

UNITED UTILITIES TRUNK MAIN TRIAL



THE CHALLENGE

United Utilities supplies water to 3 million homes and 200,000 businesses in North West England. Within the Winscales and Scilly Banks service reservoir zones where the trial was to take place, local United Utilities NCI / NIA had previously split the main and quantified losses of 4 litres/sec and 2 litres/sec in the respective halves.

Leak detection on trunk mains using correlation techniques has always had potentially limited success for reasons of poor sound propagation and scarcity of accessible fittings. The business challenge was to exceed these limitations, improve efficiency and reduce leakage.

THE TRIAL

During July 2013, controlled tests were carried out by teams from Ovarro and United Utilities on a 500mm diameter PVC trunk main within the Winscales and Scilly Banks service reservoir zones.

Ovarro Enigma-hyQ loggers were positioned on the main over a total distance of 3527.7m. The Enigma-hyQ loggers were programmed to record three sound epochs to separate genuine water usage from constant leakage.

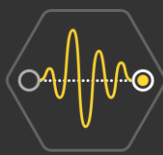
The loggers were deployed during working hours at multiple access points along the main.



WATER



MONITORING
& CONTROL



LEAK NOISE LOGGERS
& CORRELATORS



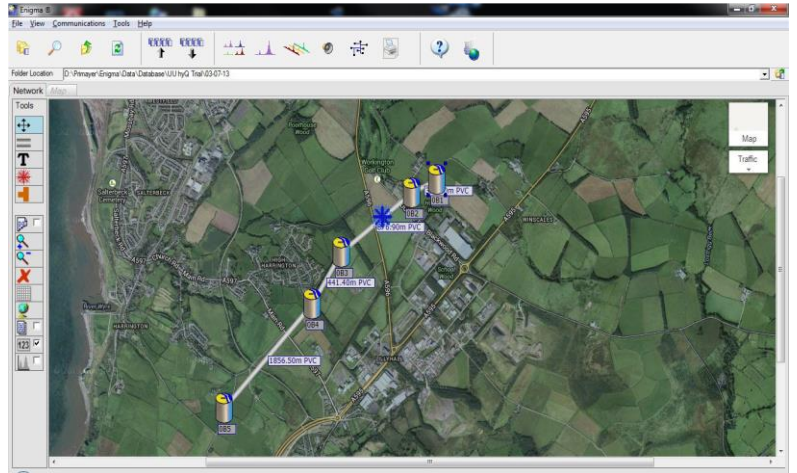
SCHEMATICS

Shown below is the schematic of the five Enigma-hyQ loggers positioned on the main. These schematics interface with Google Maps and are a feature in the software allowing users to easily lay out pipe networks.

The schematic gives easy visualisation of logger positions and correlations requiring investigation; it also allows clicking on any Enigma-hyQ logger to hear the noise recorded.

FIGURE 1:

SCHEMATIC OF THE FIVE ENIGMA-HYQ LOGGERS POSITIONED ON THE MAIN



OPERATIONAL BENEFITS

Shortly after the leak position was highlighted by the EnigmaHyQ, the area was excavated and the leak located. It was later verified as a 4 litres/sec leak. This equates to wastage of 345,600 every 24 hours, costing £528.76 per day.



“Absolutely magic result. It’s the only kit that I have seen work on plastic, not to mention the distance. All the hard work on the day has proved dividends.”

Paul Cunliffe, Regional Leakage Team Leader, United Utilities

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