

## Saving Water: Make it Your Business

### Identifying leaks in aquatic centres

Studies in Australia indicate that aquatic centres waste an average of approximately 22% of the total water use through leaks. The cost associated with repairing a leak, can be easily justified when considering the full costs associated with treating, heating and pumping the water. Looking at the overall savings over time could significantly reduce the running costs of the swimming centre.

#### Where is water used?

The first thing you need to know when identifying leaks in your centre is to understand where water is used.

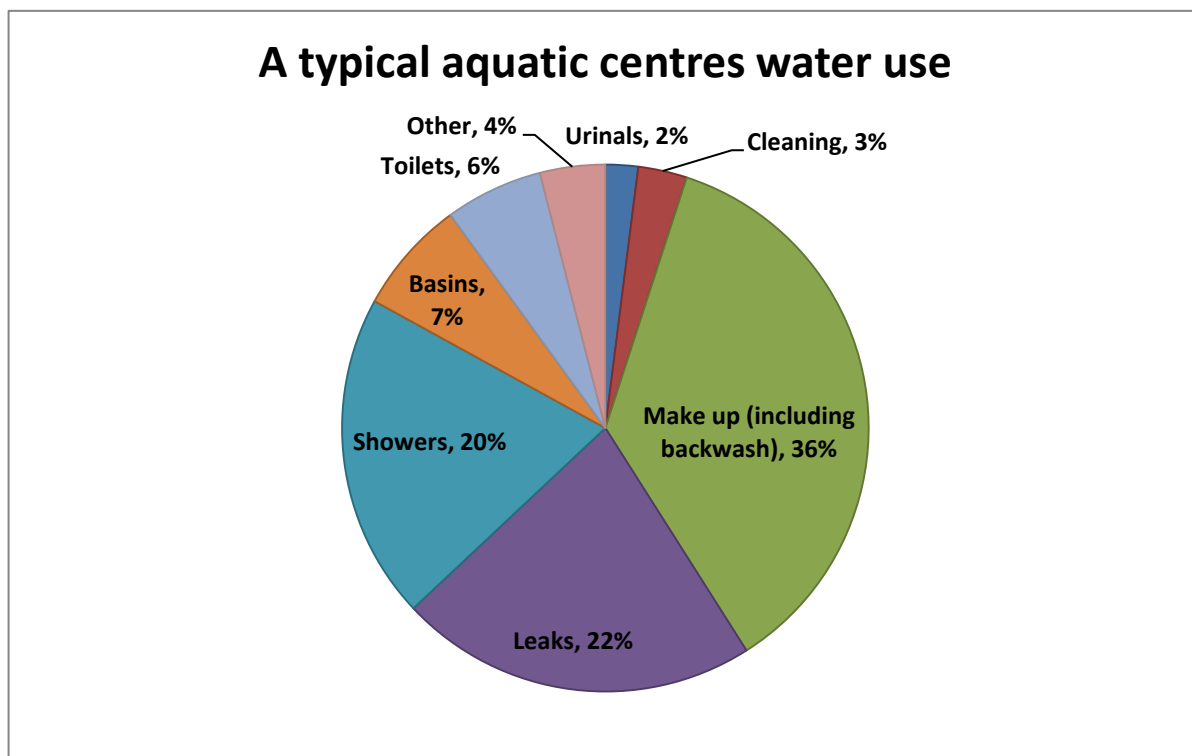


Figure 1: The typical water balance of an aquatic centre (Sydney Water 2011)

#### Common places for leaks in an aquatic centre

There are two types of leaks in an aquatic centre, visible leaks that can be easily identified and hidden leaks that aren't as obvious. Visible leaks can be brought to your attention by asking customers and staff; including

cleaners and contractors, to report any leaks. One leaking tap alone could waste up to 221,000 litres over a year costing approximately \$600 in water costs alone. Hidden leaks as the name suggest, are harder to identify. These are generally found in the pools circulation system or in the pool structure. These water leaks can be lost to the wastewater system, the stormwater system or into the ground.

### Typical places to check for leaks in an aquatic centre

#### Visible leaks

- Toilets
- Urinals
- Taps
- Showers
- Dishwashers
- Irrigation
- Evaporative air-conditioning
- Pipes in the plant

#### Hidden leaks

- Cracks in the pool or balance tank shell
- Return lines or scum gutters
- Visible structural damage such as expansion joints, loose tiles or missing grout
- Rust staining on the pool shell wall, light fittings and inside gutters

### Identify if leaks exist by:

#### Data logging

When the centre is closed and no maintenance is occurring, no water should be going through your water meter. Attaching a data logger to your water meter may reveal a baseline flow when the centre has ceased operating (see figure 2), and this could indicate a leak. [Sub Meters and Smart Metering](#)

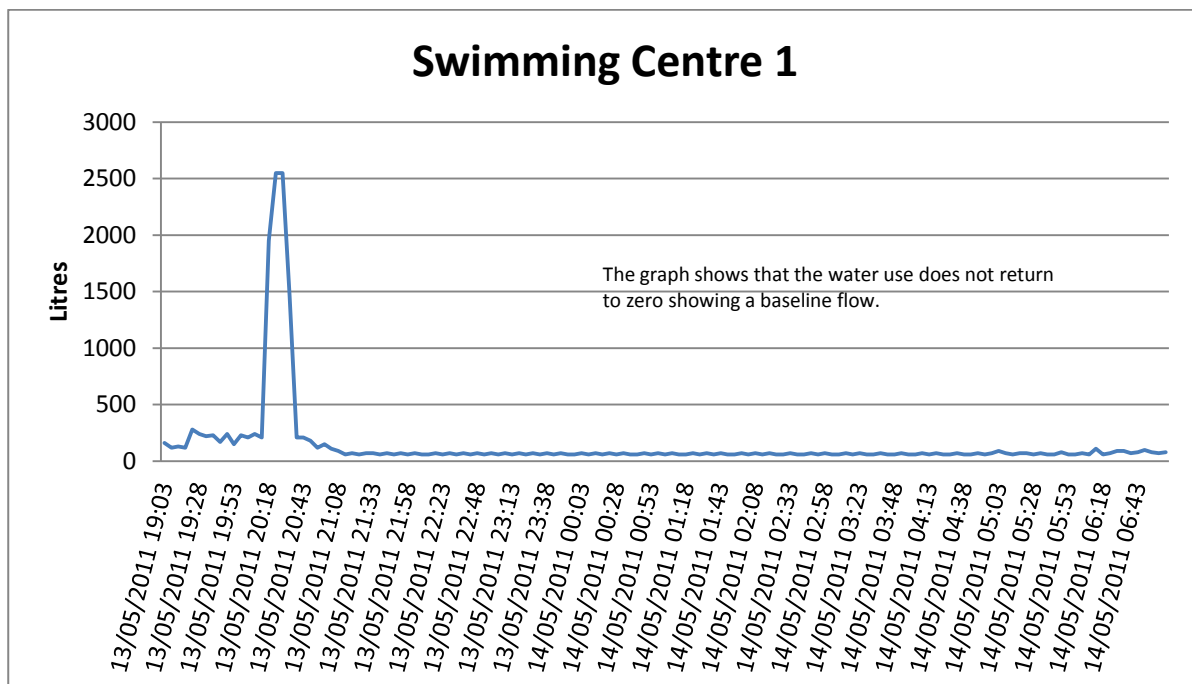


Figure 2: Data revealing a baseline flow using a data logger when the centre was closed

### *Benchmarking*

Measuring and monitoring your water use may not highlight how efficiently water is used in the aquatic centre. The most comprehensive way to measure water efficiency is to regularly measure your business activity indicator against water use to determine your benchmark figure or water efficiency indicator. This is a good way of identifying leaks in the centre. A sudden increase in your water efficiency indicator could alert you to a leak quickly if monitored often.

The business activity indicator for an aquatic centre is based on the number of patrons visiting the centre. Your water use divided by your patronage (L/patrons) gives you your water efficiency indicator. For example if your water use for a day was 2915 litres and you had 53 patrons in that day then your water efficiency indicator would be 55 L/patron.

**As a guide a typical aquatic centre water efficiency indicator would be 20 – 60 L/Patron.**

### *Checking the pool structure and plumbing for leaks*

To check for pool structure leaks, place a bucket on the top step of the pool and fill it with water to the same level of the pool. If in 24 hrs the level of the pool is lower this could indicate a leak in the pool structure (the balance tank should be off during this process). To check the plumbing for leaks, measure the water level difference with the pump running for 24 hours and then with the pump off, if more water is lost with the pump running it could indicate the plumbing system is the cause. To check leaks through pool wall cracks, add dye to the water and observe the flow of the dye in a still pool. If the dye flows towards the wall and disappears you may have cracks in the pool wall.

### **What are leaks really costing you?**

When monitoring the cost of your leak you need to consider more than just the cost of water alone, you also need to include the cost of chemicals, electricity, gas, and equipment associated with treating, heating and pumping the water along with charges for water and disposal of wastewater. Inefficient use of water can lead to excess charges and some companies have found that taking this into account, the true cost of water can be four times the metered water charge. This could considerably increase the cost of the leak or could improve your business case as the payback period would be considerably less. For help calculating your water loss in your pool structure or plumbing, visit the Business Sustainability Group web page or click on the following link to download the [Pool Water Loss Calculator](#).

## Leak ID and action plan

Area	Issue – Leak	Recommendation	Priority	Check Box
Amenities	Leaking toilets and showers	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure</li> <li>Encourage staff and customers to report leaks through the displaying of signs</li> </ul>	High	<input type="checkbox"/>
All areas	Distinguish high water supply areas	<ul style="list-style-type: none"> <li>Sub metering high water use areas to determine volumes to that area is recommended</li> </ul>	High	<input type="checkbox"/>
Balance tank	Water Losses	<ul style="list-style-type: none"> <li>Monitor water levels in the tank as it can be an indicator of a leak in the circulation system</li> <li>Inspect regularly to ensure the tank is water tight</li> </ul>	Medium	<input type="checkbox"/>
Pool structure or plumbing system	Water losses through pool structure or plumbing	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure</li> <li>To check for pool structure leaks perform the bucket test (see above)</li> <li>To check the plumbing for leaks measure the water level difference with the pump running for 24 hours and then with the pump off</li> <li>To check leaks through pool wall cracks, perform the dye test (see above)</li> </ul>	Medium	<input type="checkbox"/>
Scum gutters	Leaks in pipe work	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure</li> <li>Ensure pipe work return to balance tank is not leaking or over flowing</li> </ul>	Medium	<input type="checkbox"/>
Inlet and return lines	Leaks in return lines and inlet lines	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure</li> <li>Check joints in gutters</li> </ul>	Medium	<input type="checkbox"/>
Filtration System	Leaks in valves/ filter bodies/plumbing	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure</li> </ul>	Medium	<input type="checkbox"/>
Irrigation	Leaks in irrigation plumbing/fittings	<ul style="list-style-type: none"> <li>Monitor leaks through wet soil or excessive weed/plant growth</li> </ul>	Medium	<input type="checkbox"/>
Evaporative air-conditioning	Leaks	<ul style="list-style-type: none"> <li>Develop a weekly leak inspection and reporting procedure during usage</li> <li>Inspect when on and off</li> </ul>	Medium	<input type="checkbox"/>