CASE STUDY

Rosebank Engineering water investigative study

1. Company profile

Rosebank Engineering is located in Bayswater and specialises in component engineering, manufacturing, repairing, overhauling, testing and assembly and provision of logistic support for high performance aircraft. An example of specific area of high performance aircraft include precision machining of flight controls, landing gear and airframe parts. The company employs over 100 people.

Rosebank Engineering is currently involved in the Victorian Government's water management action plan (waterMAP) program. As part of the program users of > 10 ML of drinking water per year are required to:

- Assess their current water use
- Identify inefficiencies and opportunities for water savings
- Prepare an action plan to implement water conservation activities
- Annually report on implementation of water conservation activities

2. waterMAP Assist

The Australian Industry Group (Ai Group) is committed to working with member companies to encourage continuous improvement, resource efficiency, use of recycled water where possible, and reduced usage of drinking water. Ai Group's waterMAP Assist program has provided resources and funding to member companies to assist them implement initiatives contained in waterMAPs and deliver water savings in industry.

3. Project summary

Ai Group's waterMAP Assist program provided financial assistance to enable Rosebank Engineering to undertake an investigative study to:

- Determine and define major areas of water use;
- Identify inefficiencies and efficient water savings opportunities; and
- Highlight the water and cost saving benefits of implementing identified opportunities.

The project encouraged Rosebank Engineering to address their water usage and provided information on ways to reduce potable water consumption on-site.

4. Water use breakdown

Rosebank Engineering uses approximately 10.3 ML of drinking water per year. Figure 1 displays the major areas of water drinking usage on-site. The majority of water usage (55%) at the site occurs in the plating shop. The water used at the plating shop is recycled for use throughout various stages of the electroplating process. The other major areas of water use at the site are:

- Cooling tower
- Workshop sinks and amenities
- Scrubbers

ROSEBANK Engineering Pty Ltd

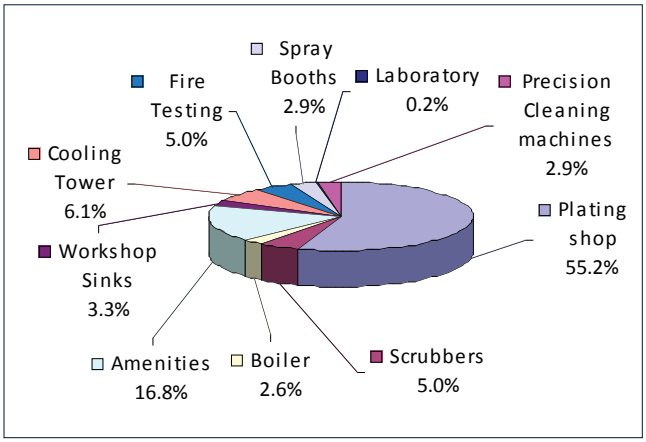
AUSTRALIAN INDUSTRY GROUP

Our Water Our Future

A Victorian Government initiative

Victoria The Place To Be

FIGURE 1 WATER USE BREAKDOWN



5. Key findings

The investigative study identified the cooling tower, workshop sinks and amenities and the scrubbers as the key water saving opportunities for Rosebank Engineering. The opportunities to save water were considered in terms of efficiency, reuse, culture and operation.

The study identified that opportunities for reductions in water use could be achieved through the installation of simple, water efficient devices. In the amenities, further water savings could be achieved through the installation of water saving fittings. Table 1 details the potential water savings identified at Rosebank Engineering.

The investigative study identified several reuse opportunities for Rosebank Engineering, in particular for the cooling tower and cleaning. These included: rainwater harvesting; upgrading the wastewater treatment plant to achieve the water quality required for re-use for cleaning and the cooling tower; design and installation of filtration systems to ensure the operational efficiency of the cooling tower and scrubbers.

Currently, Rosebank Engineering has two 30 kL rainwater tanks located on-site. These tanks are not currently supplying rainwater to any of the water use areas. Assuming the whole roof area of the production facility is used to harvest rainwater, the potential water savings for each area are displayed in Table 2.

In terms of developing a water saving culture, the study recommended visual tools such as charts and graphs, as well as posters and stickers, to encourage and engage with employees, enhancing water efficient behaviour within the workplace.

The study also identified potential water savings from improvements in the management of Rosebank Engineering's cooling tower. These included:

- Sub-metering to make up, bleed and drain lines
- Monitoring of procedures and fixing all leakages
- Checking that the ball float valve is set correctly
- Periodic maintenance of bleed solenoid valve and conductivity probe
- The option of potentially increasing water recycling within the cooling tower by increasing its cycles of concentration

TABLE 1 POTENTIAL WATER SAVINGS IN THE AMENITIES

Recommendation	Estimated Water Savings
4.5/3 L flush toilets with hand basin	180 kL/yr
Waterless urinals	135 kL/yr
5 L/min hand basin mixers	194 kL/yr
4.5 L/min kitchen mixers	759kL/yr
5 L/min showerheads	42 kL/yr
5 L/min workshop tap ware	270 kL/yr

TABLE 2 RAINWATER HARVESTING POTENTIAL SAVINGS

Area	Roof Area	Estimated Water Savings	% Savings
Scrubbers	4,000 m2	515 kL/yr	100 %
Cooling tower	7,570 m2	631 kL/yr	99.5 %
Toilet flushing	600 m2	248 kL/yr	100 %

6. Project benefits

The benefits of the study for Rosebank Engineering included:

- Provision of a water balance of the site and identification of key areas of water consumption
- Identification of solutions to reduce water consumption in the three major water use areas. If all recommendations were implemented a total potential water reduction of 2.6 ML/yr (approximately 20% reduction) could be achieved with a payback period of 5.9 years
- Provision of a platform for further investigation into water efficiency projects

Further information

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Ai Group's waterMAP Assist program, supported by the Department of Sustainability and Environment (DSE) has enabled Ai Group to work with large industrial water users to identify and implement water savings.