

## The Sahara<sup>®</sup> Leak Location System Inspecting Critical Mains

The Sahara<sup>®</sup> Leak Location system allows pipeline operators to pinpoint leaks in any material with diameters over 100 mm (4"). It can be used in live potable water mains with no disruption to customers.

The high sensitivity of the Sahara System makes it ideally suited to inspecting critical mains. Clients using the system have found it to be so sensitive that they can accept that a "clear run" is the best indication that there are no leaks present. The knowledge that a main is leak free gives a good first indication of the main's health. This information helps in planning renovation, renewal and insurance strategies. Precise location of any leak detected will affect the strategy adopted for their repair. A distance of a few meters – under or alongside a major road or railway line – can make the difference between the need to repair the individual leak or reline or relay the pipeline.

Examples of critical mains include those:

- Sited under major roads or railways
- Through or under dams and embankments
- In areas of unstable ground
- Vital to maintaining supply



### Case Study: Thames Water – Annual inspection of mains around reservoirs, near underground stations and under railway lines.

Surveys are carried out to assess the health of water mains in the vicinity of major above and underground infrastructure. Failure of the mains could have severe consequences for water supply, public safety and the transport system.

Thames Water has used Sahara since 1998 to inspect mains in the London area. They quickly recognised the sensitivity of the system and the potential of using it to check the integrity of key mains.

An annual programme to inspect mains running alongside the embankments of impounded reservoirs was initiated several years ago. The programme has since been extended to cover mains in other sensitive locations.





### Case Study: Yorkshire Water – Inspection to establish the integrity of a main passing across a dam wall

Water was leaking from a point near the bottom of a dam at a small reservoir but its source could not be readily determined. There was a possibility that a main crossing the dam could be leaking causing the dam to be undermined. Yorkshire Water chose to inspect the main using Sahara. The survey was able to show that the main across the dam was not leaking. Further investigation of the integrity of the dam was required.

*“Our experience of using the Sahara system elsewhere has allowed us to use it to rule out leakage from our water main as the source of the water in this case.”*

John Drakett, Yorkshire Water.



### Case Study: Severn Trent Water – Annual inspection of mains running across a hillside that is subject to ground movement

An area of unstable ground adjacent to a reservoir presents Severn Trent Water with a potential risk of failure of three raw water supply lines. Any leakage from the mains might increase the instability and increase the risk of failure. In addition, any new leakage might indicate movement of the pipes and the ground. A catastrophic failure could result in the loss of supply to a major treatment works and the closure of a main road transport route.

Initial trials of the Sahara system were carried out to establish the size of leak that might be detected. The trials convinced Severn Trent that the sensitivity of the system is such that a clear survey indicates there is no leakage from the line.

An annual inspection programme using the Sahara system was initiated to monitor the lines for leakage; this programme is now in its sixth year. The Sahara surveys are coupled with geographical surveys which look for any movement of the ground. The combination of techniques should ensure that any change is picked up in its early stages.

Having established a routine for carrying out the surveys, Sahara can be called in at short notice to carry out checks should there be any conditions that may have a particular impact on the situation.

*“Our experience of the Sahara system showed that a clear survey indicates there is no leakage from the line. Our confidence in the technique and its use is reflected in our decision to use Sahara as the indicator of leakage; it has reduced the need for other monitoring options”*

Derek Lees, Works Manager, Severn Trent Water



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