

Water Resources Stakeholder Forum, 6 June 2014

Briefing note on Leakage

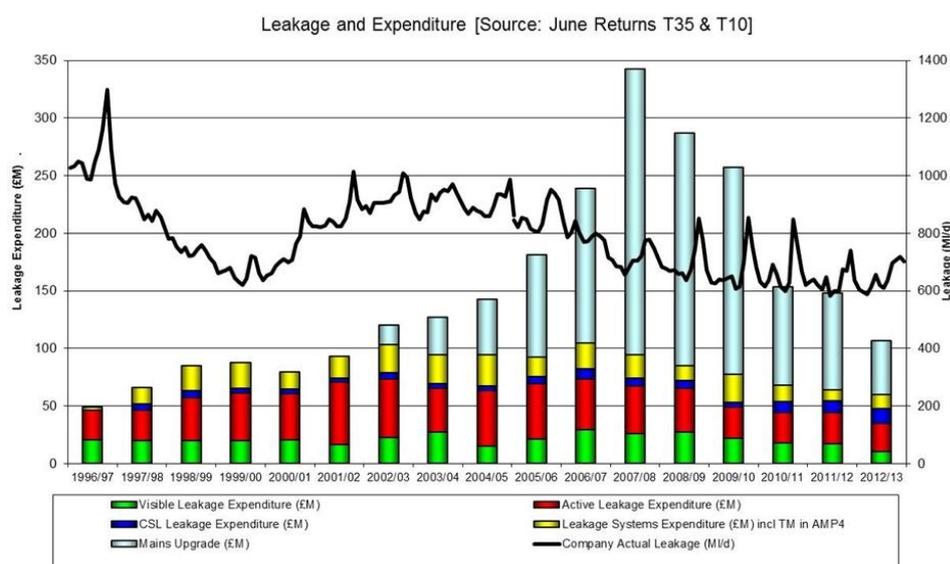
1. Current leakage performance

We have over the last ten years reduced leakage by more than 300 MI/d (32%), with leakage for 2013/14 at 644 MI/d¹, well below our regulatory target of 673 MI/d.

Figure 1 shows leakage performance and leakage control expenditure since 1996/97 and how our strategy has evolved over this time. There are three key periods to note:

- 96/97 - 99/00: Leakage reduction achieved through leakage detection and repair activity.
- 00/01 - 02/03: Despite increasing levels of leakage detection and repair expenditure and pressure management, leakage rose.
- From 2002: Revised strategy involved replacing sections of the pipe network in London with the highest leakage rates, combined with pressure management.

Figure 1: Leakage performance and control expenditure



Despite the leakage activity and reduction achieved to date, a significant proportion of our distribution network is still in relatively poor condition, and active leakage control – the process of finding and fixing leaks - still forms a key part of the leakage strategy to offset leakage recurrence. Work continues to improve the targeting and efficiency of the leakage detection and repair process.

¹ Annual average company leakage

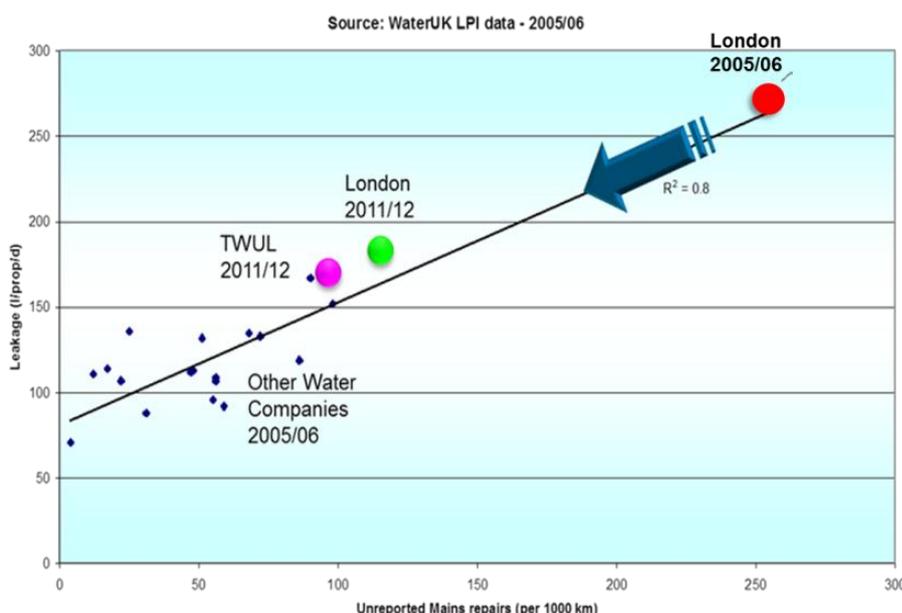


2. Leakage performance in London

Approximately 78% of leakage occurs in London despite the fact that only 58% of our water mains are in London. We mainly use acoustic methods to detect leakage, so detection is carried out at night when other noises, such as traffic, are at a minimum. However, with the 24 hour nature of London, the continuous background noise from for example, air conditioning units, makes leakage detection difficult.

This is further exacerbated by the heavy London clay soil. The soil not only moves much more than other soils as it wets and dries through the seasons, and attacks the pipe material with its highly corrosive properties, but it also restricts the flow of water from leaks, thus minimising the sound that it makes and also its chance to become visible on the surface.

Despite the difficulty in finding leaks in London, given the condition of the infrastructure, and the intensive leakage detection activity, the numbers of leaks found still exceed those found by other companies. This is illustrated in Figure 2, which shows the detected mains leak repair rate for London and Thames Water as a whole, against that of other water companies in England and Wales. The graph also illustrates the improvements in leakage levels and repair rates that have been achieved in London over the last 7 years as a result of the investment in mains replacement and rehabilitation.



3. Future strategy

Customers and stakeholders have clearly indicated that they wish to see leakage reduced further. In determining our future strategy we have tried to achieve the right balance between further leakage reduction, the additional cost of this work and impact on customers' bills, the need to maintain a



robust and efficient water distribution network and the need to manage impacts on traffic congestion and household disruption.

Our strategy can be considered in two parts:

- activity to hold leakage at current levels - the inevitable deterioration in the condition of our ageing network means that a significant amount of activity is required to maintain leakage at current levels; and
- where justifiable, additional activity to reduce leakage beyond current levels to help manage the supply demand balance.

We have developed a plan to reduce leakage by 59 MI/d over the next 5 years from 2015 to 2020. The scale of the demand management and leakage reduction activity for each Water Resource Zone in our supply area is determined as part of the Water Resources Management Plan (WRMP) and the approach is consistent with the assessment of Sustainable Economic Level of Leakage (SELL)².

The programme comprises a combination of active leakage control, pressure management, mains replacement (targeted at street level) and management of leaks on our customer's pipe network - we will continue to offer our customers free leak detection and free repair/replacement of their pipes to address leakage. We will continue to refine and improve our approach for each of these activities based on experience, improved data and technology.³ The step change will be delivered through the roll out of our progressive metering programme and, with the SMART technology, the improved accuracy that we can target our leak detection and repair activity, both on our own mains and those of our customers.

² RdWRMP Appendix M, Section M5 sets out our approach to determining the SELL

³ RdWRMP Appendix M, Section M3 includes more detail on our activities



Background briefing on work to review water resource options

Introduction

Our revised draft Water Resources Management Plan (rdWRMP14), covering the period from 2015 to 2040, considered a wide range of water resource options, including groundwater schemes, desalination, transfers, reservoirs and wastewater reuse⁴. The preferred programme comprises groundwater schemes, water transfers and a wastewater reuse scheme⁵. Whilst the plan proposed a wastewater reuse scheme as the preferred large resource option, it made clear that uncertainties around this option, and the potential need for greater future flexibility, meant that further work was needed to examine alternative large resource options.

We are planning a four-phase programme of work to examine large resource options⁶ as follows:

Phase 1 – This will involve a review of the options included in the rdWRMP14, and consider any new options or variants, taking into account regulators' and stakeholders' views. We will develop a transparent and robust approach to review and refine the options taken forward for more detailed investigation.

Phase 2 – Detailed scheme investigations, looking at factors including engineering design, cost, environmental, social and carbon impacts.

Phase 3 – Update of scheme cost estimates.

Phase 4 – Scheme selection and outline design for planning submission.

Following a competitive tender process, we have awarded the contract for Phase 1 work to Mott MacDonald, in conjunction with Cascade Consulting. Procurement for the subsequent phases will be confirmed at the end of Phase 1. All the phases of the programme will be completed in consultation with regulators and stakeholders.

The remainder of this paper, and the presentation and discussion at the Water Resources Forum (6 June), will focus on Phase 1.

Phase 1: Review of options appraisal process and resource options

The components of Phase 1 are:

1. Undertake a critical review of the option appraisal process employed for rdWRMP14, taking into account regulator and stakeholder views.

⁴ RdWRMP14 Section 7 and Appendix P

⁵ RdWRMP14 Section 9

⁶ For the purposes of this work large resource options are defined as those options >50 Ml/d with the exception on intra-zonal transfers and licence trades



2. Review the constrained options⁷; consider stakeholder comments and identify any new options or variants.
3. Develop the approach followed for rdWRMP14 to consider uncertainty around options. We will draw on a 2013 UKWir research project on uncertainty in investment planning. The UKWir project developed a framework to help to improve understanding of uncertainty through the identification of sources of uncertainty and then characterisation, assessment, analysis and communication of the uncertainties. The approach included social, environmental and economic aspects.
4. The output of the uncertainty assessment will then be used to compare the water resource options and will help to shortlist options to create a refined set to take forward to Phase 2. The uncertainty analysis will also identify the key drivers of uncertainty which will help focus the need for further investigations.

Phase 1 will be completed over the period from May 2014 to April 2015. The work will be undertaken in consultation with regulators and stakeholders to ensure understanding and agreement on the approach. The key milestones and engagement with stakeholders are set out below.

WRF 6 June	Introduction to Phase 1 including the approach, methodologies, milestones and engagement.
Stakeholder Technical meeting early September (date tbc)	Present outcomes of work completed on: a) review of the options appraisal process b) review and update of the constrained options c) assessment and presentation of uncertainty assessment – using case studies
WRF October	Update on work to review the approach, options and uncertainty assessment.
Stakeholder Technical meeting December (date tbc)	Present results of the comparison of water resource options, ahead of shortlisting of options.
WRF January 2015	Update on the comparison of water resource options and the recommended shortlist

END

⁷ Constrained options: These are options that are considered to be suitable for consideration in the formulation of the preferred programme.