Case Study

HDYROELECTRIC PLANTS

Hydroelectric power is a renewable, clean enrgy, but the power generation itself requires heavy industrial machinery in turbine and pumps. The turbines contain hundreds of liters of turbine oils and these oils can leak into the process water due to normal usage. The processed water in these utility companies are shared from freshwater supplies for populations and industrial use.

PROBLEM

Operated and managed by K-Water, Imha Dam and Daecheong Dam, South Korea, have 50 MW and 90 MW generating capacity, with two generators in each facility. The generators have oil filled bearings which, when not operating correctly, release oil into an overflow pit inside the plant. Oil overflow is an early indication that generators are not operating at full efficiency and that maintenance is required. Inability of detecting this overflow leads to reduced lifetime of components, increased downtime and so reduced productivity of the plant.

Likewise, the SN Aboitiz hydroelectric power plant located near Cauayan City, Philippines operates a 40-year, 24 MW hydroelectric dam. Even with relative new equipment, turbine oil leaks can easily go downstream to the local city, small villages, and fisheries. Any kind of major spill from the plant can be disastrous to the communities and population health from the same users of its electricity.

Recommendations

- NETWORK MULTIPLE ROWs
- REAL TIME ALERTS OVER SMS & EMAIL
- RANGE FINDER FOR WATER LEVEL CHANGES
- SENSITIVE SHEEN AND EMULSION DETECTION
- ROW INTEGRATION INTO CLIENT SYSTEMS

SOLUTION

ROW was selected by K-Water and installed in Imha Dam and Daecheong Dam. Operators requested continuous monitoring of the plant that would alert them immediately of any potential incidents. Enabling real-time monitoring and data analysis, the ROW system is part of K-Water's drive towards continuous improvement in its operations and implementation of innovation in ensuring high level of safety standards. High efficiency and reliability alongside the easy integration into existing security system have convinced K-Water to role out ROW oil detectors into their other facilities in dire with their upgrade plan.

"We are very satisfied with ROW stable performance against water level change, flow rate change and foreign object. Besides ROW can support to connect effectively to our PLC allowing for our system compatibly with ROW" – Korea Water Resources Corporation

As with K-Water, SN Aboitiz installed the ROW for the same reasons. But in both cases, the added bonus is that the ROW also indirectly monitors the health and working efficiency of their generating turbines. If oil spills occurs, the operators can schedule preventative maintenance of their rather than waiting for significant damages to accumulate.