Pipeline Blowdowns - Distribution

Dennis Ruppert
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Who is National Grid - UK

UK Electric

UK Gas

11 Million UK Customers
Who is National Grid - US

- US Electric
- Over 10,000 miles of electrical transmission network
- 680 substations
- 4.4 Million Electric Customers
- 122,000 miles of distribution network
- 6,650 MW of generation
Who is National Grid - US

- US Gas Distribution
- 4,300 miles of high pressure transmission pipe
- Over 3.4 Million Customers
- 32,000 miles of main
- 7 Coastal Terminals
- 26 Compressor Stations
National Grid is committed to promoting environmental sustainability by adopting best practices in resource management and implementing mitigation and adaptation measures. The company is committed to a target of reducing greenhouse gas (GHG) emissions from its operation by 80% by 2050, and reducing methane emissions is an integral component of that target and National Grid’s overall climate change strategy.
Reduction from Main Replacement

Methane emission reduction from replacement of leak prone pipes (LLP)

- Miles of pipes replaced
- mt CO2e

2011: Cast iron 100, Bare steel 200, Total 300
2012: Cast iron 150, Bare steel 250, Total 400
2013: Cast iron 200, Bare steel 200, Total 400
2014: Cast iron 250, Bare steel 150, Total 400
2015: Cast iron 300, Bare steel 100, Total 400

- Cast iron
- Bare steel
- Total cumulative emission reduction
Aging Infrastructure
The company has committed to increasing the rate of leak prone pipe renewal to reduce methane emissions and the risk of leaks.
Joint Configuration
Technology Solutions

Cast Iron Sealing Robot - CISBOT
CISBOT TOOL HEAD

- Extension Arm
- Forward Lights
- Forward Camera
- Side Lights/Camera
- Top Lights/Camera
- Drive Wheel with Internal Motor
- Drilling/Injection Assembly
CISBOT

- Live Gas operation
- Small foot print - From one excavation it can seal 120 Joints
- Precise – monitored drill pressure and sealant flow rate
- Seal all the joints, including joints with existing leaks and prevents future leaks
Cured In-Place Lining
The liner is a seamless/joint-less circular woven fabric-hose made of polyester yarns and a plastic coating (PU/PE) which is bonded as inner liner into the host pipe using a solvent-free two-component adhesive.
CIP - Starline 2000
Technology Solutions

Drawdown Compressor
National Grid Process

- Original Process
  - Isolate pipelines
  - Blow gas off to the environment

- Current Process
  - Vent as little gas as possible
  - Isolate pipelines
  - Reduce pressure by feeding customers
  - Use the Grimmer Schmidt compressor to remove remaining gas
MonoBlock Series
Model NGG 351-41
Natural Gas Well Booster
Grimmer Schmidt

Suction Pressure From ........................................0 psig to 15 psig
Discharge up to ..................................................100 psig
Gas Production Volumes to ..................................575 MSCFD
Booster Type .....................................................Model NGG 351-41
                             Single Stage
                             4 Cylinders
                             Reciprocating
Engine ...............................................................Ford V351
Operating Range ...............................................1000-2400 RPM
Weight (Gross) ..................................................1500 lbs.
Drawdown Compressor

Live Main Segment

Pressure Regulator ByPass

Isolated Section of Main

Stop OFF point
Program Status

- Grimmer Schmidt sold to Chicago Pneumatics in 2010
  - Looking for additions and replacement solutions
- Higher discharge pressure
  - Transmission pressure application with no lower pressure mains in the area
  - Ability to store gas in trailers
Questions