technology development. A highlight was developing a cost-effective pilot plant design based on laboratory-scale adsorption testing.
Goldenfields Water	My placement at Goldenfields Water in Temora focused on evaluating the effectiveness and cost of its new No-DES water main cleaning unit. The project provided value to Goldenfields by identifying changes to improve efficiency and effectiveness. A highlight was seeing how minerals discolour water and working with the GWCC team.
Orica	My project at Orica in Kurri Kurri investigates the minimum inhibitor required to inhibit reactivity in high-temperature reactive ground using standard isothermal testing and accelerating rate calorimetry. The standard test's detection sensitivity at elevated temperatures is also evaluated through COMSOL Multiphysics modelling. The project improves blasting safety and reliability in high-temperature mines by optimising inhibitor use, reducing costs and enhancing confidence in laboratory testing. A highlight from my experience was timing and firing detonators.
MPC Kinetic	At MPC Kinetic in Toowoomba, I designed and assessed a mobile process for minimising natural gas flaring during coal seam gas well workovers, based on the client's safety, process and design requirements. The project taught me about the intersection of chemical, mechanical and electrical engineering as I developed solutions for methane recovery.
Rous County Council	My project involved developing a data-driven optimisation framework for sludge dewatering at the Nightcap Water Treatment Plant through laboratory and plant testing. The project identified practical opportunities to improve operational efficiency and reduce sludge management costs. A highlight was collaborating with the operations team while experiencing the Northern Rivers region, including Emigrant Creek Dam by boat.

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Parkes Shire Council	The project improved understanding of water loss across Parkes Shire Council's B-section drinking water network through three stages: quantifying water loss and its economic impact, identifying likely sources of loss through network analysis, and implementing and testing targeted solutions to reduce losses and improve the network's operational and financial performance.
Orica	I worked with Orica at its Technical Centre in Kurri Kurri, developing a model to simulate bioleaching-enhanced In-Place Recovery copper mining. My work determined the improved recovery from bioleaching and identified the conditions required for feasibility, giving Orica evidence-based guidance for its use within IPR. A highlight was gaining genuine industry exposure and integrating into Orica's technical team.
Shoalhaven Water	This project aimed to optimise disinfection performance at a wastewater treatment plant experiencing recurring EPA compliance issues. Through plant assessment, laboratory testing and CFD-based hydraulic modelling, insufficient chlorine contact time was identified as the primary limitation. A novel contact channel retrofit was designed and constructed, substantially improving microbial removal, chlorine utilisation and regulatory compliance.
BOC	The primary aim of the project was to quantify the benefits of adding an inhibitor during the decomposition of ammonium nitrate to produce high-purity nitrous oxide. In parallel, an automated feeding system was designed as a potential replacement for the current manual dosing practice. The project was the first quantitative evaluation undertaken on site and aimed to improve process knowledge, safety and labour efficiency.
Opal	My placement was at Opal's B9 Mill in Botany, which produces packaging paper from recycled cardboard. Because the cardboard is purchased by weight, excess moisture creates avoidable costs. I developed a new moisture-sampling method and quantified the annual loss. A highlight was seeing Opal adopt the method and tighten its moisture threshold.
Parkes Shire Council	I conducted an in-depth analysis of the Parkes water network to develop a repeatable methodology enabling water utilities to use pump scheduling to align pump operation with electricity tariffs and solar generation. The methodology reduced energy costs by approximately 18%, improved water security, reduced pump wear and required no new infrastructure.
AB Mauri	I completed my MIPPS project with AB Mauri, a yeast biotechnology company in Sydney. My research focused on fermentation sensors for monitoring biomass and other important signals to boost AB Mauri's process knowledge and control. I really enjoyed leading a project from conceptualisation through to implementation.