



For **Severe Service** Control Solutions, Turn to Fisher Technology and Innovation

## VALVES WITH CUSTOMIZED TRIM PROVIDE TWO-PHASE FLOW FOR OUT-GASSING APPLICATION IN KAZAKHSTAN

Fisher® supplied more than 600 control valves for a new natural gas production plant in Kazakhstan. Besides avoiding problems including cavitation and vibration, the end-user wanted to maintain reservoir pressure, separate elemental sulfur from other gases (propane, butane), and maximize production capacity.

Because of the technical challenges and order volume associated with this project, the Fisher® office in Medway, UK, dedicated a full-time project engineer to sizing and specification of the control valves. That individual received technical assistance from Severe Service experts in Marshalltown, Iowa, USA. With international teamwork, Fisher supplied valves for applications ranging from well-fluids processing to sour-gas injection.

Fisher-Marshalltown engineers also designed and produced a series of sixteen specialty valves, ranging from 12 to 16 inches in diameter. All of them will be installed in out-gassing applications. This application is unique because fluid comes in as a liquid and then, as pressure decreases, releases vapor and becomes mostly “gas” at the outlet. This gas-liquid combination requires specialized, two-phase-flow sizing techniques, and according to one designer, “Throws all the normal sizing rules out the window.”

In addition, the end-user was extremely sensitive about quality and safety.

- They asked Fisher to produce these valves to standards near that of nuclear valves, and
- They designed a single-stream process requiring maximum reliability.

Fisher engineers devoted considerable time and effort to each of these special valves, carefully selecting the best type and size for the application. Characterization curves and loop-tuning analyses helped determine how each valve would work in the process as well as how it would affect or stress the surrounding equipment. According to one designer, “When you’re dealing with sour or entrained gas, a change of two psi can make a huge and potentially dangerous difference.”

The unusual valves included a 16-inch AA valve and 12- and 16-inch Design EUT valves, all with special trims, and a 16-inch EUT with Dirty-Service Trim (DST). The DST trim is designed to address and avoid the problems associated with entrained particulate. All 600 valves for this project included FIELDVUE® DVC6000 instruments, providing Advanced or Performance Diagnostics (valve monitoring) capabilities.

When completed, the gas-production complex on the North East Coast of the Caspian Sea will be the largest single-stream hydrocarbon plant in the world.

For more severe service solutions, see us at [www.fishersevereservice.com](http://www.fishersevereservice.com).



*This Fisher® valve assembly, bound for Kazakhstan, was 13-feet long with a DVC6000-PD, Type 3025 actuator, and a hand-wheel enabling manual on/off.*



Severe Service