The VUE To Success

A publication of Fisher Controls' FIELDVUE Instrumentation Team.

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PlantWeb™ Performance Labs Enable 'Live' FIELDVUE® Demonstrations

The Fisher Valve division and its FIELDVUE Instruments personnel are using new PlantWeb® Performance Laboratories to support their digital-valves differentiation message. These "flow loop" demonstration areas are now in operation in Marshalltown (Iowa, USA), Cernay (France), and Singapore.

A PlantWeb Performance Lab has working process-control loops featuring a variety of field devices linked to a DeltaV™ system. Surrounding the loops are all the resources needed to establish remote, video connections between the factory and the customer or sales-office site.

Neal Rinehart, Director of Control Valve Performance Technologies, said, "We are using these loops to compare our valves, one on one, with competitors' products and show our customers—via remote links—both the test and its results."

Lorin Miller, one of three FIELDVUE Product Managers in Marshalltown, says Fisher has had loops and conducted performance tests since the mid-1990s. "This new Performance Lab design combines that vast experience and incorporates many of the improvements we've made over the years."

Since October 2002, the Marshalltown site alone has used its PlantWeb Performance Lab for live presentations to more than 450 different customer sites.

In September 2003, Fisher introduced a new brochure on its lab resources and hosted an "editor's day" at the Marshalltown site. Editors from major industry magazines, including those in

Fisher engineers designed the new PlantWeb™ Performance Laboratories used in Marshalltown (USA), Singapore, and Cernay (France).

Canada and Argentina, toured product-development and testing facilities at the Tech Center. An impressive new conference room and product-testing areas focused on acoustics, vibration, and materials selection complement the Marshalltown lab.

"These new facilities are state-of-the-art, demonstrating our 21st Century engineering capabilities," Neal said. "They represent the Fisher Valve division's continuing commitment to and investment in digital technology and product development."

To see or schedule a "live" demonstration, contact your local Fisher Representative.

FISHER®

EMERSON™
Process Management

Digital Valve Diagnostics Optimize Maintenance On Remote, Cyclone-Prone Platform

Australia

According to Iain McKenzie, Engineering Manager for BHP Billiton-Petroleum's Australian Operated Assets, the North West Pibrara coast of Australia can be an inhospitable place. And he ought to know. Between heat waves and tropical cyclones, Iain and his team operate an off-shore FPSO or a "Floating Production, Storage, and Off-loading" facility about 68 kilometers off the coast of Onslow, Western Australia (WA). The facility stores up to 800,000 barrels of oil, drawn from subsea wells, and pumps it to off-take tankers at the rate of 4,000 barrels per hour. In addition, recovered gas is exported by pipeline to BHP Billiton's Gas Export facility at Tubridge WA.

The Griffen Venture FPSO, a fully-classified marine vessel, must maintain a high availability and continue processing, no matter how tough the environmental conditions. When a cyclone threatens, however, the facility disconnects from its mooring risers and sails South to safety. During 2003 (January to June), the facility experienced three cyclone-induced shutdowns.

Iain and his 20-member team use Emerson Process Management's diagnostics technology to make good use of this unexpected downtime. "With more predictive maintenance, we can determine in advance what parts we'll need, order them, and get them transported to the on-shore support base," he said. Or, repair technicians, tools, and spare parts may be flown in via helicopter.

In the past, testing the performance of the facility's 52 control valves was not only difficult, but often dangerous. "Imagine trying to conduct a test with a cyclone at your back and the ship itself heaving and pitching under your feet," Iain said. "If there is a better way, we ought to review it."

Thus, three years ago, GV-FPSO personnel visited Western Process Controls' FIELDVUE demonstration room and launched a positioner-replacement program. Now, many of its control valves include FIELDVUE® DVC6000 Digital Valve Controllers with Advanced Diagnostics (AD tier). More recently, the team has begun using AMS ValveLink® software instead of the FlowScanner™ system.

Jeremy Hale (business development manager) and Shane Hutchison (account manager) of Western Process Controls say that BHP personnel have become FIELDVUE champions. By combining digitally communicating instruments with diagnostic software, they access more detailed information on each device, run tests faster, present results in high-quality graphics (valve-signature curves), and track or trend data over time. Best of all, they can run diagnostic tests remotely while the valve remains in service.

FIELDVUE DVC6000 instruments with advanced diagnostics monitor the performance of 52 control valves on the Griffen Venture FPSO. The facility draws, stores, and off-loads oil and gas from sub-sea wells.

The failure of even one control valve on a facility like the Griffen could cost a half-million Australian dollars. Thus, WPC provides technicians to focus on BHP valve repairs and preventive maintenance.

Iain appreciates Fisher's products and service. "Since applying this technology, we've noticed a marked reduction in control-valve-related production problems and costs," he said. "Fisher's diagnostic capabilities enable us to identify strategic valve repairs and carry them out when it's most convenient for us."

The Vue To Success newsletter is cooperatively produced by Fisher Controls' FIELDVUE Instrumentation and Communications departments.

It is written primarily for Fisher Controls' customers and field sales associates, and distributed as both an electronic and printed piece.

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Shell Refinery Uses On-Line PD Tests To Identify Actuator Blow-By Problem

United States

Shell's refinery in Deer Park, Texas, shared a Performance Diagnostic (PD) success story that illustrates the value and cost-savings potential of Fisher FIELDVUE® technology. Herman Storey of Shell's Automation Engineering group said, "The PD-level FIELDVUE Digital Valve Controllers (DVCs) monitor valve performance under live process conditions and thereby identify problems that other (off-line) methods (and even experienced valve people) would miss."

At Deer Park, DVC6000 instruments monitor ten Fisher A41 butterfly valves with rack-and-pinion double acting actuators. These critical, quarter-turn valve assemblies are installed on a PSA (Pressure Swing Absorption) skid in the Hydro-processing area of the plant. According to DVC feedback, the valves stuck intermittently at 5 to 7% open.

Initial signature and step response tests failed to duplicate the sticking condition because these tests were performed off-line with no differential pressure across the valve. These tests did show the air supply pressure decreased after each stroke indicating low air supply volume. This was corrected with higher volume air regulators and larger tubing.

To identify the sticking problem, an additional test was performed with the valves operating under simulated process conditions. For this test, the technician introduced a differential pressure across the valve. The valve was positioned at the point where it failed to move (about 5%) and a 30% signal was applied. When the actuator failed to stroke to the 30% set-point, PD was initiated.

PD test results indicated actuator blow-by. This problem only appeared during high-torque situations. When technicians disassembled the actuator, they discovered internal evidence of blow-by confirming the pistons were flexing in the cylinders and/or O-ring failures.

The on-line diagnostics enabled Shell's maintenance technicians to identify this rack-and-pinion actuator problem (which only occurred under process pressures) and its cause. Because the blow-by only occurred in the high torque areas of the stroke, normal (off-line) diagnostics would not have exposed the problem.

Al Reddy, Shell Refinery Control Systems Engineer, has learned the value of Fisher diagnostic tools. "The Fisher FIELDVUE team provides an excellent combination of advanced technology and interpretation services," he said. "Fisher diagnostic tools are not only saving us time and money, but also improving our asset-management work processes."

Gas Processing Station Applies DVC-ESD Instruments

Qatar

FIELDVUE® Digital Valve Controllers (DVC) were applied in Qatar, a peninsula north east of Saudi Arabia. The country has one of the world's largest natural-gas reservoirs.

In 2001, Qatar Petroleum (the national oil and gas producer) submitted an order through DOPET, (the local Fisher Representative) and installed 30 DVC instruments for a flares upgrade project at its Dukhan on-shore processing stations. Seven of the units were retrofitted on existing non-Fisher valves with Bettis actuators. The remaining 23 devices were installed on new Emergency Shutdown (ESD) valves from Tyco-FCT with Biffi actuators.

To meet safety and reliability criteria, some of the existing ESD valves (typically used in Safety Instrumented Systems) were required to have partial-stroking capabilities. Most of the API-rated ESD valves are 16 to 24-inch diameter and ANSI Class #900.

Qatar Petroleum mounted a Fisher FIELDVUE Digital Valve Controller on a Tyco emergency-shutdown (ESD) valve at its gas processing station in Dukhan.

FIELDVUE instruments meet the 10% travel range specified for partial stroking. DVC-ESD instruments not only test the valve's mechanical movement, but also allow partial stroking while the valve remains in service.

Critical performance diagnostic data is collected during the partial stroke sequence, moving customers like Qatar Petroleum closer to the goal of predictive maintenance.

Customers Praise PlantWeb™ Performance Labs, Share Results and Benefits of DVC-PD Demos

Japan

Sakura, Japan: Using PlantWeb™ Performance Lab resources, Fisher Research Engineering and Sales personnel in the Sakura factory conducted a five-hour demonstration for a global oil and gas customer. The presentation utilized a 24-inch-stroke on a 20X30 FB antisurge control valve assembly equipped with a FIELDVUE® Digital Valve Controller. Fisher personnel were able to show valve-stroking times under two seconds in control with supply pressures as low as 5 bar. The performance accuracy of the Fisher antisurge valve was well under 1%, compared to equivalent competitors' valves that typically exceed 3%.

Fisher antisurge valve capabilities, including the advanced features of the DVC6000 and AMS ValveLink® software, deliver numerous benefits.

- Optimizes accessory configuration, reducing complexity while improving performance and reliability.
- Reduces tuning time for the typical system from hours to minutes.
- Eliminates damaging noise and vibration with proven WhisperFlo® trim.
- Cushions actuators, enabling controlled deceleration into the travel stops.

Sam Sivaskandan, Fisher's Director of EPC Sales in Asia Pacific, said: "The customer was so impressed with our antisurge technology, he is lending time and support to host subsequent demonstrations."

Jacksonville, Florida, USA: Following a PlantWeb™ Performance Lab demonstration, managers at a power-plant not only decided to purchase from the Fisher Valve Division but also to standardize on the Performance Diagnostic (PD) tier. Their order included PD-level FIELDVUE® instruments and a 500-tag, on-line AMS system with ValveLink® SNAP-ON™ software.

Tom Glaspie, the account manager from Key Controls in Jacksonville, said: "With Fisher diagnostic capabilities, my customer can monitor the performance of every valve and fluid-drive on their network."

PlantWeb™ Performance Lab components include FIELDVUE® DVC instruments and AMS ValveLink® software with Performance Diagnostic (PD) capabilities.

HARTline Article Describes Value Of Using DVC ESD Capabilities

The No.1-2003 issue of HARTline, a newsletter produced by the HART® Communications Foundation, featured an article on the benefits of using FIELDVUE Digital Valve Controllers (DVC) with Emergency Shutdown (ESD) valves. Riyaz Ali of the Fisher Valve Division authored the article titled, "HART® Products Provide Cost-Effective On-Line ESD Testing."

The Fisher technology enables on-line, partial stroke testing while the valve remains in service and thereby avoids costly shutdowns. For the full text, log on to www.hartcomm.org and look under NEWS.

Valves With DVC-PD Instruments Control Molten-Polymer Flow

A polymer producer in Virginia needed to replace seven critical valves that controlled the flow of molten polymer, used to produce nylon yarn and chips. Standard valves, in a jacket for added insulation, could not withstand the high-heat (480-degrees) and severe-service conditions.

The Fisher Valve Division and its Local Business Partner, Control Dynamics, supplied seven High Viscous Polymer (HVP) valves with forged and fabricated bodies made of stainless steel. All seven assemblies included Performance Diagnostic (PD)-level FIELDVUE® DVC6000 instruments to monitor the valves and provide detailed, on-line data about their performance.

As a result of this Fisher-engineered solution, the plant reports more predictive and less costly maintenance.

Fisher Proudly Introduces...

A Stainless-Steel DVC6000 Instrument

Corrosive applications no longer present a challenge to the FIELDVUE® Digital Valve Controller, thanks to a new, stainless steel option. The DVC6000 Series comes with a stainless steel module base, housing, and an all-stainless mounting kit, along with enhanced sealing of the unit's potentiometer shaft. The stainless steel version eliminates all die-cast aluminum parts and greatly increases the DVC6000 instrument's resistance to the tough, corrosive environments found on offshore platforms, within chemical plants, and inside refinery processing units.

Customers get the full functionality, performance, and diagnostics of the DVC6000 instrument in a corrosion-resistant, stainless steel package.

Offshore oil, chemical, and mining customers will use the stainless steel DVC6000 for severe-service applications.

In the North Sea and along the costs of Australia, off-shore oil platforms will use Fisher's new stainless steel FIELDVUE DVC6000 to resist sea water corrosion.

A New FIELDVUE DVC2000 Instrument

In 2004, the Fisher Valve Division introduces another addition to its line of FIELDVUE® Digital Valve Controllers. The DVC2000 compliments the existing product portfolio, offering a simple-to-use device packed with innovative technologies.

The DVC2000's features and benefits include:

- A local user interface with pushbuttons and LCD
- Non-contact, linkage-less position feedback
- Diagnostic capabilities
- A high-performance, two-stage design
- A small, compact package
- Switches, position transmitter

If all you need is a simple, reliable, digital positioner, this base model provides automated local configuration, calibration, and tuning with three button presses. If you want full diagnostics functionality *and* Valvelink® software analysis capabilities for your most-critical applications, however, the DVC2000 instrument can deliver those as well.

The new FIELDVUE® DVC2000 Series controller is part of this Fisher Design GX valve assembly.

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Emerson Education Team Offers New FIELDVUE® Courses

The Emerson Learning Solutions' team introduced several new FIELDVUE courses in 2003 and set dates for them in the 2004 training calendar. These opportunities may be especially valuable for users of FIELDVUE® Digital Valve Controllers and AMS ValveLink® software.

■ **Valve Maintenance with DVC Calibration** (Course #1451) gives FIELDVUE customers a two-for-one option regarding training. The new course combines two days of the traditional Valve Technicians' course with two days devoted to DVC mounting and calibrating. This class is available on March 16-18, 2004 in Marshalltown.

■ **AMS With FIELDVUE Instruments** (Course #7022) is intended to follow the AMS class (#7020). It enables students to effectively use the software to set up DVC instruments and get the most from the AMS database. During 2004, this class will be offered in Marshalltown on Oct. 12 and in Edmonton on Feb. 17 or Sept. 7.

■ **DVC for fieldbus** (Course #7036) is directed to customers who have FOUNDATION™ fieldbus systems installed, including FIELDVUE DVC5000f instruments. This course explains how to set-up and use fieldbus instruments. Plan now to attend 2004 classes in Austin, Texas, on March 23 or Nov. 30 and in Marshalltown on July 6th.

Other 2004, FIELDVUE-related training opportunities include:

■ **Valve Maintenance with DVC using the 275/375 Handheld Communicator** (#1451) – May 17 or Oct. 18 in Marshalltown; June 14 or Dec. 6 in Edmonton.
■ **ValveLink & Diagnostics for FIELDVUE– Data Interpretation** (#1759) – June 21 and Aug. 16 in Marshalltown; August 23 in Edmonton
■ **ValveLink & Diagnostics for FIELDVUE - Operations** (#1752) - June 16, Aug. 11, and Dec. 1 in Marshalltown; April 14 and Aug. 18 in Edmonton.
■ **FIELDVUE Advanced Topics** (#1758) – March 1 in Marshalltown
■ **FIELDVUE Fundamentals** (#1751) - June 14, Aug. 9, and Nov. 29 in Marshalltown; April 12, Aug. 16, and Nov. 1 in Edmonton.

Other sessions may be added as demand increases. To register for a class call 800-338-8158.