



PIPA Live Water Pipe Inspection and Leak Detection

Scope of Works

PIPA was recently contacted by a water utility client in the UK. The utility had identified a leak on an AC pipeline in a traffic sensitive area. Due to the pipeline being non-metallic using traditional techniques the client could not pinpoint the leaks exact location.

Project Challenges

The pipeline is an 8" asbestos cement pipe with 5 bar pressure and was installed over 50 years ago with unmapped location and configuration.

The client utilised an in house leakage team and searched for leaks over several weeks with the following methods:

- ◆ Noise correlators – 1 leak identified at 15 metres (not accurate on non-metallic pipes)
- ◆ Listening stick- Pipeline was sited below a busy traffic carriageway so this technique not feasible
- ◆ Temporary bypass and flowmeter- this identified a leak, however does not pinpoint its location

This had a major knock on effect, as the client cannot proceed with a localized repair solution, and also may require a road closure of a main carriageway.

Images of site location



Site location



Hydrant (camera entry point)

PIPA uses technology that includes a pressure rated camera (Hydrocam™) and hydrophone capsule (Pipepod™) tethered to a 105m semi rigid rodding to give the operator live video and recorded audio data during an inspection. The system enters a pipeline via a 2" tapping, and is fully chlorinated during its Insertion; the system works on a live basis, with no Interruptions to the clients services and with several surveys undertaken this unique product can cover a distance of up to 1km per day.

The technology is the latest live main inspection system on the market being fully battery powered and only requires a 2 man team for its Implementation.

Video stills of survey findings



Leak identified on wide joint



Buried valve identified

Survey results

- ◆ PIPA successfully identified the leak at 10.8 metres
- ◆ PIPA also identified an additional leak at 50 metres (all were later validated by client)
- ◆ A non-known in line valve was identified (see image above)
- ◆ Tethered insertion technology system allowed for precise identification of the leaks location
- ◆ Acoustic system is very responsive and operator was able to identify multiple leaks in close proximity to each other

Conclusion

It would have been very difficult and expensive for contractor to find the remaining issues within the water main. The CCTV and acoustic capability proved indispensable for locating issues and trouble shooting.

PIPA completed the inspection in 1 working day, and in total successfully identified and located 2 leaks (all now verified).

The contractor resolved the ongoing issue by removing the guess work at a fraction of the cost and time invested in other methods in previous weeks.

PIPA Representative: The project was a great success, Ideal due to pipe location and material and also a great case study for our company. The contractor had exhausted all other pipeline inspection avenues, and was more than relieved when we offered a solution.

PIPA has also delivered successful projects with the majority of the UK water utility companies.