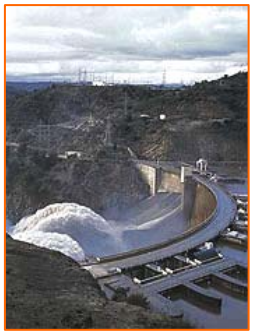
HYCONTROL

with

endesa chile



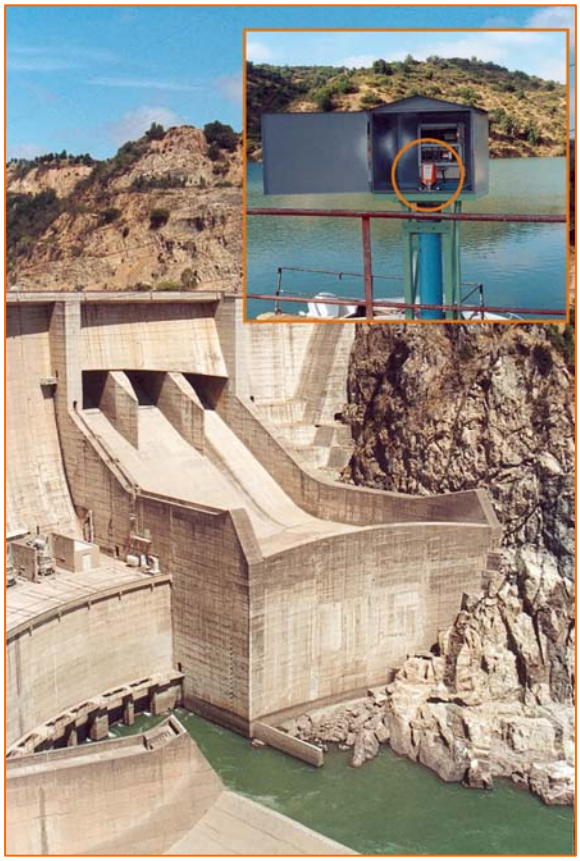
Long term reliability at hydroelectric plant in Chile

A TDR radar measuring system supplied by UK level measuring specialists Hycontrol is playing a small yet vital role at the Embalse Rapel hydroelectric dam in central Chile. Four years after it was fitted, the unit continues to provide accurate level information without the need for maintenance or recalibration.

TDR level measuring system provides long term reliability at Chilean Hydroelectric Plant

A TDR radar measuring system supplied by UK level measuring specialists Hycontrol is playing a small yet vital role at the Embalse Rapel hydroelectric dam in central Chile.

The 112 m high dam, which was built in 1968 at the confluence of the Cachapoal and Tinguiririca rivers, has created the largest artificial lake in Chile with a capacity of 700 million m^3 . The hydro electric plant at Lake Rapel is owned and operated by ENDESA, Chile's largest power generation company.

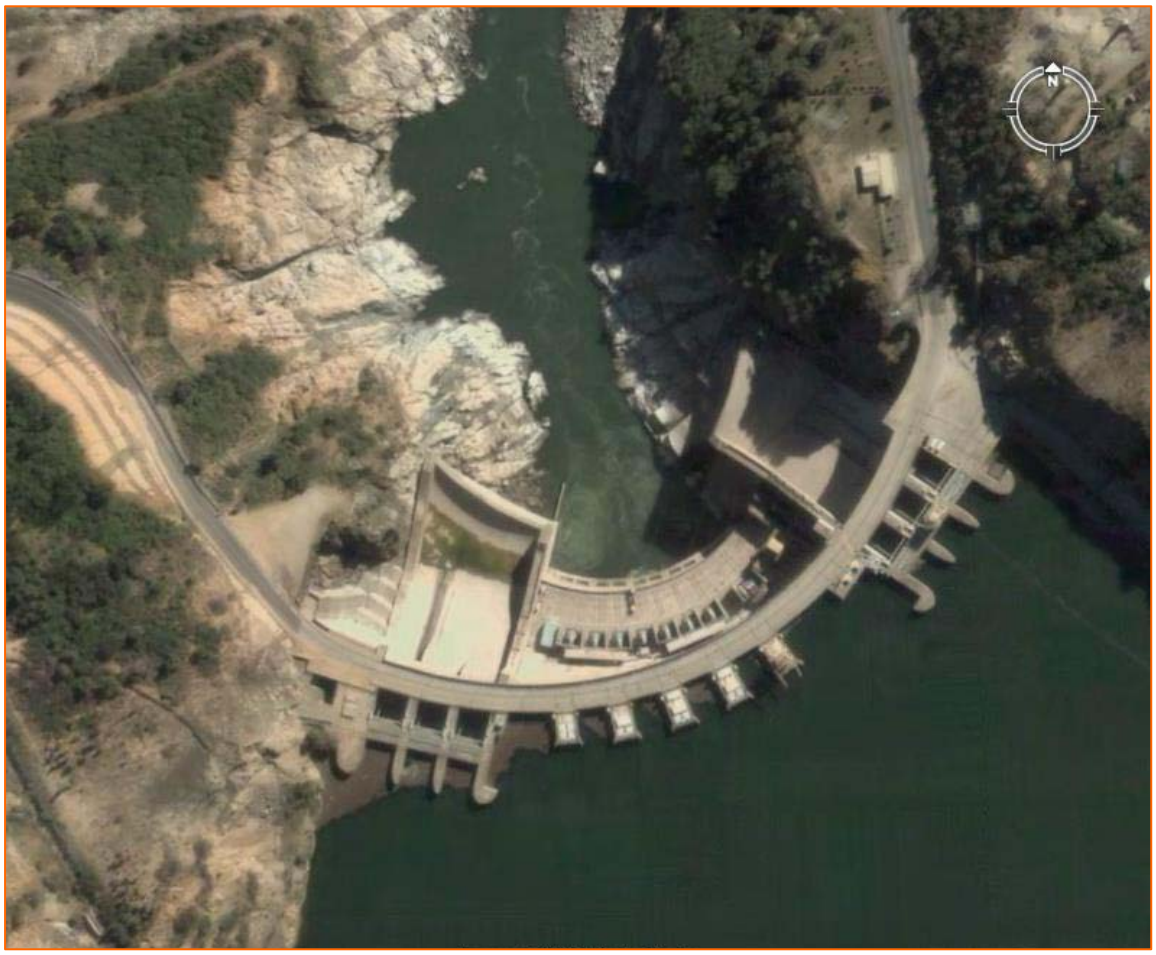


The measurement and control of the water level in the lake is critical to the optimum running of the turbines. The level is required to be measured over a nine metre range with a precision of ±5 mm. The existing float measuring system had traditionally struggled to achieve this demanding resolution and also required a high level of maintenance. However any replacement instrument faced a number of challenges, including having to work inside the existing 100 mm diameter stilling well. Although the obvious choice appeared to be a submersible pressure transmitter this was rejected due to potential drift problems and recalibration requirements.

Having surveyed the limited options open to them, ENDESA engineers turned to the Hycontrol solution, based on the company's VF Series Guided Wave Radar transmitter which works on the principle of Time Domain Reflectometry commonly known as TDR. This technology is ideal for such applications, offering exceptional long term accuracy of better than 3 mm over the unit's full measuring capabilities of 35 metres. The TDR unit is supplied pre-calibrated and has a very small measuring footprint, allowing it to work in stilling wells as narrow as 50 mm diameter.

For this application Hycontrol installed a TDR on top of the stilling well with a 13 m long, 8 mm diameter 316 stainless steel cable and counter weight. A plastic spider was fixed just above the counterweight to prevent any part of the assembly making contact with the wall of the stilling tube. The pre-calibration status meant that once installed, the TDR unit was commissioned in a matter of

minutes. The unit sends data back to the PLC, 200 metres away in the control room, providing ENDESA with accurate, reliable and maintenance-free level control information. The unit has now been working faultlessly for over four years without any reliability or drift related problems.



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