Electrically Actuated Motor-Valve (EAMV)

Reduces Emissions in Remote Sour-Gas Well, Saves Automation/Controller, $23K Annual OPEX

Objectives

- An Oman gas-condensate operator sought to reduce the costs and logistics required to supply the compressed gas needed for the continuous operation of five plunger-lift wells using a pneumatically actuated control-valve. The presence of sour gas and remote location of this sandstone reservoir added to the complexity and expense for maintaining the dual-gas system, demanding copious amounts of natural gas and field time.
- Improve greenhouse emissions by eliminating the ventilation of sour gas produced during normal action of the pneumatic system. A clean supply of natural gas was not readily available for the valve's operation, necessitating the continuous importation of natural gas to the isolated area.
- Reduce related OPEX costs to maintain and operate the control-valve system and replace the existing bottle-gas-driven instruments with cost-effective alternatives.

Our Approach

- Following a thorough examination of operator needs and circumstances within the low-permeable, sandstone formation, Weatherford artificial-lift specialists formulated a strategy that would modernize the plunger lift with the EAMV. This exclusive, field-proven system maximizes the operational efficiency of an existing, standalone controller with automation equipment using its intermittent functionality. Featuring its easy installation and flexibility to handle remote desert conditions, the EAMV avoids sour-gas leakage using its motorized actuator and three-way pilot valve that does not bleed any amount of supply gas.
- Leveraging its field-proven, "green-energy" solar panels, the EAMV powers its actuator by converting the existing pneumatic equipment into a self-sustaining, electric-powered unit. The flexibility of this system does not require stripping out all the surface equipment since it adapts to the motor valve and its controller into a unified package.
- The EAMV was wired to the standing plunger-lift controller and works in combination with a quarter-turn actuator and ISO-5211 connection in conjunction with an interface-junction box and relay. The electric actuator is certified Class-1, Division-1 with a Nema 3R enclosure for harsh environments. Its solar panels feature a built-in battery-backup for a fail-safe configuration that covers open and closed positions for parked or continued operation in the event of any power loss. Additional safety features include an override function that allows manual valve-operation in case of emergency.

Value to Customer

- With its self-sustaining solar panels, the EAMV dramatically simplified the continuous operation of the five plunger-lift wells. By removing the need for bottled-gas deliveries and the associated time required to maintain the surface equipment in the remote, desert environment, the operator now saves $23,550 in OPEX costs annually.
- The EAMV successfully controlled the well's intermittent functions without releasing sour gas into the atmosphere, creating emissions reductions for a more-sustainable, environmentally friendly solution.

The Weatherford EAMV utilizes a field-proven, intermittent vent-controller with a three-way pilot valve classified as a non-bleed device for cleaner operations.

LOCATION
MENA, Oman

WELL TYPE
Tight gas-condensate

HOLE SIZE
9-5/8 in. (244.48 mm)

TUBING SIZE
2-7/8 in. (73 mm)

WELL DEPTH
MD: 11,482 ft (3,499.71 m)

LINER DEPTH
MD: 16,404 ft (5,000 m)

TEMPERATURE
200°F (93°C)

PRODUCTS/SERVICES
- Plunger-Lift Systems
- Automation Systems

Weatherford®

