UKWIR Project WM/08

Long Term Leakage Targets (Achieving Ten Percent)

Need for Project

Current levels of leakage, whether economic or not, will be unacceptable in 25 years:

- Customers will expect significantly lower levels if we are to maintain their trust and require greater water efficiency to offset any climate change impact
- Our environmental regulators are likely to require lower leakage as a pre-requisite for approvals of any future resource developments
- Political pressure will demand further leakage reductions to demonstrate that companies are maintaining their assets.

As most water companies are already at their "economic" level of leakage, which in many cases is over 20% of water distributed, legislative and technical constraints mean that it is not currently possible to envisage a situation where a level of leakage acceptable to non-industry stakeholders can be achieved.

This project aims to bridge the gap between current performance and long term stakeholder expectations by identifying what needs to happen to achieve radically lower leakage levels.

The project will estimate the long-term investments required and the split of investments between the different leakage-management methods.

Objectives

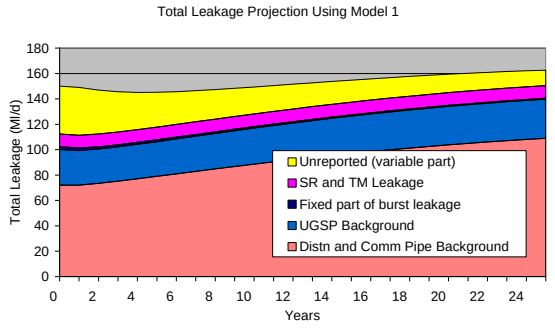
The objectives are:

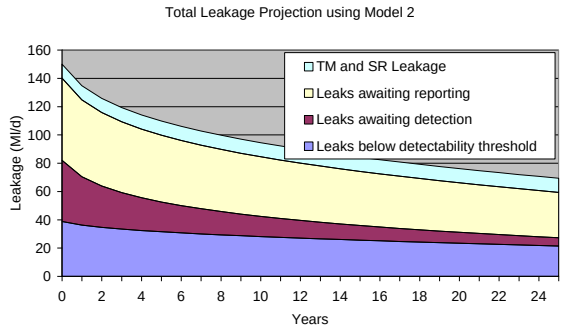
- To answer the question "What would the UK water companies have to do to achieve a level of leakage acceptable to customers and other non-industry stakeholders (assumed to be 10%)?"
- Define a long-term strategy to achieve this level, with reference to willingness to pay surveys
- Indicate the likely timescales and costs to achieve an objective of 10% leakage
- Determine the key technical constraints, such as metering, likely to arise.

Work Programme

The project will be carried out in five main tasks:

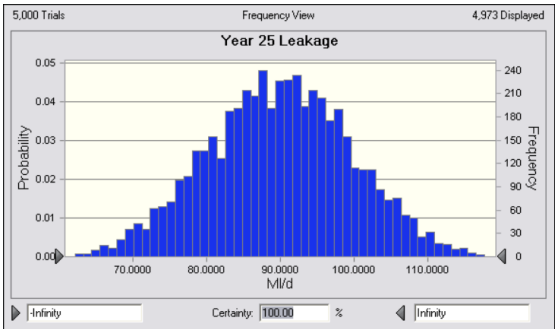
- Literature review and stakeholder interviews. This includes discussions with key individuals in regulatory bodies, as well as reviewing information pertinent to the project and discussions with leakage-experts in the gas industry. This will inform the methodologies to use in the following stages.
- Leakage manager workshop. This workshop will be used to define the project objectives and methodologies more clearly.
- Identify leakage reduction scenarios. At this stage we will identify the precise methods to be used for the assessment and obtain agreement from the steering group for the use of these methods. We will estimate key parameters of a typical water company to use for the basis of leakage forecasts.
- Assess leakage reduction scenarios. This stage is the main activity. The effects of long term improvements and possible step changes in leakage management will be assessed for the typical water company. We envisage a number of alternative modelling methods will be used for this. The results from two of these are illustrated here.





This work will also include an economic analysis, taking account of both internal and external costs and benefits of leakage reduction programmes.

- Risk and sensitivity analysis. There are a number of uncertainties in the predicted costs and savings over a long period. These a driven by uncertainties in the model parameters, the uncertainty in the match of the models to reality and the validity of assumptions about how circumstances will change in the future. These will all lead to an error estimate in the future leakage level for a given investment forecast.



In addition there are likely to be some factors, such as availability of skilled staff, that may limit future ability to achieve leakage reductions. These uncertainties will be examined using risk assessment, Monte-Carlo Analysis and Criticality Analysis.

- Reporting. The results will be reported and explained at an end-of-project workshop.

Timetable

The project commenced in March 2009 and is expected to be complete in August 2009.

Benefits

The project will provide long term targets for the industry. This will provide a framework into which shorter-term targets can be set.

The project will also provide an estimate of the likely future costs of leakage management in order to achieve significantly lower leakage levels. This will contribute to the debate on what should be achieved and the likely costs to customers.

The project is likely to influence long term expenditure on detection, pressure-management and infrastructure renewal, totalling hundreds of millions of pounds per annum.

Project team

The main contractor is Hyder Consulting, supported by Bridge Economics, Trow Consulting and Hydrotec.

The Client Manager is Dennis Dellow and UKWIR's Project Manager is Vic Lee