

Wireless Level Valve Control for Hydroelectric Generating Stations



Wireless valve control has many remote applications such as:

- Remote Level Control
- On/Off Control
- Changing Setpoints
- Monitoring Valve Parameters

"Everyday we had to twice drive up the hill to the fore bay to read the level and return to the hydro site to reposition the Cla-Val. Now it is automated."

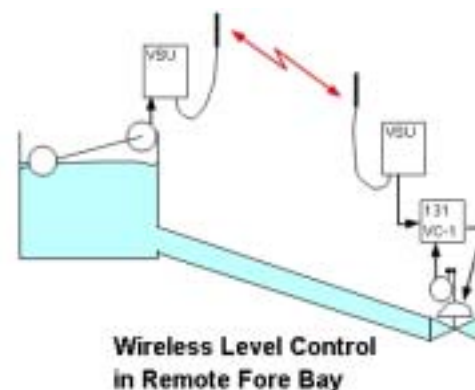
A hydroelectric generating station was installed in the early 1980's to supply energy to the city of Waimea on the Big Island of Hawaii. The water source is an irrigation canal approximately 2 miles uphill from the generating station where a fore bay is located.

Automating the Process

Cla-Val control valves were installed for Turbine Control and for Pressure Relief bypass. The Turbine Control valves were positioned manually based on the level in the fore bay to control level. This however required twice daily visits to measure the level and then to manually reposition the valve.

The Cla-Val VSU wireless RTUs are installed to transfer the level information to the generating station. A 4-20 mA level transmitter is installed at the fore bay and a Cla-Val 131VC-1 valve controller is at the generating station to accept the remote level signal and a valve position 4-20 mA signal.

With no power available at the fore bay a solar panel was used to power the VSU-1 and level sensor. The VSU-1 has a built-in charging regulator for charging a solar battery. The integrated Spread Spectrum Radio required no license. While a few trees prevented line of sight radio communications, the radio communications have been very reliable over the 2 miles distance.



Now the Turbine Control valves electronically position themselves based on the level in the remote fore bay, duplicating what was done manually for years. The labor savings were significant enough to pay for the system in less than a year.

Contact your Cla-Val representative for wireless valve control information.