

Application of Fast EIM Electric Actuators in RB-372 Unloading Facility in North Quifa Rubiales Pacific Energy Corp.

RESULTS

- More than 5 years of service of EIM electric actuators in various Rubiales Pacific facilities
- EIM electric actuators automate the process of crude unloading
- TEC2000 actuators allow the valve to operate in either open or close position within 5 seconds

APPLICATION

- Unloading of crude oil-water emulsion through tank trucks
- Pump protection from air suction after unloading

CUSTOMER

Pacific Rubiales Energy, Campo Rubiales, Meta, Colombia

CHALLENGE

Rubiales Pacific Energy, is a key driver in the growth of production and development of oil infrastructure in Colombia, achieving an average gross production of 260,000 bbl/day.

RB-372 is an unloading facility that receives fluid (crude oil-water emulsion), averaging 80% of Basic Sediment and Water (BS&W) through tank trucks from different wells in North Quifa. The process of unloading is performed by pumping the crude through a 20-inch pipeline into the Battery 4 facility, where the crude dehydration process will be carried out.

The facility has 12 bays to unload the tank trucks through a dispatch pump. This pump is used for fluid transport operation in Battery 4.

The facility operates continuously for 24 hours a day, 7 days a week (24/7). The operation is fully automatic. The control system is responsible for the overpressure protection, and monitoring/tracking of the operation.

This facility has an average dispatch of 60,000 Barrels of Fluid Per Day (BFPD) with 350 tank trucks unloading simultaneously every day at a rate of 20 minutes per truck.

The process of opening and closing the valve is fully automatic. At no time, the operator have to give commands on local or remote mode to operate the valves.

There is a total of 12 TEC2000 electric actuators installed on 6-inch butterfly valves which have hard control implemented. Each actuator is permitted to open or close the valve.



“EIM electric actuators are robust and designed to withstand the most unpleasant service conditions. Operators heavily rely on these actuators during field operation every day. The ease of integration with the DCS, which handles different communication protocols, allows the system to be fully automatic.”

Jhon E. Castiblanco Rodriguez
Project Coordinator
Meta Petroleum Corp.



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The principle of operation for the RB-372 unloading facility is as follows:

Under normal conditions, the motor-operated valve is closed. When the tank truck arrives to unload the crude oil-water emulsion, position the trailer as level as possible. Connect the grounding system to the tank trunk, then, connect the tank truck to the principal unloading pipeline through flexible hose. Open the manual valve of the tank truck to allow the flow of fluid through the pipeline. With the grounding system connected and the level switch detecting the fluid in the pipeline, the PLC sends the command to open the actuator to protect the pump from air suction. The process of closing and opening the actuator is accomplished in 5 seconds, being the key time to perform the operation.

SOLUTION

Installation of fast TEC2000 actuators with a 5-second opening/closing stroke to meet customer needs. TEC2000 keeps the process reliable and fully automatic.

The TEC2000 continuously monitors the position of the valve through the APD module which does not require battery back-up of any kind to maintain calibration during loss of power to actuator.



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