

API Live Water Pipe Inspection and Leak Detection

API (UK) Ltd

Scope of Works

API 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 project is significantly behind schedule due to repeatedly failing hydrostatic pressure tests required for certification by the local utility.

The pipeline, an 8" asbestos cement pipe with 5 bar pressure, was installed using trenchless directional drilling to reduce disruption to a now established neighborhood.

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

- ◆ Noise correlators – no leaks identified (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)

API uses technology that includes a pressure rated camera and hydrophone capsule (Pipepod™) tethered to a 100m 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 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

- ◆ API successfully identified the leak at 10.8 metres
- ◆ API 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 location of the leaks to be identified
- ◆ Acoustic system is very sensitive and able to pick up small and large leaks
- ◆ 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.

API 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 they invested in other methods in previous weeks.

Clive Webster of API UK Ltd said- 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.

API has also offered successful projects with the majority of the UK water utility companies.