



**PROJECT: EXTENSION OF TELEMETRY SYSTEM
FOR SEWAGE & STORM WATER SYSTEM**

Client: Municipality of Dubai, United Arab Emirates

Micro Control Engineering has supplied a Computerised **Central Control System** (CCS) and 140 Control 2000 RTUs (remote terminal units) for the Municipality of Dubai - Sewage and Storm Water System.

The CCS is a computer-based packaged used to control and administrate the Control 2000 Pump Station RTUs located throughout the Municipality. The system software provides powerful fault finding facilities and enables the collection of data and alarms from each of the RTUs to a centralised point at the Municipalities offices.

The CCS for this project has three levels of security so as to only allow the correct personnel to perform certain functions and changes to the system. These user levels include:

Guest User: Allows a user to navigate through the various screens in the CCS but does not allow any changes to be made.

Operator

User: Allows a user to navigate through the various screens in the CCS and manually control pumps and acknowledge alarms.

Manager

User: Allows a user to perform any functions in the CCS including modification of any setpoint.

COMMUNICATION

Communication between the CCS and the Pump Stations is via a bank of PSTN modems. In turn each Pump Station communicates to the CCS via either a PSTN or GSM modem.

SYSTEM OVERVIEW

The CCS is divided into two sections, the Sewage System and the Storm Water System. A System Overview screen is first displayed when the CCS is started. The Sewage System Overview and likewise the Storm Water System Overview screen can be displayed by selecting the appropriate button at the top of the screen.

Each of the Sewage and Storm Water systems display the locations of all Pump Stations defined in the CCS. (see below) Each pump station is represented by a coloured circle located at the site's relative position on the map.





PROJECT: **SCADA / TELEMETRY SYSTEM
FOR HINZE WATER TREATMENT PLANT**

Client: **Gold Coast City Council, Queensland, Australia**

The **Hinze Dam** (see below) is one of two dams managed by the Gold Coast City Council that provides a reticulated water supply and sewage service. The dams' storage capacity is 163,500 million litres.

Micro Control Engineering has supplied a Control 2000 RTU and Computerised **Central Control System** for a **Water Treatment Plant** (see below) located at the Hinze Dam.

The Central Control System (CCS) is a computer-based package used to control and administrate the Control 2000 RTU. The base station software adds powerful fault finding facilities and enables the collection of data and alarms from the RTU to a centralised point.

The water quality is monitored for chlorine and pH levels and the system will produce an alarm when set parameters are exceeded.

The RTU also monitors water level, pump status, faults such as power and I/O card failure plus pressure and transfer rates for pumping equipment.



PROJECT: **SCADA / TELEMETRY SYSTEM
FOR SANANDAJ WATER SUPPLY
& PUMPING SYSTEM**

Client: **Neda Gostar Asia Co.**

The Sanandaj Water Supply and Pumping System supplies water to its surrounding regions.

Micro Control Engineering supplied four Control 2000 RTUs and a Computerised **Central Control System** for this project.

The Central Control System (CCS) is a computer-based package used to control and administrate the Control 2000 RTUs. The base station software adds powerful fault finding facilities and enables the collection of data and alarms from each of these RTUs to a centralised point.

The RTU controls and monitors water level in the water tanks, well and dam plus monitors pump station status. A **Fire Detection System** is also incorporated to detect fire within the system.



PROJECT: PLOT IRRIGATION CONTROL & MONITORING

CLIENT: Biosaline Agriculture Centre, Dubai, United Arab Emirates

The BAC is a scientific research centre funded and supported by the Islamic Development Bank in co-operation with the Ministry of Agriculture and Fisheries and the UAE University.

A project undertaken at the BAC was to determine the suitability of conventional crop species for propagation under saline irrigation.

Micro Control Engineering was selected to assist with this project because it offered a centralised control package including:

- ◆ complete plot irrigation control and monitoring
- ◆ VFD pump control system for each group of saline water tanks
- ◆ computerised management of data collection system
- ◆ garden irrigation and security monitoring
- ◆ integrated weather station
- ◆ flow, pressure, salinity, tank level, motor current and soil moisture are measured and recorded throughout the system to ensure maximum traceability of input data
- ◆ the system communicates from the central computer to the field controllers, weather station and pumping stations through an RS485 network



PROJECT: **SCADA / TELEMETRY SYSTEM
FOR COLBINNABIN / CORNELLA PIPELINE**

Client: **Australian Irrigation**

Micro Control Engineering has supplied and commissioned a Computerised **Central Control System** (CCS) for this pipeline.

The CCS is a computer-based package used to control and administrate the RTUs (remote terminal units) and RICs (remote irrigation controllers) throughout the Colbinabbin-Cornella Pipeline. The base station software adds powerful fault finding facilities and enables the collection of data and alarms from each of these RTUs to a centralised point.

The CCS for this project has three levels of security so as to only allow the correct personnel to perform certain functions and changes to the system. These user levels include:

Guest User: Allows a user to navigate through the various screens in the CCS but does not allow any changes to be made.

Operator

User: Allows control of the pipeline system.

Manager

User: Allows a user to perform any functions in the CCS including modification of any setpoint.

The CCS provides on-line data information on **Pump Stations** configured in the system. This information includes:

- Operation Setpoints
- Pressure Status
- VFD Setpoints
- Pump Status
- Sensor Alarm Setpoints
- Alarm Setpoints
- Jockey Pump Setpoints
- River Sensor Setpoints

The **River Pump Station** contains an additional sensor to monitor:

- River Level (cm)
- River Salinity (uS)
- River Temperature (Deg)
- River pH



The CCS is also provides information on each **Delivery Point** within the Pipeline. This information includes user information and contact details, accumulated yearly volume and flow rates.

All past and current activity at each RTU and RIC in the pipeline is graphically represented in trending screens within the CCS. An Event Log is used to keep a record any changes made to CCS and by which operator.



**PROJECT: PIPELINE SCADA SYSTEM &
PUMP CONTROL STATIONS**

CLIENT: Hunter Wine County – Pokolbin Irrigation District, New South Wales

This 146km pipeline has been designed to guarantee the supply of water to vineyards and properties in The Upper Hunter Valley region. This water supply will make the region “drought proof” and assure good quality crops from existing vineyards and encourage more vineyard operators to the area.

The project requires control and monitoring of some 384 water delivery points and ten pump control stations. The pump control stations for this project were manufactured by **Micro Control Engineering** and are controlled by the latest RTUs (remote terminal units). Water quality is monitored for pH, salinity and temperature at the river prior to entry into the pipeline system. The river level is also monitored. Pressure is measured at 41 locations throughout the pipeline and fed back to the SCADA system. The SCADA system has been installed to continuously monitor and control the water distribution and pump control systems. Communication is a combination of landline and radio technology.

Water delivery to each site is automatically controlled from the Central. All water delivery points measure flow and pressure and are recorded back at the Central for billing purposes.

To ensure the system operates efficiently and to prevent water theft, the total flow into the system is constantly monitored and compared with the quantity of water delivered on a daily basis.



PROJECT: AUTOMATION OF WATER CHANNELS

CLIENT: Harvey Water, Western Australia

Harvey Water are a major open channel water provider based in Harvey, Western Australia and are firmly committed to Automation wherever efficiency gains can be made.

Micro Control Engineering has replaced all existing PLC type controllers with **RAINMAN Regulator** controllers to upgrade the Radio Network System.

Harvey Water's SCADA system was also upgraded during this time.

As part of this project the Water Authority, who work in close association with Harvey Water, agreed to use the **RAINMAN** system and commissioned us to upgrade 11 of their sites.

The upgrade has resulted in a significantly faster and more reliable communication system, with far fewer points of failure. Using the **RAINMAN Regulator** Controllers allows the field operators full control directly from the keypad and display screen at each site or remotely from the central computer.

The system includes the use of the **RAINMAN** solar powered controller that is a fully functional RTU with radio communication back to the central computer. The solar power unit also supplies power to a weather station that is directly connected to the RTU for local display of the measured parameters and then forwarded via radio to the central computer.