

# Achieve Compliance of EPA Regulations with Zero Emission Actuators

## KEY RESULTS

- > A natural gas transportation company transitioned to zero emission electro-hydraulic actuators, making them the standard choice for future pipeline expansions.

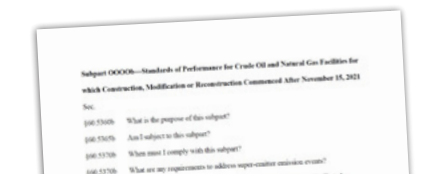


*Zero emission electro-hydraulic actuator.*

## CHALLENGE

This natural gas transportation company was seeking solutions to comply with upcoming EPA regulations<sup>1</sup> requiring zero methane emissions from their midstream transmission pipeline operations. Traditionally, their shutdown valves have used low-pressure scotch yoke actuators driven by regulated pipeline fuel gas, which vented to atmosphere after each valve operation.

Rapid cuts in methane emissions (a super pollutant) are crucial for cutting carbon dioxide to help slow the rate of warming the earth’s atmosphere. They needed a reliable zero emission actuation package for operational and safety shutdown valves across their pipeline network.



### NOTE

- Code of Federal Regulations  
EPA Title 40  
CFR Part 60  
Subpart 0000b

## SOLUTION

Bray recommended the Series 98EH electro-hydraulic actuator package for critical safety shutdown applications, including line break operations and metering station switching. The Series 98EH offers multiple configurations, customization, and flexibility to provide the ideal solution for these difficult applications.

- > Completely self-contained. (No pipeline gas used for operation).
- > Can be operated by solar or wind charged power packs.
- > Double acting or spring return.
- > Adjustable closing speeds.
- > Precise controllability and repeatable accuracy.
- > Fail freeze, fail last, fail open, or fail close using spring or stored accumulator energy.
- > Emergency Shutdown (ESD) capable, including Line Break with Partial Stroke Testing (PST) activated and recorded by the pipeline control system.
- > Safety Integrity Level (SIL) capable.

In addition, Bray’s simple design uses standard electric and hydraulic components which are easily sourced, and do not depend on the manufacturer for routine maintenance and repairs.

## SUPPORT

Bray’s Actuation & Controls Team provided full technical support throughout the entire process, from factory acceptance testing to field installation and startup — including customization to meet any specific operating requirements. Comprehensive training was provided on the products, with detailed instruction manuals, maintenance procedures, and troubleshooting instructions.



*Bray Series 98EH double acting actuator with stored energy accumulator mounted on gas transmission ball valve.*

**RESULTS**

Bray’s Series 98EH actuator solutions allowed this customer to successfully transition from pipeline gas powered actuators (that exhaust to atmosphere) to zero emissions electro-hydraulic actuation — complying with all EPA environmental legislation.

Bray’s dedication to managing each project — from initial scope to successful installation and startup, with seamless communications throughout — was a pivotal factor in this natural gas provider’s decision to **standardize on the Series 98EH actuator** for future pipeline expansions.



*Switching Service — 120VAC powered S98EH spring return actuators mounted on ball valves used on a pipeline manifold.*

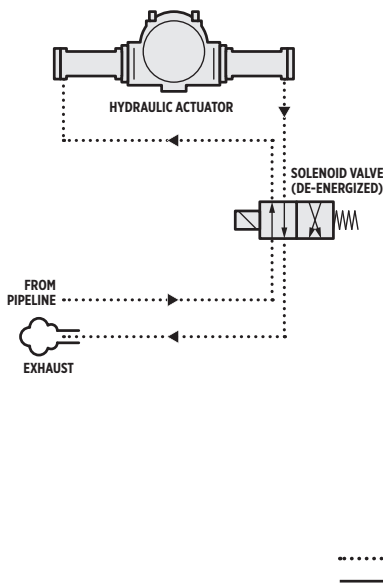


*(Above and Right) Line Break Service — 24VDC powered S98EH double acting actuators with stored energy accumulator mounted on ball valves.*

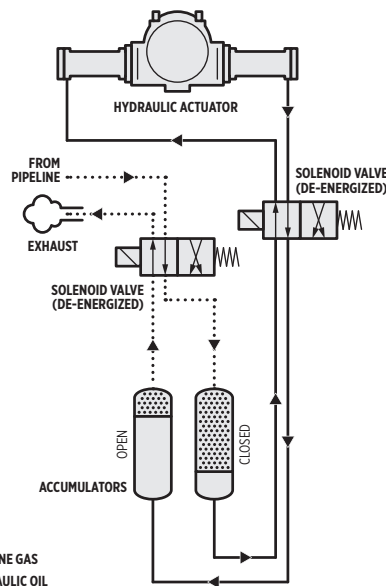


**PIPELINE VALVE SAFETY SHUTDOWN ACTUATORS | GAS POWERED vs ELECTRIC POWERED**

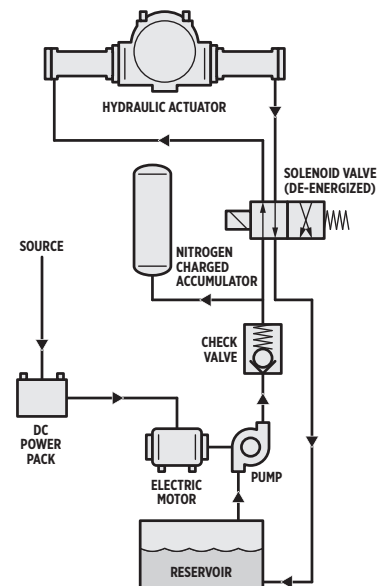
**DIRECT-GAS ACTUATOR**



**GAS-OVER-OIL ACTUATOR**



**ELECTRO-HYDRAULIC ACTUATOR**



**DISADVANTAGES | METHANE EMISSIONS**

- Pipeline fuel gas pressure needed to power actuator.
- Torque is limited to minimum pipeline pressure.
- Pipeline fuel gas **exhausts to atmosphere** after valve strokes.
- Gas-Over-Oil actuator seal leakage allows hydraulic oil to exhaust to atmosphere.
- Direct-Gas actuator is exposed to pipeline gas condition and suspended solids.

**ADVANTAGES | ZERO EMISSIONS**

- Actuator powered independently of pipeline fuel gas.
- Torque is consistent regardless of pipeline pressure.
- Power is **zero emission** clean electricity.
- Actuator hydraulics are a closed loop system.