

Abbey Systems supplied and installed a turnkey SCADA system for the monitoring and control of the Rotorua District wastewater network.

Rotorua is found on the shores of Lake Rotorua in the central North Island of New Zealand. The surrounding area is a geothermal wonderland, with geysers, boiling mud pools, and steaming craters, accompanied by the pervasive smell of sulphur. Rotorua is also a showcase of Maori cultural activities, a centre for tourism and a place of extraordinary natural beauty. It is surrounded by volcanoes, lakes, parks and recreational areas, and is a great place to visit for both locals and tourists.

When the local Council needed a well proven SCADA system to replace their old system to manage the city's wastewater network in 2005 they chose Abbey Systems products. From the beginning the Rotorua network was designed for standardization and a high level of automation and reporting.

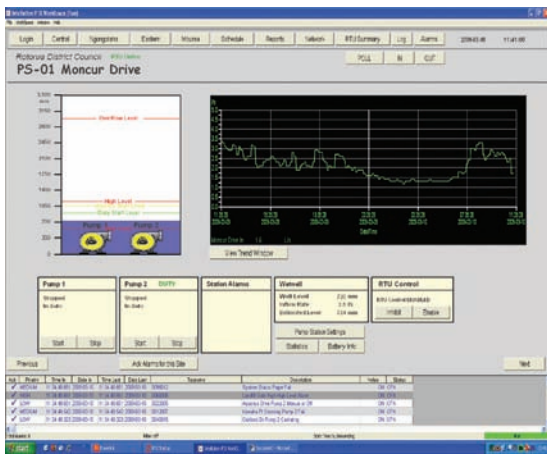
Key Benefits

- All pump stations use an Analogue Ultrasonic transducer for well level control and a standard suite of 2 pump programs is used at each site.
- Swampfox RTUs at all 2 pump sites are wired the same way.
- Swampfox RTU controls the pump start & stop, duty changeover and pump 2nd starts, saving the added cost of a dedicated level controller or PLC.
- Performance stats for each site are datalogged, including pump run hours, # starts, inflow, security, and retrieved daily by the SCADA Master.
- All RTUs are "conformally coated" for protection against Rotorua's high level of hydrogen sulphide gas in the atmosphere and methane from pump station activity.



Rotorua District Council's 68 sewage lift stations are fitted with Swampfox RTUs, which communicate via a new UHF radio network to an Abbey Systems Telemetry Server and iFix HMI. The advantages in using Abbey Systems RTUs include; programs can be modified at the base station and downloaded to the site, and pump station programs can interact with other pump stations and cater for sudden inflows, balancing flows into the treatment plant.

Pump automation is controlled by logic programs created and tested at the Powerlink Master and downloaded via the radio network to the RTUs. The logic is designed to minimize the number of pump starts, letting them operate at higher average well heads for greater efficiency. The programs also cater for rapid inflow changes, balancing inflows to the treatment plant. Ultrasonic level transducers connected to each Swampfox measure the level of each well and control pump operation.



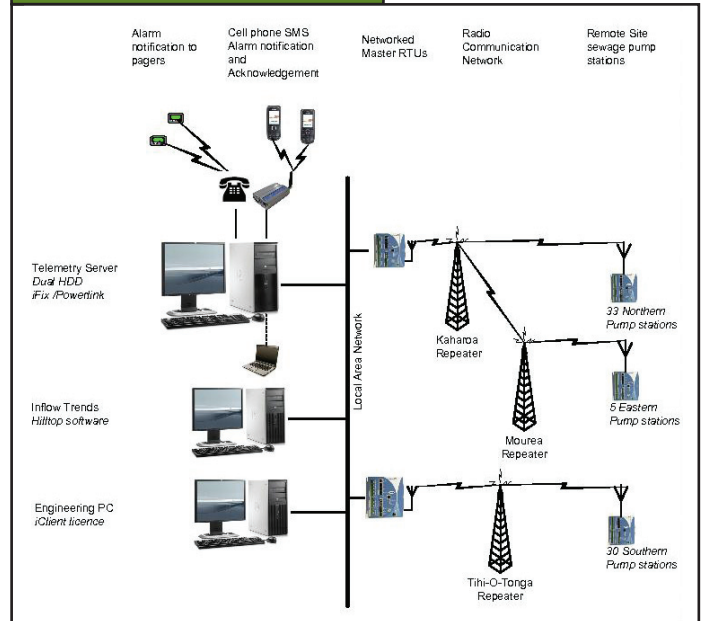
Automated reports are created weekly in spreadsheet format and sent to a network server. Council Engineers use these, along with Hilltop software, for 'flow modelling' and to target pump maintenance, allowing rapid identification of poor performers.

Each Swampfox RTU datalogs its pump station's performance. As the station operates, the inflow, outflow and power consumption are calculated, timestamped and stored to memory for later downloading over the communications network to the Telemetry Server. Ratios of power consumption vs outflow can be used to evaluate pump performance and target maintenance.

Abbey Systems Telemetry Server also sends Alarms out to pagers and cell phones, where Operators can acknowledge them. Recently this system was expanded to include the Wastewater Treatment Plant Alarms.

The SCADA replacement program took 24 months from start to finish.

Site Network Diagram



Project Snapshot

| | |
|---------------------------|------------------------------|
| Case Study | Rotorua Wastewater Network |
| Client | Rotorua DC |
| Contract | 04/132 |
| Installation Date | 2005 - 2007 |
| Number of I/O | 8,100 |
| Number of RTUs | 68 |
| Communication methods | UHF and VHF radio |
| Electrical Contractor | Townley Electrical Ltd |
| Communications Contractor | Alcom Communication Services |

Location Information

World Location Map

New Zealand Location Map

New Zealand

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