



# STATs Isolation Plug

Value Tracking Case Study



# Inline Isolation Tool

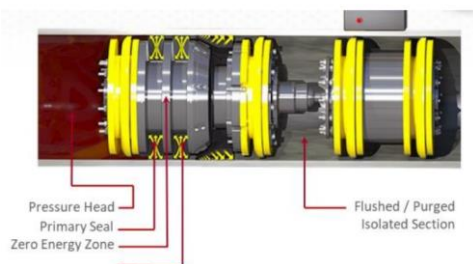
## Background

National Gas policies and processes specifies that if construction and/or repair work is to be carried out on the National Transmission System (NTS) then network isolations are required utilising the valves present on the network. This allows an isolation to be achieved, stopping the flow, and facilitating the vent procedures to make safe the area before work can commence, however this brings a challenge of potentially needing to isolate large lengths of the feeder pipe and vent a considerable amount of natural gas to the environment so that work can continue. In many cases isolations cannot be given by the Gas Network Control Centre (GNCC) as the impact to the wider NTS is too great, therefore construction/repair work cannot be carried out. As part of the innovation fund incentive on regulated gas transmission companies, National Gas wish to explore the opportunity to investigate and where viable, trial inline isolation tools for onshore pipeline use.

## What's new?

An inline isolation tool is device which is inserted into the pipework via the PIG trap and is positioned by regulating the flow in the pipeline. When it is in position, grips are engaged on the internal pipe wall to ensure the tool cannot dislodge, at this point the device creates a plug in the pipeline and stops the flow. The use of this device could substantially reduce the amount of pipework that is isolated and the impact on the wider NTS.

### The Stats Remote Techno Plug



## The benefits

If inline isolation tools are used on the NTS then the extent of the isolation will be significantly reduced

due to the downstream block valves not requiring to be used. With a reduced isolation length, the amount of natural gas that is vented to atmosphere will be reduced having an environmental and financial impact each time the tool is used. Additionally, there are significant savings in not requiring a recompression unit which are in high demand and the tool could prevent the need to drill into the pipe and create a fitting which creates an ongoing maintenance required.

## Financial savings

The innovation project carried out a feasibility study into the technology and researched the impact that the tools may have on the internal surface of the pipeline. Following on from the project the business progressed the work to ensure the operation was compliant with National gas standards and procedures and facilitated the first use of the tool at one of our sites. It is assumed that the cost of the tool is roughly equal to the cost of the alternative, however significantly less gas is vented in the process, this is highlighted below from the first use of the tool in terms of emissions prevented and the equivalent cost of that emitted gas.

### Existing option - Venting back to the next isolation point:

- 58km between the site and the next operational ball valve.
- 7 bar(g) using a recompression rig ~£100k  
Recompression cost
- 7bar/km @ 4 tonnes of gas/km.
- Total = 232 tonnes
- £439/tonne (Cost of gas) = £101,848

**Total Cost: £125,106 + Recompression = £201,848**

### New option using the Inline Isolation tool

- The tool isolated 300m downstream within the pipe
- No requirement for recompression rig venting cost
- 55bar line pressure over 280m @34 tonnes of gas/km
- Total = 9.5 tonnes
- £439/tonne (Cost of gas) = £4170.50

**Total Cost: £4170.50**

**Total savings = 222.5 Tonnes of gas and  
£197,677.50**



Within the RIIO 2 business plan for National Gas, it is planned that potentially 41 Insulation joints will be replaced over the period.

**Total savings = 9122.5 Tonnes of gas and  
£8,104,777.50**

## Outcome

- Review the strain gauge results from the Lochside work and compare with the offline results
- Document functional requirements for In Line isolation assessment and procedure for application.
- Amend existing documentation or draft standalone document.
- Review the TDW Tool.
- Roll out with construction – understand other suitable locations for in line isolations.

