Project: Costa Rica – Granadilla Water Tank
Use of Dorot Altitude Controlled Pilot - Sustaining Pressure Pilot Valve

Project objective

The main aqueduct in Costa Rica is operated by the Costa Rican Institute of Aqueducts and Sewers (AYA). There is a gravitational distribution water line that feeds an 20,000 cu.m water tank. This line also feeds another 5000 cu.m tank and supplies water to a considerable population upstream of the tank.

The solution required filling and overflow protection of the main tank while prioritizing water consumption in the upstream supply-line and prevent pressure-surges when closing. The valve should be controlled locally and remotely from the control-center.
Feedback for the momentary flow is required.

The challenge

When the 20,000 cu.m main-tank is filling at an uncontrolled rate, the pressure upstream drops significantly to values insufficient for supplying the upstream demand and which do not comply with the Costa Rican law.

Due to the small space of installation, the valve to install must have both solutions (filling control and pressure-sustaining). Two valves cannot be used and no space is left for an additional flow-meter

In addition, the valve closing-rate must be controlled so that water-hammer is avoided

An old piston-actuated valve previously installed in the system needed to be replaced as it was not providing the full solution and was failing at a high-rate

The solution

Use a level-control, pressure-sustaining hydraulic valve which has a flow meter incorporated into its upstream port

A Dorot Series 300 20"\500mm valve, was installed. The valve's control function includes:
- Pressure-Sustaining
- Delayed-opening (differential) level control using an altitude-control pilot-valve
- A solenoid-valve for remote-control closure via the SCADA system
- An Electro-Magnetic insertion flow-meter calibrated to operate with the valve

When the required pressure upstream drops the Dorot valve is automatically modulated to sustain the minimal pressure required to comply with the regulation and the demand, while filling the tank, preventing overflow and close in a controlled pace when closing.

Dorot Management Control Valves Ltd
E-mail: info@dorot.com / office@dorot.com • www.dorot.com

Results

The Actual Solution is under monitoring – No final results are available yet

Old valve being removed and new brought to site:

New Dorot 30-I-WM-20-AL\PS\EL being commisioned

Dorot Management Control Valves Ltd
E-mail: info@dorot.com / office@dorot.com • www.dorot.com