

CASE STUDY Newcastle Community hospital, Wicklow

€40,000 water bill savings through leak detection



Introduction

Water can be a significant cost for any organisation but generally it is only when a very large bill arrives that we sit up and take note. Such bills are usually due to a water leak but as water bills normally arrive only a few times a year, unless the leak is visual, the bill might be the first time you become aware of it. Therefore, if you can access your water meter(s) it is a good idea to read them regularly so that you can compare water use over time.

Unfortunately, doing this takes time and in some cases the water meters are not easily accessible. Online water metering services, which are available in certain areas of the country (or you can pay to have them installed), provide an easy way to monitor water use and identify potential water leaks. This is what happened in the HSE's Newcastle Community Hospital in Co. Wicklow.

The site, where the hospital was originally established in 1896, comprises of the main hospital building and a number of other outer buildings. The water distribution network around the site consists of old underground cast iron pipes which then feed holding tanks in the various buildings. The site is serviced by one mains water meter, which is linked to a online metering system provided by Wicklow County Council.

The Project

In 2011, as part of a collaborative project between the HSE and Wicklow County Council, water use at Newcastle Hospital was examined using an online system that was available for the sites mains water meter. Initially it was found that the daily consumption for the site was ~80m³. While the consumption didn't vary hugely from day to day it was noted that there was a very high flow rate during the night time. Since the hospital essentially caters for long term care and day-time activity, the flow rates at night were much higher than they should have been. It was estimated that there was a daily loss of water of 40m³ and this was costing ~€125 a day.



Prior to this, there had been a number of leaks repaired around the site. Many of these were under roadways and are thought to be related to excessive traffic loading over old infrastructure not built to handle such weights. During the 2011 investigation, which cost €7,000, a number of issues were identified:

- Fire hydrants: there were 4 hydrants that were either broken or not shutting properly.
- Leak: the main feed to one of the buildings on site was leaking. This leaking ½' copper pipe was actually the biggest issue and a very cheap fix once the leak was finally identified.
- Leak in main holding tank: the overflow from the main holding tanks was running indicating a problem with the ball cock. There were additional issues with this tank and it was believed to be the largest single loss on site

Based on these findings, a reparation plan was put in place. This work was carried out during 2011 and cost in the region of \in 13,000. By the time this was finished, the daily consumption of water had dropped from 80m³ to 40m³. It is estimated that, based on a total cost of \in 3.05 per m³, a 1 m³ loss of water equates to ~ \in 1,000 annually. So this water saving work, which cost \in 20,000 in terms of the initial detection work and subsequent repair, has resulted in annual savings of ~ \in 40,000 since 2012.



Conclusion

Dealing with water leaks is a regular part of managing water in any business. On large hospital campus', especially sites with older underground pipe networks, leaks can be a significant and regular issue. As leaks always get bigger (and never fix themselves unfortunately!) it pays to repair them as quickly as possible.



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