

First EcoStruxure installation

Following the recently-completed upgrade of the city's Branxholme water treatment plant, Invercargill residents are enjoying potable water with a reduced risk of contamination.

The Invercargill City Council embarked on the plant's \$11.5 million upgrade earlier last year, primarily to provide a further barrier to the risk of bacterial and protozoal contamination.

The upgrade also addresses residents' concerns about the water's seasonal taste and odour by the use of UV Advanced Oxidation Processes (AOP). Drawing source water from the nearby Oreti River, the Branxholme treatment plant can provide up to 45,000 cubic metres of water a day to the city. The original plant met the requirements of the Drinking Water Standards New Zealand, but the upgrade future proofs the city against increasing water requirements and any deterioration in source water quality.

Components for the upgraded water treatment plant included the replacement of the existing filter media, a new lift pumping station, a UV/AOP system, a Granulated Activated Carbon filter system, upgraded chemical plant dosing systems for lime, coagulant, polyelectrolyte and, when required for taste and odour control, hydrogen peroxide. There was also a 'back to scratch' build of the water treatment plant control systems.

The new plant's control infrastructure is almost exclusively Schneider Electric. It's also one of the company's first EcoStruxure installations in this country. EcoStruxure is an open, interoperable, IoT-enabled system architecture and platform that delivers enhanced value around safety, reliability, efficiency and connectivity.

Overseeing the Branxholme upgrade was Russell Keen, Invercargill City Council's 3 Waters operational manager, who says the transformation has been very successful.

"The most obvious improvements are from the operational crew's perspective. While the old plant did have a SCADA system, the upgraded one is far more user friendly with an easy-to-use HDMI. It provides improved process control with more data and comprehensive overviews of all plant process and equipment."

The new SCADA – part of Schneider Electric's Wonderware stable – is 'object-oriented'. With components such as pumps, fans and valves depicted realistically on the screen (rather than a simple line drawing with symbols), users are able to follow and monitor the treatment process far more easily.

"A major advantage," says Russell, "is the variety and quality of information provided by the SCADA. Operations staff have been enthusiastic and very positive about the change. They now have more detailed information about plant processes – data verifying that treatment systems are optimised and operating within required parameters.

"And the alarm process is far more reliable. We have operators onsite during normal working hours, but the plant is remotely



monitored 24/7. Any anomalies are reported automatically to a call centre and, when necessary, the operations staff are mobilised."

One thing the operations staff particularly like about the new system, he adds, is the support. "If any gremlins creep into the control system or we need help for whatever reason, we call one number. We no longer have to coordinate multiple suppliers."

Seamless communication

The EcoStruxure technology was installed by Automation for Industry (AFI) – a Wellington-based systems integration company, and one of Schneider Electric's 'Alliance Integration Partners'. AFI director Alastair Cook says installing and commissioning a plant is always easier when the entire control infrastructure family uses the same, open protocols over the Ethernet network.

"Connectivity and communication is seamless – everything talks to everything – there's no need to deal with different protocols or proprietary systems. Components such as variable speed drives and PLCs are discovered and identified immediately – there's much greater transparency.

"And seamless integration usually means faster commissioning, saving money."

Alastair says the Branxholme upgrade is one stage of a larger control system upgrade for the Council treatment plants.

"Ultimately, the technology will be rolled out to other assets such as the wastewater treatment plant. Having all operators using the same SCADA with the same graphic interface offers enormous benefits."

Russell underscores the significance of the new technology: "With the Oreti River we are working with a source water that is in a constant state of flux – the river is continually either rising or falling, getting dirtier or getting cleaner.

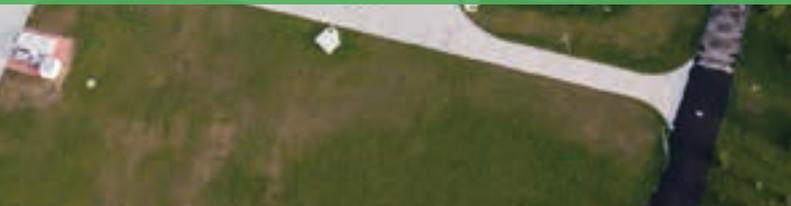
"The source water currently has a three-log requirement. Following Branxholme's upgrade we are nevertheless delivering seven-log quality water to the residents of Invercargill." **WNZ**



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