



Valve Care

Value Tracking Case Study



Valve Care

Background

Currently National Gas Transmission (NGT) have approx. 10,000 Valves (8" and above), many of which are over 40 years old and in varied degrees of repair. These buried valves have stem extensions without an internal protective coating. Water ingress causes corrosion inside the valve stems. This corrosion can block end stops and compromise valve performance, as well as shortening "valve life". Currently, valves are inspected yearly or every 2 years, and failure requires the valve to be either excavated and remediation applied or excavated and replaced. The challenge Valve Care aims to meet, is to work over the valve without the need to excavate.

What's new?

Valve Care is broken into 3 phases:

1. Concept
2. Development
3. Policy/ Implementation

The first phase looked at the requirements and prototype development of the tool kit and was successful with stakeholder involvement to the issue and potential solutions. The second phase took the design aspect through to developed solutions tested for usage and effectiveness. The final phase looked to close out this work with refinement and requirements to introduce the kit for usage in business as usual.

Through the previous two stages, with assistance from NGT, Steer Energy have created the Valve Care Toolbox which, through an "Inform, Assess, Clean and Protect" methodology gives:

- Assessment of the reasons for valve failure
- Remediation and repair in and around the valve quadrant and stem extension areas,

therefore, reducing the need for replacement

- Protection to arrest corrosion within the stem extension and extend asset life. Once field ready, this work therefore will provide the following benefits:
- Assess and measure the condition of assets (valves) in the network
- Captures data on the condition of network
- Allows valves to be repaired instead of replaced
- Enables Targeted, planned maintenance via a risk-based approach, increase efficiency of resources
- Life extension of the network

The current field ready kit comprises of Pump Skid, Borescope, Steering device/Control Lines, Insertion Device, Agile Dipsticks, and Measurement Tools.

The benefits

- Significant financial savings are possible by reducing the number of valve replacements and extending network life.
- The programme will provide a structured approach to the evaluation of appropriate methods to address valve stem issues across National Gas Transmission.
- The toolbox will provide a range of solutions to implement effective valve remedial actions.
- With the roll-out of the ValveCare toolkit being proposed into National Gas Services (NGS). This could provide commercialisation opportunities for NGS to sell this valve intervention method as a service to other Gas Distribution Networks and utilities.
- Enables Targeted, planned maintenance via a risk-based approach through the CM4 surveys.



Financial savings

Projected Volume of Valve Replacements during RIIO-2 = 42

Average Unit Cost of Valve Replacement = £368k

Projected average cost of Valve Care Toolbox remediation = £35k/valve.

Potential projected average cost saving due to Valve Care Toolbox = £333k valve.

Projected percentage of effective valve stem remediation due to Valve Care Toolbox, negating valve replacement = 20% (9 valves)

Potential cost savings due to Valve Care Toolbox = £3m during RIIO-2

The Valve Care toolbox was used at Kings Lynn CS to assess 2 valves. Costs are in the order of £100k per valve to safely excavate a valve for assessment. Having Steer Energy (Supplier) on site using the Valve Care Toolbox for 1 day cost approx £1.5k. Therefore, making an approximate saving of £198.5k to assess the 2 valves. This saving will increase the more the toolbox is used. The toolbox is planned to be deployed at the request of the Refurb & Relief Team on another 5 valves in the North of the network and at the request of East Operations on another 2 valves, thus making further savings to be tracked.

Implementation

This approach has been rolled out across the business to improve current activities and enable repair/ remediation work to be completed effectively when required.

