High Volume Gas Escapes Toolkit (HVGET3)

SGN Lane Rental Industry Publication

Introduction

High volume gas escapes (HVGE), although uncommon, disrupt both household gas supplies and the travelling public from the resulting roadworks. The ability to carry out any repair as quickly and safely as possible is therefore essential. This has historically been achieved through applying a temporary solution, such as intervention on the leak location and capturing the gas in a confined area (e.g. the excavation) which is not ideal.

To improve on current methods, SGN proposed a High-Volume Gas Escape Toolkit (HVGET) to provide a suite of solutions which could address environmental, safety and disruption issues associated to this type of event.

The Project

The initial concept design investigated several ideas through a “blue sky approach”, identifying a range of seven concepts covering the key areas to help SGN respond to HVGEs. These concepts were filtered down following analysis and discussions via a working group to determine the key components for the Toolkit, enabling an operationally driven design, focusing on the following scenarios where HVGEs may arise:

- Excavator damage / puncture
- Broken metallic mains (circumferential cracks)
- Standpipe damage (commonly damaged on both PE and metallic mains)

Figure 1 - Frog Tool

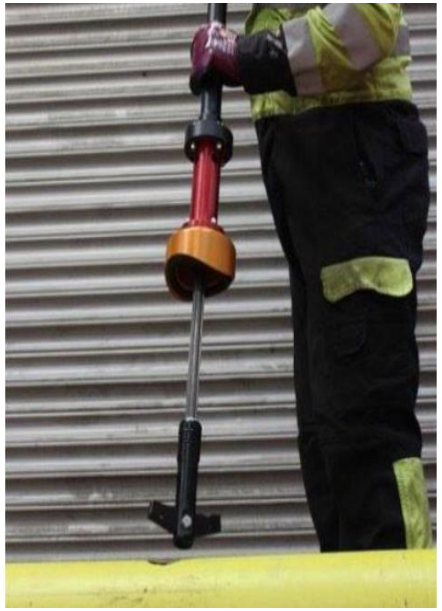

Figure 2 - Bosie Tool

Figure 3 - Bung Tool

Figure 4 - Bung Tool (with handle)

Outcomes

The following four tools were identified as best value and having the greatest impact for both metallic and polyethylene mains and were developed in various sizes:

- Bung Tool with two types, pipe diameter and pipe end
- Frog Tool with four different pipe size cups
- Bosie Tool with four different pipe size covers
- Control module for both the Bosie and Frog Tools.

This stage also defined how these tools should be qualified for field use. As designs were developed to allow the operator to gain control of the main rather than fully seal it, a typical test-based programme would not be suitable. Therefore, a mixture of lab testing and experience-based workshops was agreed.

Final engineering designs were developed and four HVGETs were manufactured along with field-ready tools for testing in a London centric live operational environment. A training package was also established to prepare for roll-out into "business- as-usual".

Conclusion

The next stage will be the five-month field trial in the London region starting in March 2022, when

these tools will be evaluated. During this period any modifications will be made so that it is viable to implement the tools across the

whole of SGN later in the year.

There are clear benefits from the HVGET project providing reductions in carbon emissions, network occupation, disruption to gas customers and minimising the environmental impact of HVGEs.

SGN's long-term priority is to be carbon neutral by 2045 and immediate benefits can start to be realised through the development of more carbon friendly technology such as the HVGET and the continued development of it will support this.

TfL Lane Rental Scheme

Optimising customer journeys through the delivery of safer, innovative and sustainable roadworks

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