

Install Ejector



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 404

Applicable sector(s):

Production Processing Transmission and Distribution

Partners reporting this PRO: Marathon Oil Company

Other related PROs: Use of Clock Spring® Repair, Reinject Blowdown Gas into Low Pressure Mains

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

Technology/Practice Overview

Description

When compressors or pipelines are taken out of service for maintenance or operational needs, it is common practice to vent the contained, high-pressure gas to the atmosphere. While partners have reported using portable compressors to transfer this gas to another operating gas pipeline, an alternative is to install an ejector.

An ejector is a venturi nozzle that uses high-pressure gas as motive fluid to draw suction on a lower pressure gas source, discharging into an intermediate pressure gas stream. The ejector can be installed on vent connections up and down stream of a partly closed valve, or between the discharge and suction of a compressor which creates the necessary pressure differential.

Operating Requirements

Operating gas pipeline must have sufficient pressure to sustain a pressure drop to power the ejector transfer.

Applicability

This practice requires an adjacent operating pipeline with vent connections on both sides of a block valve or compressor, in close proximity to the pipeline being taken out of service and depressured.

Methane Emissions Reductions

Methane savings include the methane content of gas that is transferred from an out-of-service system to an operating system that would otherwise be vented to the atmosphere. One partner reported saving more than 8 MMcf during a 55-month period using an ejector installed on a pipeline bleeder.

Methane Savings: 700 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.

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 700 Mcf per year apply to one ejector installed to evacuate 2 miles of 18 inch out-of-service pipeline from 600 to 50 psig, using 200 feet of 1 inch piping connections, once per year.

Discussion

This practice can provide a payback in less than three years. Operating and maintenance costs are very low because an ejector has no moving parts. The cost to purchase and install an ejector and associated small diameter piping connections, and the cost of horsepower energy used for the motive gas to inject the recovered gas into an operating pipeline, are paid out by gas savings.