Water suppliers are under increasing pressure to reduce leakage rates and provide a consistent, high integrity water supply. Resource development is expensive and reductions in Non Revenue Water (NRW) are an attractive and economically viable means of increasing the headroom between supply and demand. New techniques in leak detection are emerging to help water suppliers achieve their objectives.

Based on 1997 estimates, the Barbados Water Authority (BWA) have set a target of reducing the 60% NRW, to a target of 30% by the year 2016. This projected reduction can be achieved using Best Practice principals including district monitoring and leak detection. For leak detection, the BWA has chosen the advanced leak detection methods developed by Palmer Environmental and Hetek Solutions Inc.

Initial leak detection utilized step testing and conventional sounding methods. However, these prohibitively high costs associated with overtime and the inconvenience of night work led the BWA to investigate alternate methods. With the introduction of the Palmer Environmental.s Permalog leak localization system, the BWA is achieving and maintaining lower leakage levels at lower cost, as well as improving customer service by maintaining continuity of supply, in addition to reducing the overall water lost through leakage. Initial trials in a major UK water company have shown the potential of Permalog to reduce leakage to record low levels and for water suppliers to maintain these over a 10 year period at low cost and with significantly improved customer service.

Permalog units are deployed on a rotation basis throughout the distribution system to provide continuous surveying of leakage. These loggers are used to focus the leakage surveys in specific areas of the network. Easily installed on main lines and hydrant valves, they are retained in place by a strong magnet and are battery-powered for at least 10 years. Loggers are immersion-tested to IP68 and will continue to operate even in flooded chambers with no maintenance required. Each unit adapts itself automatically to its environment. If no leak is present a signal is transmitted to indicate normal background conditions. However, as soon as a possible leak is detected, the Permalog unit enters an alarm state and transmits leak data.
This paper describes how the BWA uses an innovative approach to leak detection using Permalog equipment, and shows that in many cases, the reduction in leakage within the system can lead to a drastic reduction in NRW throughout the island.

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