



pCAT™ pipeline condition survey

Service/product: Critical Asset Inspection | **Customer:** Scottish Water

The challenge

Scottish Water and Morrison Construction commissioned the services of Hydrosave to assess the pipe wall condition of a raw water DN150 DI pipe laid in 1982 supplying a WTW on the West Coast some 3.8km in length and at an elevation of approximately 175m. The pipeline was laid under rocky steep terrain and bog leaving access on foot difficult and vehicular access impossible without specialist tracked units. Lower sections of the pipe had been replaced with PVC in the past and some smaller sections with PE around 2016, but the pipe has a poor burst history and Scottish Water wanted to condition grade the metallic section for the purpose of capital replacement justification.

Action

Hydrosave utilised their innovative and patented pipeline deterioration technology designed by Adelaide University and owned by partner company Detection Services Pty of Australia. pCAT™ Infinity uses inverse transient analysis to measure and determine the condition of pipelines by not only providing pipe wall and lining loss data but also anomalies such as changes in material and size, air/gas pockets, blockages, connections and valve status. The 1.8km of interest was split into two sections with the wave profiles being generated and received using existing hydrants and an air valve. The wave size was between 5 to 7mhd and generated by the release of up to 10 litres of water which had the hydrant flow isolated instantly with the two data systems connected using GPS technology.



Results

The data gathered during the site survey was combined with the GIS data supplied by Scottish Water to produce a full pipeline analysis of the survey section. This included two poor priority anomalies, four fair priority and seven good priority anomalies which consisted of air entrapment, sedimentation, localised deterioration or changes in pipe.

Using pipe standard BS EN 545:2010 which was applicable to DI pipe of that era, the theoretical subsectional remaining wall thickness was calculated to be between 4.59mm and 3.23mm from what was originally 5.9mm; or between 1.31mm and 2.67mm of deterioration.

Based on the results provided within the report, Scottish Water were able to confirm the true condition of the pipeline and justify a capital replacement scheme.

Client testimonial



Condition assessment techniques like pCAT help to build data confidence by proving meaningful data which enable Scottish Water to better understand the relationship between age and deterioration.

pCAT is a long-range condition assessment technology that provides several benefits including identifying anomalies and sections of the main that might need further investigation.

The results provided confirmed the true condition of the pipeline and justified a capital replacement scheme. Trusted decision-grade data is essential for making effective informed decisions on our strategic assets.

As an organisation Scottish Water is working towards refining their approach to assessing asset condition and degradation over time. This is done by enhancing our asset inspection programme through deployment of innovative inspection techniques.

Mira Hanova, Senior Service Planner – Strategic Inspection Team



Hydrosave
Water Network Efficiency

For more information on pCAT™ get in touch:

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