

SAFETY FIRST WITH WATER AND WASTE REDUCTIONS



Key outcomes (stage 1)

Total savings

Reduced water, waste and chemical costs
\$6000 per annum

Volume reductions

Water **800 kL saved per annum**
 Salt load in waste stream **25% reduction**

OH&S benefits

- Reduced Legionella risk
- Minimised risk of OH&S incidents

Other benefits

Energy savings Unquantified as yet

Total costs

Implementation of initiatives **\$3000**

Payback period

Recovery of implementation cost
Less than 6 months

Opportunities identified for future initiatives (stage 2)

Recycling and redesign potentials
8500 kL of water per annum
\$4500 reduction in annual costs
Payback period 1.5 years (average)

Further information

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Questioning and challenging processes and practices pays off.

A resource efficiency assessment enabled Mildura Fruit Juices Australia (MFJA) to identify opportunities for water and waste reduction, along with unexpected occupational health and safety improvements and energy reductions.

MFJA is the largest independent processor of citrus juice in Australia, with the capacity to process in excess of 150,000 MT of fruit annually. The plant contains a range of world best practice equipment and is now focusing on practices that lead to world best environmental management.

It was in this spirit that the company entered into a trade waste partnership with EPA Victoria and Lower Murray Water to identify opportunities for waste reduction. The outcome was a commitment to short, medium and long-term efficiency objectives and improvements.

To date, quick wins have been achieved in modifying existing water recycling, separation of solids from trade waste and a reduction in the volume of cleaning chemicals used – all with a payback period of less than six months. Other benefits have included a drier waste stream and a higher yield of product, with a lower waste volume per tonne of product.

One of the unexpected benefits of the assessment process was employees' increased risk awareness. In looking at process flows, it became evident that there were opportunities to improve trade waste management and associated control measures, therefore reducing the risk of OH&S incidents.

MFJA also significantly reduced Legionella risks by converting the refrigeration condensers to eliminate wastewater and the salt load from flushing.

'Our past efforts in water reduction, water recycling and improved waste management have been achieved with the support of the EPA/Lower Murray Water Trade Waste Management Team and our own staff who play a integral part in this process,' said General Manager Ron Linton.

Further plans for improvement include feed tube redesign and water recycling, which will recirculate condensate for use as wash water.

'Savings made in the initial stages may well help to fund more ambitious future projects,' he added.

In the longer term, MFJA intends to reduce solid waste by improving infrastructure, realigning wastewater tanks and improving the sampling of some waste streams.

'One of the benefits of the work we have undertaken is that we are now more conscious of the adage, "what you don't measure you don't manage", and this certainly applies to utilities management,' Mr Linton concluded.

'As a responsible corporate citizen it is also important that we play our part to focus on ways to improve our relationship with the environment.'

Ron Linton, General Manager



SAVE WATER, SAVE ENERGY, REDUCE WASTE AND SAVE MONEY! — HINTS AND TIPS

Save Water

Understanding where water is used and lost in your business provides opportunities to quickly save water.

- Can existing processes use less water? Vacuuming, sweeping and high-pressure trigger nozzle hoses can be just as effective as cleaning with water.
- Review tank & system cleaning processes to identify opportunities to automate or amend to minimise water required for cleaning.
- Minimise water use in cooling processes by recycling cooling water, using fogging nozzles instead of running mains water, and shutting off flow when not in use.
- Identify opportunities to reuse or recycle your rinse, waste and greywater – the final flush may be able to be used as the first rinse.
- Establish a regular preventative maintenance program for water pipes to ensure blockages are removed, and leaks and overflows are minimised.
- Reduce water pressure where possible to minimise volume of water lost to leakage.
- Install rainwater tanks for irrigation use.
- Use non-potable water for appropriate end-uses in place of potable water (for example, dust suppression, on-site toilet flushing).
- Replace existing fixtures with more water efficient fixtures (for example toilets, taps and equipment).

Save Energy

Energy source and use has significant impact on profitability, productivity and greenhouse gas emissions.

- Install variable speed drives (VSDs) on pumps and other equipment.
- Optimise your boiler performance with regular maintenance and tuning and consider insulation, fixing steam leaks and installing economisers.
- Optimise your compressed air systems through insulation, fixing air leaks and optimising operating pressures.
- Review your plant lighting including efficiency of lighting, motion and day sensors and removing unnecessary lighting.
- Ensure your hot water system is insulated and running at an optimal temperature.
- Explore heat recovery options in industrial processes such as collecting condensate for use as feedwater for your boiler or using waste heat for space heating.
- Assess your heating, ventilation and air conditioning (HVAC) by adjusting your thermostat dependent on the weather (26 °C in summer and 18 °C in winter). Ensure systems are switched off out of operating hours.
- Regularly review plant equipment as upgrading equipment can often improve productivity and deliver energy savings.

Reduce Waste

Reducing waste can save your business money as well as saving valuable resources and helping the environment.

- Choose products with less packaging and purchase raw materials in bulk to minimise packaging.
- Plan ahead and avoid waste by matching raw material quantities to batch sizes.
- Educate and involve all staff in waste minimisation projects with rewards for new and creative approaches.
- Regularly review causes of 'off-spec' product and adjust systems and processes to minimise these occurrences.
- Establish 'take back' loops with suppliers such as packaging waste, product, which is faulty, or at the end of its useful life.
- Minimise product residue in packaging by removing more raw materials.
- Avoid product spillage through installing conveyor and gutter guards.
- Evaluate product design and manufacturing processes to find ways to avoid producing prescribed industrial waste.
- Investigate whether your waste could be used as a resource elsewhere and find opportunities for reuse.
- Share recycling resources with other businesses in your community to reduce cost. For ideas, see www.wasteexchange.net.au.

Leadership and Life Cycle

Learning how to manage your product or service life cycle more effectively can uncover a wealth of business, environmental and social benefits.

- Life Cycle Management supports evaluation of design and business decisions with the goal of reducing impact over the entire life of a product.
- Encourage innovation and work with colleagues and business partners to discover new ideas and solutions for improving sustainability.
- Actively seek information to better understand and address life cycle issues as they impact your specific business operations.
- Encourage staff from all levels to get involved by establishing an environmental committee.
- Beginning at product design, assess the life cycle impact of your product or service, looking at all activities that go into making, selling, using, transporting and disposing of a product or service.
- Train employees in specific Life Cycle Management skills.
- Investigate the use of life cycle tools such as Life Cycle Assessment and Ecological Footprint.
- Explore outcome-focused partnerships with your suppliers and customers to enable product and service delivery with the least possible environmental impact.

These are just a few of the opportunities available to improve profitability, productivity and your business environment. For other helpful weblinks and information on what other businesses are doing to improve their resource efficiency and sustainability visit www.epa.vic.gov.au/outcomes