

# Case Study 1

## Drinking Water Safety Plan Based Standard Operating Procedure Review – UK Water Company

### Summary

The World Health Organisation promote the use of Drinking Water Safety Plans (DWSP) as the means of consistently ensuring the safety of a drinking water supply. The DWSP uses a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. The DWSP approach is utilised in the United Kingdom by water undertakers as a mechanism for identifying risks and then ensuring mitigation against them.

The client, a UK Water Company, identified the need to undertake a review of their DWSP in relation to their distribution network operations. This involved reviewing the DWSP, Distribution Operations Manuals and associated Standard Operating Procedures. The purpose of the review was to ensure that there was a coherent thread that linked their Drinking Water Safety Plan, Distribution Operations Manual and end user Standard Operating Procedures within the water distribution function. The client wished to firstly ensure their suite of Standard Operating Procedures covered the key activities that supported compliance with their DWSP and that no gaps had developed and secondly to ensure that awareness of their Standard Operating Procedures was raised amongst their work teams.



The Learning and Development expert worked with the client's subject matter leads to review their documentation and confirm the completeness of the suite of Standard Operating Procedures. They then worked with the Company to devise a smartphone-based assessment methodology to measure the level of knowledge of the Standard Operating Procedures by the workforce. This identified an initial additional training need regarding valving operations and the requirements for operating calm networks. This training need was satisfied by the delivery of bespoke Calm Network awareness and mitigation training that included training in network hydraulics. The training was supported by the development of formal dynamic valving risk assessments which were in turn implemented through the smartphone-based audit package. This package was then used to incorporate a number of other network operation risk assessments.

### What was the aim of the Programme?

The programme had four primary aims:

1. To support the Company in reviewing their network operating procedures and identifying potential gaps
2. To develop and deliver an assessment methodology that supported the company in ensuring a consistent level of knowledge and understanding of their critical operational procedures.
3. To provide bespoke training that would close any identified knowledge gaps.
4. To advise on and provide a tool that could be used to help inform the effectiveness of embedding knowledge in the target workforce across a range of training areas and therefore help identify future training needs.

### Who was the target audience?

The target audience consisted of directly employed members of the Company's water network operations team. This included leakage inspectors, network inspectors, pressure reducing valve technicians, team leaders and area team managers.

## What did the programme involve?

The programme started with refining and agreeing with the Project Sponsor the aims of the support and then developing and agreeing a methodology for delivery. The Company's subject matter experts were identified, and documentation provided by the Company for review. This review enabled the development of a set of assessments for the workforce that would inform the level of awareness of current procedures. The assessments were carried out using an audit-based software package accessible by either smartphone or desktop. Training in the use of the package was rolled out alongside briefings in its purpose. As questionnaires to assess knowledge in specific topic areas were developed these were released through the software package and completed by staff.

Analysis of the reports on assessment results identified amongst other issues a consistent need for additional training in the area of calm network operations. Incorrect valve operation and transient surges resulting from them can create pressure waves of up to 3 times +/-ve the normal main operating pressure. Incorrect valving and transient surges are associated with a number of potential risks including:

- CMEX - in terms of serviceability and complaints
- Cross contamination from -ve pressure dips
- Burst mains
- Pollution to watercourses
- Increases in background leakage
- Discoloured water
- Water quality issues from stripped biofilms
- Health and safety of the operator

A bespoke training package was developed that delivered an overview of the customer service, regulatory and business impacts of calm network operations, an introduction to network hydraulics to enable a better understanding of operational impacts, practical training in valving operations including use of a flow rig and a concluding written and practical test. A dynamic risk assessment to be undertaken prior to network valving was also developed. This risk assessment together with other existing network operation risk assessments were incorporated in the smartphone tool.

## What were the outcomes?

The Company benefited from an independent industry expert bringing an external view to the review of the network element of their DWSP and associated documents. A clear matrix of the knowledge areas contained in company procedures was identified and this enabled a tool to be developed that assessed the level of understanding and awareness of these key areas in the workforce. An assessment was undertaken that provided assurances in a number of areas but also identified additional training needs and the opportunity for process improvement. Bespoke training in a priority area was developed and delivered. As a result, the Company were able to achieve and identify:

- Delivery of consistent network valving and calm network training that supported an increase in customer service reduction in operational cost associated with burst mains and a reduction in business risk
- Active assessment of knowledge levels of key areas of network operations informing effectiveness of training delivery and future training requirements.
- Reduction in the amount of paper-based forms carried by network staff
- Increase in the visibility and completion of network risk assessments



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