

Install BASO[®] Valves



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 611

Applicable sector(s):

- Production Processing Transmission and Distribution

Partners reporting this PRO: Phillips Petroleum (now ConocoPhillips Company)

Other related PROs: Lower Heater-Treater Temperature, Install Electronic Flare Ignition Devices

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

Technology/Practice Overview

Description

Crude oil heater-treaters, gas dehydrators, and gas heaters burn natural gas in air-aspirated burners to provide processing heat. Strong wind gusts can blow out the pilot flame resulting in methane emissions. Gas leaks will persist until the pilot is relit.

Partners have reported using BASO[®] valves to prevent this gas loss and methane emissions. BASO[®] valves are snap-action valves activated by a thermocouple that senses the pilot flame temperature. When the flame is extinguished, the valve automatically shuts off the fuel gas flow, preventing continued fuel loss and methane emissions. These valves are particularly effective at remote, manned production sites.

Operating Requirements

The maximum inlet pilot gas pressure allowed is ½ psig.

Applicability

This technology is applicable on all gas-fired heaters.

Methane Savings: 203 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 the primary benefit of the project.

Methane Emissions Reductions

The methane emission savings are calculated for a fuel gas rate that heats crude oil to 100° F, assuming 75 percent efficiency. One partner reported methane savings of 222 Mcf per year for a single installation.

Economic Analysis

Basis for Costs and Savings

Methane emissions savings of 203 Mcf per year are estimated for installing a BASO® valve on a 1,000 bbl per day heater-treater that experiences a flameout period of 10 days annually.

Discussion

This technology has a quick payback. The economic benefits are complimented by improved safety. Each BASO® valve costs less than \$100.