# La Dopea leakage team deploy 600 Phocus3m into complex city network

The challenge

The water network management team in Nantes, France are responsible for maintaining supply from a highly complex system of underground water supply pipes. This scenario offers a challenging operational environment as there is limited access due to constant road traffic thus making troubleshooting supply issues exceptionally difficult.

La Dopea leakage team were tasked in validating the integrity of supply in one specific area of the city. Initial investigations indicated substantial losses, but traditional leakage detection methods were unable to clearly identify the source of the issue. The team opted to focus on small sectors of the city network in detail and deploy a series of Phocus3m noise loggers.
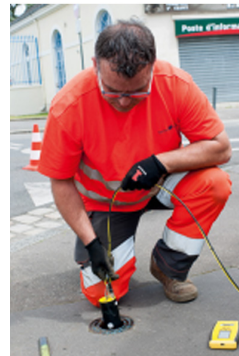
Deployment

Here, the remote noise logger is lowered into the access chamber. There is no need for above ground infrastructure as the logger is equipped with cellular communications and an embedded roaming SIM for automatic selection of optimum data transfer.

Easy deployment

La Dopea technicians deployed the noise loggers across a sequential set of sectors to achieve blanket coverage. Once deployed, loggers submit data to Primayer's cloud based PrimeWeb online platform and analysis indicated areas of interest requiring further investigation.
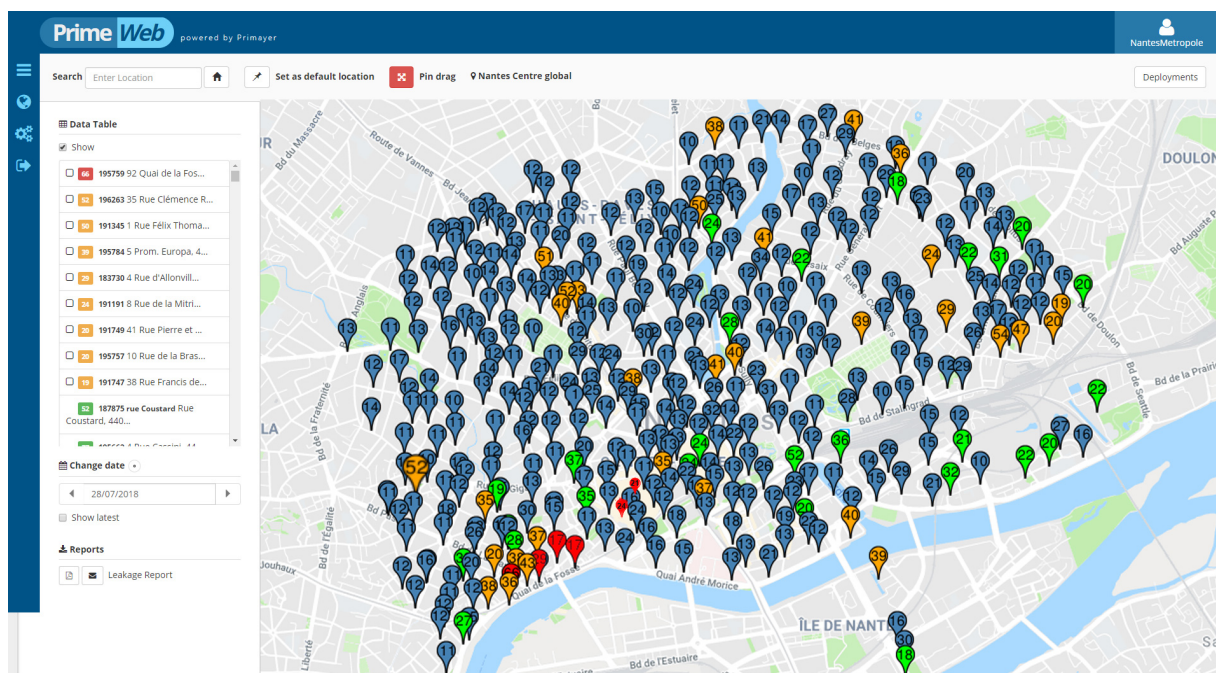
Red Loggers indicating high leakage confidence on Google Maps

The technology

The Phocus3m from Primayer combines specialist leak noise detection and versatile communications technology to create a fixed network to monitor leakage. The logger samples pipeline noise at one-second intervals during each of three sample epochs during the night when background acoustic noise is lowest. It carries out statistical analysis on each of the three epochs to determine the Leakage Confidence Factor. The lowest leak noise is also measured, termed the Critical Noise Value: important as a measure of how close to the leak the logger is situated.

technology for network management and leakage control

Faulty valve releasing water to waste water system

Faulty Valve

The image shows the faulty valve releasing fresh drinking water directly into the waste water network at 30m3/h. Finding and repairing this water system failure both reduced environmental impact and resulted in significant financial savings from the prevention of potable water loss. This loss of water into the waste water system may be considered as hypothetically doubled; as the water was treated and discharged into waste water where it would be treated again.
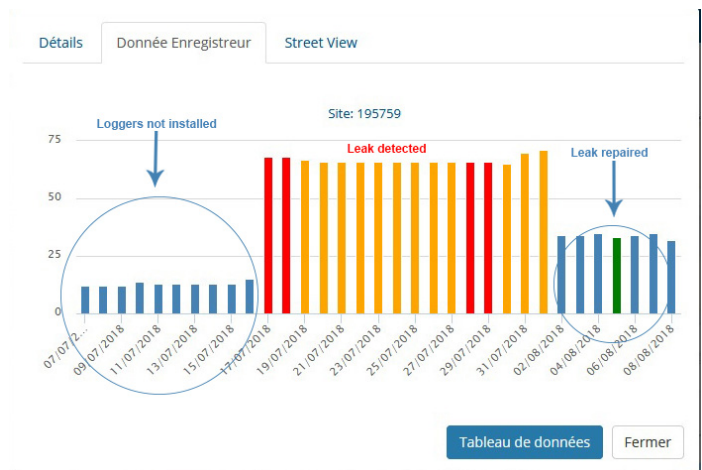
PrimeWeb software, red and yellow blocks indicate the presence of a potential leak in close proximity to the individual logger

Results

Within the PrimeWeb software, red and yellow blocks indicate the presence of a potential leak detected by individual loggers.

The day following deployment of the Phocus3m noise loggers, in an area of interest, the Leakage Confidence Factor (LCF) turned red and instantly triggered an alert.

Due to the difficulty of busy traffic and vehicular access restrictions in the built up suburban area, the leakage team were forced to wait for several days before they were able to enter this area of interest.

Once able to enter the technicians immediately detected vibration via an operating key on the valve where the Phocus3m was deployed. Upon examination the technicians found a major valve fault.
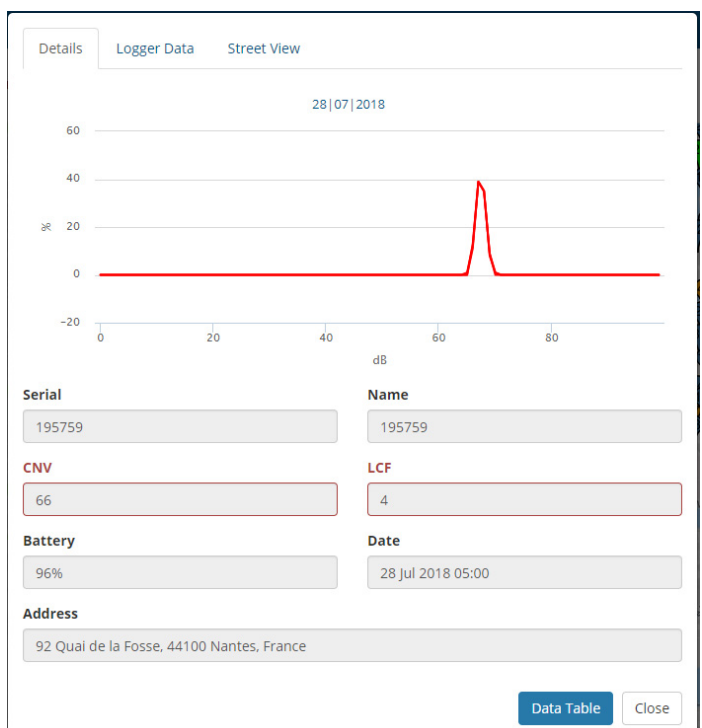
Substantial Savings

The proactive blanket deployment approach taken in this city centre has proven highly effective and since the initial deployment there have been significant further leaks detected and fixed. This failed valve is likely to have released potable water into the wastewater treatment system for more than 5 months, representing an estimated cost of 40% of the investment.

Peak showing high leak confidence factor

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