

# Application of Bettis Standard Electro-Hydraulic Operators at Jinxi Petrochemical Company in Liaoning Province

## RESULTS

- Standard Bettis EHOs installed on four emergency shutdown valves.
- Emergency shutdown valves can go immediately to the fail-safe position in less than 4 seconds.
- Emergency shutdown valves can be remotely opened and closed from customer's control system.
- Manual operation easily achieved with Bettis EHO hand pump.

## APPLICATION

Customer needed a fail-safe electric valve solution for an aging pipeline improvement project. The pipeline transfers gasoline, diesel, aviation kerosene, and crude oil.

## CUSTOMER

Jinxi Petrochemical Company, a subsidiary of China National Petroleum, in Huludao City, part of Liaoning Province in Northeast China.

## CHALLENGE

Jinxi Petrochemical Company designs and engineers projects for oil refining and petrochemical operations. Company wants to update an aging oil pipeline in the Liaoning Province in Huludao City, located in Northeast China. This pipeline transfers multiple flammable mediums, including gasoline, diesel, aviation kerosene, and crude oil. Company needs an actuation solution to properly maintain each medium like an electro-hydraulic actuator solution with the following attributes: proven safety and fail-safe reliability, remote control capabilities, and ease to use manual operation.

## SAFETY AND FAIL-SAFE RELIABILITY

Company needed a reliable and proven actuator solution to control the flammable mediums in the pipelines. If a dangerous situation was detected, the valves must go to a fail-safe position to prevent a dangerous situation becoming a disastrous one. If the medium in the pipeline are not properly controlled, it would create an unsafe situation.



## REMOTE CONTROL

In addition to having a reliable and proven actuator, company wanted actuators that could be remotely operated. Valves residing in a unmanned location. Needed a solution for the technicians to be able to control the valve's position from another location. Ideally, company needed actuators that could accept simple discrete signals from their SCADA system remotely that would open, close the valve.

## EASY-TO-USE MANUAL OPERATION

Occasionally, a technician would need to service an actuator or shutdown valves. They would need to be able to manually operate the actuators. Company wanted a simple, easy to use, manual operation mode for the technician to use during the service cycle. In addition, the manual operation mode must have a lock out mode to prevent unauthorized access.

## SOLUTION

Bettis EHO met all of company's electro-hydraulic actuator needs.

- Bettis EHO utilizes the Bettis G-series actuator to provide world renowned fail-safe reliability, which has been proven across multiple applications and industries for over 20 years. It uses patented technology like the Tension-Lok™, Acculine™ Drive, and Powr-Swivl™ to provide world class safety, durability, and reliability.
- Bettis EHO utilizes EIM technology to provide a simple yet reliable method for discrete 24VDC remote control. Company was able connect their existing SCADA system with the Bettis EHO through EIM's Separate Terminal Chamber(STC) for remote control. STC is a separate terminal chamber that is hermetically sealed from the electronics of the Bettis EHO, where at no point will the electronics be exposed to the environment when the STC is opened. For remote Open, Stop, Close operation, the Bettis EHO has an option to utilize the internal power supply to provide the 24VDC, or allow the customer to provide their own 24VDC power supply.
- Bettis EHO utilizes Shafer's manual hand pump technology to provide an easy to use hand pump for manual operation. With the hand pump extension, the Shafer hand pump will not require more than 80 pounds of force, and only one or two minutes of manual operation to open the valve. In addition to ease of use, the hand pump is designed with a locking pin feature that can be padlocked to prevent unauthorized manual operation.

For more information on Bettis EHO:

[http://www2.emersonprocess.com/en-US/brands/bettis/products/valve\\_actuators/typeOfActuators/hydraulic/Pages/EHO.aspx](http://www2.emersonprocess.com/en-US/brands/bettis/products/valve_actuators/typeOfActuators/hydraulic/Pages/EHO.aspx)



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