UKWIR
UK Water Industry Research

COLLABORATIVE, IMPARTIAL RESEARCH

UKWIR - Big Question No. 2

Route Map to Achieve the Vision

Vision

How do we achieve zero leakage in a sustainable way by 2050?

Outcomes

- We can confidently quantify leakage and demonstrate when it is zero
- New leaks on existing networks are minimised
- All new leaks are found quickly after they break out
- Repairs are quick, economic with min. disruption
- Back-ground leakage is eliminated
- All new pipework is leak-free when laid, and remains so throughout its economic life

Key Benefits

- We can make accurate local water balances
- We can install near universal customer metering
- We have accurate knowledge of where water is going within DMAs
- We can develop strategies to prevent or minimise new leaks
- We have improved knowledge of how and why leaks break out and grow
- We can install real-time alarms on new or imminent leaks
- We have remote leak detection tools (e.g. drones)
- We have effective acoustic & non acoustic detection methods
- We have indicators (e.g. flow, pressure, noise) for new or imminent leaks
- We know how to make correlators more effective
- We know how/where to measure for detection
- We have improved zero/ minimum excavation techniques
- We have developed plastic and AC pipe tracing tools
- We understand how to prevent repeat bursts
- We understand the nature and magnitude of background leakage
- We have improved structural lining techniques
- We have better tools and techniques, QA and staff training to prevent leaks
- We have improved specifications for new networks

2018

- Use of smart networks for leakage management
- Develop low cost local flow measurement techniques
- Deterioration processes in mains and services of various materials
- Deterioration processes in joints of various types
- Transient v steady state detection methods
- Incidence and causes of repeat bursts at old repairs
- Comparison of cured-in-place and sprayed structural linings
- Establish high spec. DMAs to demonstrate zero leakage is achievable
- Identify and quantify leakage in new DMAs and relate to installation

2020

- Understand the balance between use, supply pipe leakage, plumbing losses and meter under-registration
- How does deterioration of pipes evolve into leakage
- Impact of network operation on leakage
- Enhancing the transmission and detectability of leak noise on plastic pipes
- How to pinpoint leaks very accurately from the surface
- Where does background leakage occur? How great is it?
- Making new pipework leak-free with existing techniques

2025

- Prediction of future leakage and burst rates for different types of pipes
- Causes of transients in distribution networks
- Use of remote imagery for leak detection
- Use of optical fibres for detection
- Development of techniques for tracing non-metallic pipes
- Development of platelet-type techniques (by suppliers)
- Cost benefit of high spec networks in terms of maint. savings

2030

- How to prevent or minimise leaks on existing pipes
- Development of self-healing pipes (by suppliers)

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Priority Projects

Supporting Information

- Acronyms
  - DMA – District Metering Area
  - AC pipe - Asbestos-cement pipe
  - QA – Quality Assurance

- This is a dynamic route map and will be modified as projects are completed and better information is known
- Many projects help deliver several outcomes, the linkages are not displayed on this route map