



Enigma3m – installation finds two leaks in Tønsberg, Norway

Introduction

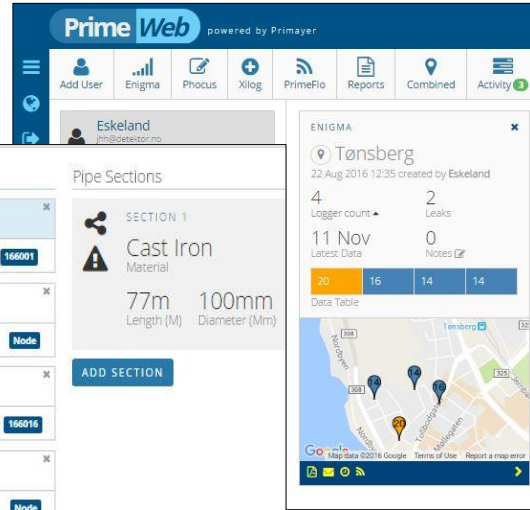
Installation was carried out by the water company of Tønsberg, south of Oslo in Norway, using the latest correlating noise logger technology. The Enigma3m correlating noise loggers are equipped with integrated 3G / GPRS communications and roaming SIM allowing the selection of the best GSM network.

Installation

The Enigma3m loggers were installed on the 100mm cast iron pipe network with distances of 50 to 200 metres between devices. Loggers were installed and commissioned during October 2016.

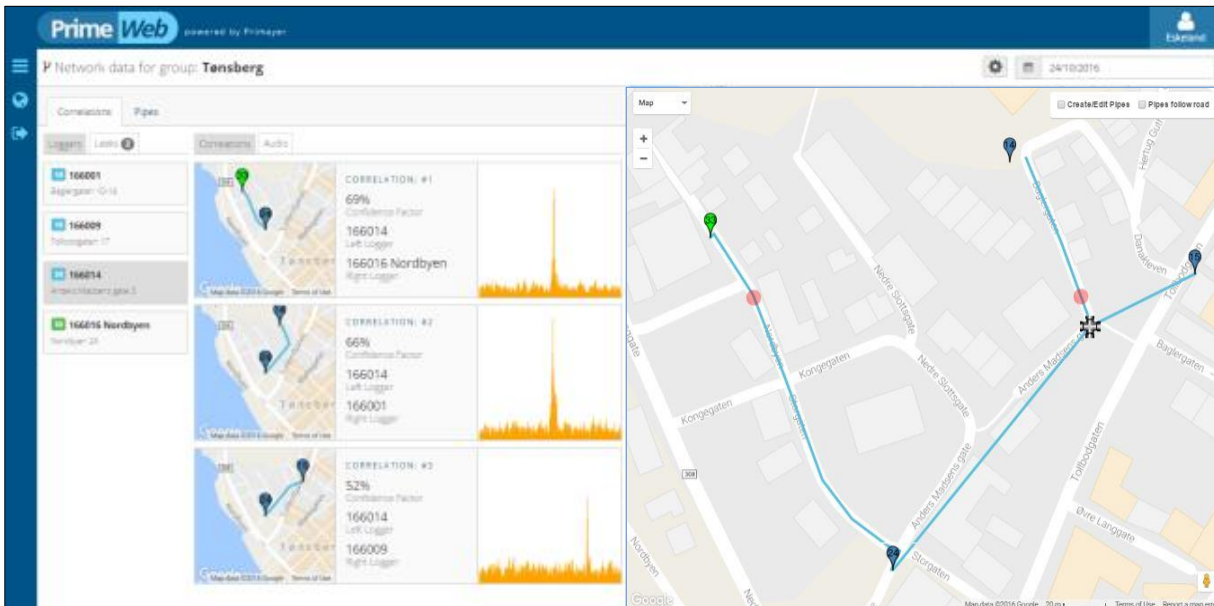
PrimeWeb

The devices communicate GPS location and sound files to the PrimeWeb online analysis tool. The operator can input the network



Network information input via PrimeWeb

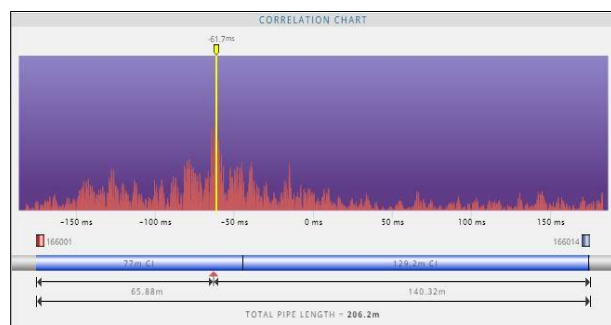
diagram plus pipe details and change linear pipelines, from available data, if the distances from default Google Maps* prove incorrect.



Rapid leak identification

The deployment rapidly identified two leaks with the positions shown by the pink dots on the above screen incorporating a Google Map*. Correlations between several loggers gave a high confidence in the results.

First leak position correlation between loggers 166001 and 166014





Results

The correlation results show that there was a leak 44 metres from logger number 166016 and the second leak was 66 metres from logger number 166001. The leaks were confirmed by on-site listening on the ground. Shortly after the positions were identified the first leak position was excavated and the leak location accurately confirmed. The leak size was measured as 0.1 litres/sec leak. This equates to wastage of over 3100m³ per year.

Street View visualisation of leak position

Google Maps* Street View shows the area of the leak position. This allows the user to visualise the conditions at the repair site and if the public roads will be busy or difficult to carry out the pipeline repair.

Second leak correlation and frequency spectrum display between loggers 166014 and 166016



*First leak position shown on Google Map**



First leak excavation



Street View tool with visualization of the position of the leak



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*Google Maps courtesy of Google



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