

SECURING WATER SUPPLY FOR THE FUTURE



Key outcomes

Total savings

\$2000 p.a.
(Based on average cost of \$0.87 per kL)

Total cost

Implementation of initiatives \$6257

Stage 1 (completed)

Spent to implement a system for recycling cooling water used on the in-line furnace
\$2957

Stage 2 (in progress)

Required to retrofit a water-cooling system to the glass-drawing tower
\$3300

Payback period

Recovery of implementation cost **3.1 years**

Volume reductions

- Total water saving opportunity **2.3 million litres p.a.**
- Stage 1 – savings approximately **1.6 million litres p.a.**
 - Stage 2 – projected savings approximately **0.7 million litres p.a.**

Further information

David Bailey

Engineering Manager, SGE Analytical Sciences
Tel: (03) 9837 4264
Email: dbailey@sge.com
Web: www.sge.com

Vicki Pryse

Australian Industrial Group
Tel: (03) 9867 0270
Mob: 0419 374 754
Email: vpryse@aigroup.asn.au

Or contact EPA

Tel: (03) 9695 2722
Email: business.programs@epa.vic.gov.au

Ingenuity and innovation save 2.3 million litres of water.

2.3 million litres of water will have been saved by SGE Analytical Sciences Pty Ltd – a privately owned, Victorian-based company employing over 260 people in its Ringwood plant – once stage 2 of its volume reductions initiative is complete.

Managing Director Peter Dawes said SGE's business success hinges on a culture supporting the delivery of innovative technologies and solutions to business partners and customers.

Exporting 97 per cent of its locally produced chromatography components to a global network spanning nine countries, its products are recognised for their high quality and are used in chemical analysis for environmental monitoring, food, pharmaceutical, chemical, biotechnology and in many other areas where materials need to be analysed for their molecular constituents.

'We are also conscious of the environmental impact of our operations and this leads us to strongly pursue environmentally sustainable activities wherever possible,' he said.

It was therefore characteristic of the Dawes family's innovative and ingenious style to purchase an in-line furnace from the US over the internet. This was done by Mr Ern Dawes (SGE company founder) whilst at home, recovering from a broken leg. The furnace was ideal for treating SGE's glass products, though it required a constant flow of water to maintain temperatures at the appropriate level.

The internal engineering team turned its thoughts toward how to build a suitable closed-loop cooling system to manage the furnace temperature without requiring regular input of large volumes of potable water.

As SGE often finds itself in the position of having to design and produce its own equipment to produce its cutting-edge components, it didn't take much effort to come up with a solution. In fact, the solution was as simple as bringing together a Ford Laser car radiator, a fan, pump, flow monitor, processor control and a temperature monitor – at a total cost of around \$3000.

The success of this innovative approach has focused attention on other areas where ingenuity may provide similar water-saving benefits to the business. With support from the industry partnership of EPA Victoria and Ai Group, work has now commenced on retrofitting cooling to the heat application unit in the glass drawing room with a similar system.

'In total, this saves SGE and the environment 2.3 million litres of water that would otherwise have been flushed down the drain each year,' Peter said.

2.3 million litres of water is equivalent to the water used by almost 10 average households for a year.

'We are also conscious of the environmental impact of our operations and this leads us to strongly pursue environmentally sustainable activities wherever possible.'

Peter Dawes, Managing Director



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