

Design Isolation Valves to Minimize Gas Blowdown Volumes



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 606

Applicable sector(s):

Production Processing Transmission and Distribution

Compressors/Engines
Dehydrators
Pipelines
Pneumatics/Controls
Tanks
Valves
Wells
Other

Partners reporting this PRO: Iroquois Gas Transmission, PG&E National Energy Group (now Gas Transmission Northwest), Tennessee Gas Pipeline Company

Other related PROs: Move Fire Gates In to Reduce Venting at Compressor Stations, Inject Blowdown Gas into Low Pressure Mains, Redesign Blowdown Systems and Alter ESD Practices

Technology/Practice Overview

Description

When individual compressors or other equipment in a compressor station are taken out of service, valves are closed and the natural gas between the valves is vented to the atmosphere. Through an improved compressor facility design, one partner has reported reducing the volume of gas emitted when sections of isolated equipment are blown down.

To implement this strategy, the partner has designed new compressor stations with isolation valves positioned in closer proximity to compressors. Due to this design alteration, when the valves are closed, significant lengths of gas-filled piping will not be vented to the atmosphere, thereby reducing methane emissions.

Operating Requirements

There are no changes in operating requirements.

Applicability

This practice can be implemented in new station designs or existing station renovations.

Methane Savings: 130 Mcf per year

Costs

Capital Costs (including installation)

<\$1,000 \$1,000 – \$10,000 >\$10,000

Operating and Maintenance Costs (annual)

<\$100 \$100-\$1,000 >\$1,000

Payback (Years)

0-1 1-3 3-10 >10

Benefits

Reducing methane emissions was a primary justification for the project.

Methane Emissions Reductions

Methane emissions reductions are estimated from the length, size, and operating pressure of piping excluded from the isolation loop by the new location of isolation valves.

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 130 Mcf per year are associated with the relocation of two compressor station isolation valves to exclude 200 feet of 24-inch pipeline at 600 psig from being blown down five times per year.

Discussion

While there are no operating and maintenance costs, alterations of, or addition to, the isolation valves at a compression station involve engineering and construction costs, which if aimed at minimizing gas blowdown, would be offset by gas savings.