

ISBN 0-9775169-1-1

Water efficiency

Water efficiency - Wasted water is money down the drain!

5

Eco-efficiency for the Marine Industry Fact Sheet

Do you want to

- reduce water leakage?
- lower your wastewater treatment and disposal costs?
- reduce water use for landscaping?

A 1 mm hole under pressure of about 400 kPa can waste 3,000 L each day.^[1]

That's 1,150 kL of water lost each year, or about \$1,300.

It is important that leaking equipment such as hoses, pumps and valves are promptly repaired. Significant amounts of water can be lost from leaking equipment (see table 1).

Table 1: Water loss from leaking equipment^[2]

Equipment	Hourly loss (L)	Annual loss (kL)
Flange (1 drop per sec)	0.5	5
Valve (0.1 L/min)	6	53
Ball valve (7-14 L/min)	420-840	3,680-7,360
1 inch hose (30-66 L/min)	1,800-4,000	15,770-34,690

- Do you promptly repair all leaks and plumbing problems?

Wastewater

Wastewater is any water contaminated by activities such as cleaning and maintenance works. It can also include stormwater if it has become contaminated (e.g. by paint or hydrocarbons).

- Are all activities that generate wastewater conducted on an impervious surface such as concrete, with diversion drains or bunds to direct water to a collection pit via a silt trap?
- Do you vacuum or sweep work areas and only hose if necessary?
- Do you use drip trays for solvent transfer, paint mixing and equipment cleaning?
- Are all spills cleaned up promptly with absorbent materials, and is spill containment material clearly marked and readily accessible?
- Do you contain all painting and sanding material using dedicated facilities and measures such as drop sheets?

Case study: Mackay Marina Village Water treatment and recycling

Mackay Marina Village and Shipyard is home to 454 berths of varying size, catering to monohulls, multihulls, large boats (>50m) and commercial boats. The hardstand area is configured for a variety of protected painting, cleaning and maintenance environments, including wet and dry abrasive blasting, so proper wastewater management is essential.

Mackay Marina Village's water treatment system was developed and installed by Clearmake, and is able to treat 3,000 L/h of water for oil and grease, total suspended solids (TSS), total dissolved solids (TDS) and biochemical oxygen demand (BOD). The system treats the water from cleaning activities, abrasive blasting, painting or fibreglassing, as well as the first 5 mm of any rainfall from the whole hardstand (e.g. hydrocarbons). Water is first adjusted for pH before flocculants are added and solids are removed in settling tanks. Finally, the water is filtered through zeolite and sand filters before chlorination, if necessary.

The treated water is recycled for boat washing, saving money on water consumption, while the remaining solids are collected by a licensed trade waste contractor ensuring that no harmful pollutants enter the environment.

*Jeff Smith,
Mackay Marina Village,
www.mackaymarina.com*

'We see a clean marine environment as essential to our livelihood. Our automated filtration and recycling system gives us confidence that we are managing our waterways properly. A recent audit by the Environmental Protection Agency rated our facility as above compliance, and we ensure that water quality remains high through regular testing.' – Jeff Smith, Executive Manager, The Mackay Marina Village.

Reducing water consumption will not just lower the purchase costs of water but also reduce treatment and disposal costs!

*UNEP Working Group for Cleaner Production
The University of Queensland
07 3365 1545
email r.pagan@uq.edu.au*

For further information

Ecobiz can assist you to reduce costs and improve eco-efficiency in your business Call 1300 369 388 for further information.

Eco-efficiency Project Officer
Marine Industries and Fibre Composites Group
Department of Tourism, Regional Development and Industry
Telephone: 07 3227 5756
marine@dtrdi.qld.gov.au
www.marine.industry.qld.gov.au

Recycling and re-use

- Washdown water may still be relatively clean, and can often be recycled on site through a closed loop system. Some form of treatment may be necessary before re-use.
- Do you filter and recycle washdown water through a closed loop system?

Landscaping

- Have you designed landscapes that require minimal watering, using native plants local to the area?
- Do you water plants only when necessary and at times when evaporation is lowest (e.g. dusk and dawn)?
- Is mulch applied to help discourage water loss and weeds?
- Have you installed an efficient drip irrigation system with a timer or link to a soil moisture sensor?

How much is your business spending on wastewater?

Current annual volume of wastewater from washdown of boats and work areas

kL

Source of wastewater contaminants (e.g. paint debris from blasting, sanding dust, paint residue from spraying, detergents, hydrocarbons)

Annual wastewater treatment costs (e.g. pH dosing, filter changes)

\$/yr

Annual cost to dispose of wastewater to sewer

\$/yr

Annual collection and disposal costs for waste contractor

\$/yr

Total wastewater costs (treatment and disposal)

\$/yr

References

- P2pays.org (2005) Water Efficiency - Auditing Methodology and Tools, North Carolina Department of Environment and Natural Resources, Division of Pollution Prevention and Environmental Assistance, Raleigh NC, USA. Retrieved 06-01-2006 from: www.p2pays.org/ref/04/03108.pdf
- Envirowise (2005) Water Loss from Leaking Equipment. Retrieved 06-01-2005 from: www.envirowise.org/page.aspx?o=doe2836