CASE STUDY

UNITYWATER | AUSTRALIA

WATER QUALITY MONITORING

SUPPLY OF REMOTE TELEMETRY UNITS

BACKGROUND

A critical component of **Unitywater**'s water quality management system is operational monitoring: the tracking of key parameters through the water supply chain. Historically, **Unitywater** made network operation and optimisation decisions based on 'grab' samples taken at fixed intervals, to improve the quality of water delivered to customers.

Grab sampling, in this case at 1-2 weekly intervals, is important to verify water quality and provide assurance that upstream processes have been maintained, but is of limited benefit in understanding system performance at higher resolution. The data is not sensitive enough to pinpoint water quality changes in processes such as reservoir fill/empty cycles, pump station operations, high/low diurnal demand patterns, and source water changes. Real-time water quality monitoring is needed to improve visibility and data resolution online.

STAKEHOLDER

Unitywater is an essential service provider serving Moreton Bay, Sunshine Coast and Noosa communities in South East Queensland. It supplies more than 791,000 people with sewage treatment and water services. Unitywater supplies 59,077 megalitres of drinking water each year via a network measuring 6,172km in length.

BUSINESS NEEDS

Unitywater needed a water quality monitoring solution, to be integrated with its **SCADA** system, with the following at each monitoring location:

- Plastic vented underground residential pillar (URP) including concrete base, with **Unitywater** name and logo
- All necessary plumbing, including DN25 HDPE valved pipework connection where noted
- **Evoqua Chloroclam** (measuring Free or Total Chlorine) mounted within pillar
- **Metasphere Point Colour** RTU mounted within pillar
- **Metasphere** I/O Termination Cable

Commissioning had to be carried out by the **Unitywater** Operation Technology Team. **Brisbane Electrical** installed the RTUs and the **Chloroclam** devices.

THE METASPHERE SOLUTION

Australian water authorities are already using **Evoqua**'s **Chloroclam** to monitor the quality of their water supplies, and typically want the monitored chlorine residual data communicated to their **SCADA** systems. Because **Chloroclam** is a battery-powered device, **Unitywater** needed a battery-powered datalogger that offered a 'plug and play' solution. The **Point Colour** RTU range was the perfect choice as it can integrate **Chloroclam** to a **SCADA** system.

Integration requires a custom serial cable with internal smarts. **Metasphere,** with **Evoqua**'s support, designed and prototyped a smart cable to convert **Chloroclam**'s bespoke protocol to Modbus. This allows the **Point Colour** RTU/datalogger to retrieve **Chloroclam** data using the standard Modbus protocol, which is then timestamped in the RTU for **SCADA** system use.

Metasphere's *Chloroclam Integration Package* includes: i) custom serial integration cable ii) integration *Application Note* (detailing the configuration and verification process) iii) configuration template for the **Point Colour** RTU. The **Point Colour** RTUs are configured to wake up every 15 minutes to monitor, timestamp and store *Free & Total Chlorine*, along with **Chloroclam** device status data, using the new **Chloroclam** serial Modbus data. The RTU uploads timestamped data to **Unitywater**'s **ClearSCADA** system four times a day. For mains powered sites, the communications rate to ClearSCADA becomes once an hour

Point Colour is a range of self- contained dataloggers/ RTUs, each with internal battery pack, IP68 unit enclosure, either a 4G (NB-IoT/Cat-M1) or tri-band 3G modem, and quad band GSM/GPRS fallback, auto-switching internal and external antenna options, software configurable AI, CI, DI, Modbus and SDI-12 communication options (incl. Multidrop), integrated submersion sensor, local diagnostic points and intelligent alarm reporting. It communicates with **Metasphere**'s Master Control System and web-based **Palette** data visualisation platform, DNP3/ WITS DNP3 Masters or FTP/S servers.

BENEFITS

Point Colour coupled with the Chloroclam battery-powered water quality monitor proves an excellent solution to remotely monitor, pinpoint and verify water quality changes in key procedures such as reservoir fill/empty cycles, pump station operations, high/low diurnal demand patterns and source water changes.

It is now possible for many sites to deploy this monitoring solution, to generate data to ensure the maintenance of upstream processes or barriers, and optimise overall system performance.

The Modbus protocol supported on the Point Colour RTU range enables the devices to seamlessly integrate with the Chloroclam water quality monitor.

FIND OUT MORE!

If you would like to monitor water quality using Chloroclam, get in touch to find out how **Point Colour** RTUs can transform your operation.

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