Install Excess Flow Valves

PRO Fact Sheet No. 610

Applicable sector(s):
- ☐ Production
- ☐ Processing
- ☐ Transmission and Distribution

Partners reporting this PRO: Bay State Gas
Other related PROs: None

Technology/Practice Overview

Description
Gas line breaks from ground movement, natural disasters, or third party damage can result in potentially catastrophic events from gas release into the atmosphere. Partners reported automating shutoff of a ruptured gas service line by installing excess flow valves.

The excess flow valve responds to the high-pressure differential, created when a line is severed, by snapping shut to stop the flow of gas. Therefore, the amount of gas that would have otherwise escaped into the atmosphere in the event of a rupture is retained within the closed system. The valves do not protect against slow leaks such as those caused by corrosion or loose fittings.

Operating Requirements
Excess flow valves should be tested and proven at the time of installation and at periodic intervals not to exceed one year.

Applicability
These safety valves may be applied to all gas service lines.

Methane Emissions Reductions
The amount of avoided methane emissions is a function of the service line diameter and pressure. Based on the formula in the Pipeline Rules of Thumb Handbook (4th Edition, page 278), 16 Mcf per hour is emitted from a ½ inch service line at 50 psig. This is the estimated hourly gas savings when an excess flow valve is activated in response to a rupture along the service line.
Economic Analysis

Basis for Costs and Savings
Methane emissions reductions of 16 Mcf per year, costs, and payback apply to installing 350 excess flow valves, of which 1 is activated in a year. The valves are installed on a 50 psig, ½ inch service line.

Discussion
The primary consideration for companies when installing excess flow valves is to avoid catastrophic events, not reduce methane emissions. The economics of this PRO are based on the assumption that excess flow valves are installed on new and replacement high-pressure service lines.