Digitalization Enhances Efficiency and Safety in Greenfield LNG Project

RESULTS

- Fisher™ FIELDVUE™ DVC6200 digital valve controllers, with their proactive predictive capabilities, enabled a robust and uniform digital configuration of the LNG plant's on/off automated valves. This foresight maximized operational efficiency with higher plant availability and reduced equipment downtime, providing higher trust in mechanical assets at the control host level.
- Proper valve assembly enabled faster installation and reduced commissioning time, which supported faster plant start-up and early plant productivity.
- Having a single supplier for both the Valve Operating System (VOS) and actuator solutions provided the customer with peace of mind. It offered a unified source of reliability data and a comprehensive package, eliminating the need to manage components from multiple vendors. This streamlined the process for safety reliability calculations, making them easier, simpler, and more efficient. Additionally, the convenience of a single warranty and technical support from a full-service provider was invaluable for smooth project execution.

APPLICATION

Fisher FIELDVUE DVC6200 digital valve controllers, Bettis™ CBB, Bettis CBA and Biffi™ ALGAS actuators installed in an LNG liquefaction plant's on/off mechanical valves.

CUSTOMER

Greenfield LNG project in North America with two liquefaction trains, two storage tanks, and associated facilities.

CHALLENGE

In building the LNG facility, the customer was concerned with these key challenges:

Understanding the health of on/off valves: Mechanical valves play a crucial role in both process and safety controls, particularly in automated on/off applications within a Basic Process Control System (BPCS) or Safety Instrumented System (SIS). However, traditional on/off mechanical valves

Emerson's Fisher DVC6200 SIS with Bettis G Series actuator

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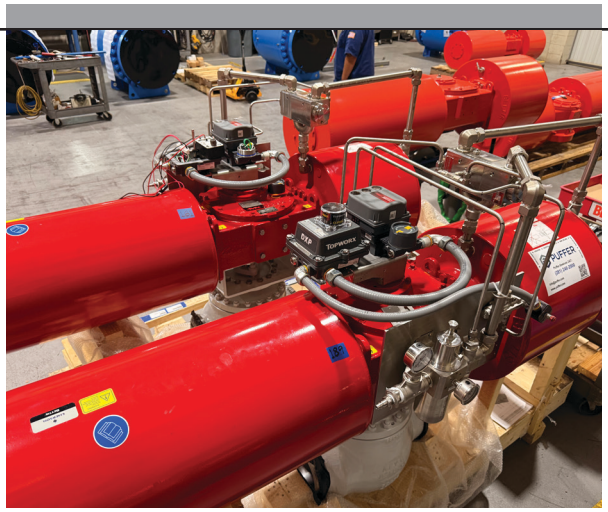
are operated by non-communicating solenoid valves, with no visibility into valve status at the control host system. As a result, these on/off valves remain invisible to operators in the control room, creating a significant risk to plant operations. Typically, these valves are either air or electrically operated and remain in one position for extended periods of time. Without travel and status of on/off valves, operators cannot ensure they are functioning properly.

Performance degradation: On/off valves are typically in a static or dormant state. This can lead to process buildup on the moving parts over time, depending on various conditions such as process fluid, physical fluid properties, operation history, maintenance practice, and environmental conditions, among others. This creates the potential for valves to not function as intended.



Final element of the safety loop with Emerson's Fisher FIELDVUE mounted on a Bettis actuator

SOLUTION

Emerson is highly experienced in providing digital solutions for automated on/off valves in LNG plants. After having various levels of technical discussions with Emerson experts, the customer understood the value of digital valve controllers' diagnostics and prediction capabilities and agreed to digitalize the facility's on/off mechanical assets.

The microprocessor-based digital valve controllers provide significant field intelligence on the mechanical integrity of on/off valves, aiding predictive maintenance with a detailed valve degradation analysis. This is particularly important for on/off valves since these assets remain stationary during normal operations. By closely monitoring these valves, the digital valve controller increases uptime and reduces the amount of scheduled maintenance.

Digitalization can monitor valuable information, including:

- Valve seat integrity
- Erratic valve performance
- Pneumatic leaks for air-operated valves
- Worn valve components
- Actuator problems
- Overall integrity of valve assembly

Installation of the Fisher FIELDVUE DVC6200 digital valve controller enables the following results:

- Improve plant safety due to continuous on/off asset monitoring
- Reduce labor and hourly costs due to remote commissioning and access

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- Achieve uniformity of valve setup and configuration of parameters across the plant's on/off valves due to a single digital configuration template
- Create an electronic "birth certificate" of the mechanical valve as documentary evidence during plant handover and benchmark for future reference (which will reduce maintenance cost during turnaround)
- Increase plant uptime due to remote communication while the valve is in service
- Ensure lower maintenance cost and ensure faster restart of plant operations after a turnaround

Emerson's valve solutions are trusted by the world's largest and most complex LNG projects and facilities

From project initiation to facilities maintenance, Emerson offers the most complete portfolio of valves, actuators, and regulators designed to optimize the entire LNG value chain. Our future-focused solutions harness the power of data to reduce emissions, increase plant safety, ensure equipment reliability, and save costs.

Learn more:

- Emerson's LNG valve solutions: Emerson.com/LNGvalves
- Fisher FIELDVUE DVC6200 digital valve controller: Emerson.com/FisherDVC6200
- Bettis actuators: Emerson.com/en-us/automation/bettis
- Biffi actuators: Biffi.it

Listen to the podcast of this Proven Result on the Emerson Automation Experts Podcasts:

Boosting Efficiency and Safety: The Power of Digitalization in Greenfield LNG Projects

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