



## Big Project Requires Great Valves - MONTEREY 5

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By Dorot Control Valves

**Dorot Control Valves ("Dorot") participated in the 'MONTEREY 5' project located in the northern Mexican city of Monterey, specifically in the 'SANTA ROSA' pumping station for potable water.**

**Three 24" Series 300 pump valves were installed as part of the project. Although the station is designed to work with six pumps and six pump valves, at the moment, due to the low flow rates in the area, only three pumps and three pump valves were installed.**

The original pump valve command loops were replaced, flexible 2" pressure pipes were used and the command loop accessories were rearranged in a more aesthetic and efficient way. The valves were reconfigured locally by our subsidiary, 'Dorot Mexico' to meet the needs and requirements 'on the ground'. The valves were installed in 2010, and began operation in 2011.

The valves in the pumping station work at a pressure of 7 bars and flow rate of around 1000 cubic meters per hour. The project is still not fully operational, and currently, one pump and one valve are working. Every few days the working pumps are alternated. The valves have been operating for two years to the customer's satisfaction, with no need for any repairs.

**The Santa Rosa pumping station has an additional two 24" Series 300 valves**, where one valve is working and the second valve is held in reserve. These valves are controlled by Dorot's 'Condor' electronic control system, and their role is to fill a huge water tank at the station. The water tank is filled at varying flow rates defined by the water level in the tank, with a restriction on the maximum flow rate. Specifically, when the water level in the tank is at, or below, 1 meter from the floor of the tank, the Condor controller orders the valve to open to a flow of 2160 cubic meters per hour. When the water level rises from 1 meter to 1.5 meters, Condor orders a flow reduction to 1440 cubic meters per hour. From 1.5 to 2.5 meters, the flow drops to 1000 cubic meters per hour, between 2.5 to 4 meters, the flow drops to 700 cubic meters per hour, between 4 to 5 meters, the flow drops to 350 cubic meters per hour, and when the water level reaches 5 meters, the Condor controller closes the water inlet. The Condor controller receives information from a flow-meter and from a water level meter wirelessly and in real time. In addition, the 24" valves that fill the tank are protected by a cavitation prevention mechanism, as the outlet water pressure is lower than the water pressure into the valve. Without this protection, cavitation can occur and damage the valve.

**Dorot Management Control Valves Ltd**

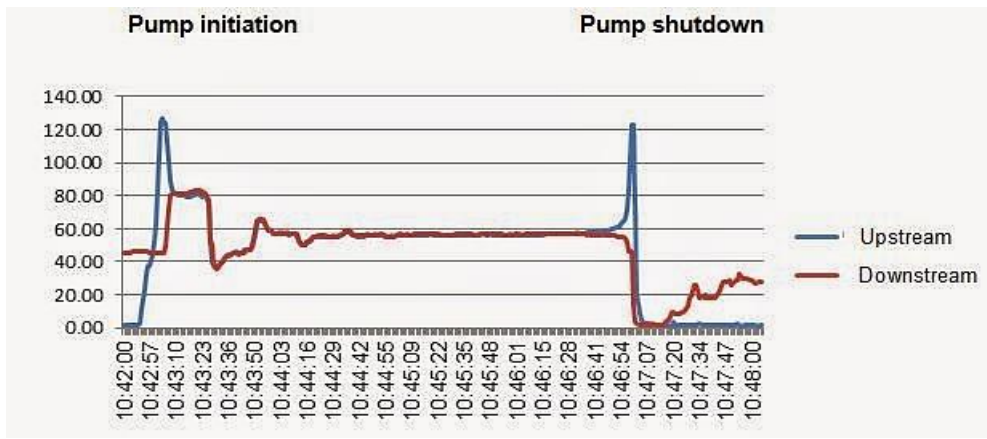
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The station also has two 16" Series 300 water hammer valves, to protect the system from water hammer damage.

The Monterey 5 project supplies drinking water to new residential neighborhoods that are rapidly expanding. The flow rate in the station increases continuously, in line with the increase in the neighbourhoods' population, and the Dorot Mexico support team continues to accompany the project as it grows and expands.

**Pressure behaviour at pump shutdown with and without water hammer protection.**

- Pressure behaviour from pump initiation until 5 minutes after pump shutdown when water hammer protection is activated.



**Pressure behavior from pump initiation until 10 minutes after pump shutdown when water hammer protection isn't activated.**

