

“INTELLIGENT PIGGING” IN THE WATER INDUSTRY - FOUR YEARS EXPERIENCE IN AUSTRALIA

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EXECUTIVE SUMMARY

The intelligent pigging of mains in the Australian Water Industry has been performed by Tyco Water Pipeline Condition Assessment for the last four years using Remote Field Technology (RFT) “Mainscan”, and is the biggest commercial operation of the technology outside its country of origin, Canada. The technique requires placement of an intelligent pig (the “Hydroscope”) via a cut-in into the main, and uses remote field eddy currents generated by the tool as it travels along the inside of the main, to determine the remaining wall thickness of a cast iron main, along virtually the entire length of the main inspected. This is a different technology to that commonly used by the Oil and Gas Industry intelligent pigs which require intimate contact with the metal which cannot be achieved in water mains as a result of the presence of cement mortar lining.

The positive cost-benefit of Remote Field Technology was demonstrated in the investigation of a series of 13 DN150 and DN200 mains scheduled for replacement by Sydney Water Corporation. The investigation showed that a significant amount of main replacement could be deferred for a minimum of 15 years, amounting to a saving in capital expenditure of 42%.

Using an accurate condition assessment technique the cost of scheduled mains can be reduced without increasing the risk of failure. The practical outcomes of mains investigated using RFT are; no action, 32%; selective replacement, 44%; total replacement 25%.

Overall more than 59 unprotected cast iron pipelines, ranging in size from DN150 to DN375, totalling approximately 26 km in length with an average age of approximately 50 years have been inspected.

The vast majority (82%) of pipeline elements (usually pipe lengths) were found to be in good condition. The 3% of pipeline elements that could not be analysed included tees and short repair sections.

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