

CASE STUDY *Water Infrastructure Management*

Ecowise currently operates and maintains a network of approximately 170 stations around the ACT and surrounding NSW region, monitoring surface water, ground water, waste water, rainfall, meteorological, air quality and soil moisture stations.

The majority of these stations are monitored and reported on a daily basis to our clients using a number of different data dissemination techniques. These include email, web page, SMS, FTP and integration into clients existing data management systems.

Ecowise is the custodian of the data collected for our clients and manages the data using HYDSTRA software, a data management system specifically designed to manage time-series hydrological data.

All stations are serviced on a two monthly preventative maintenance routine. These visits are primarily used for data verification and collection, and instrument calibrations checks. Existing rating tables, which are developed and maintained for individual water level sites are verified by conducting manual flow measurements onsite and compared to existing rating tables. Once on-site verification of data has been completed, data is edited, quality coded and distributed to the relevant client.

Our clients currently use the data collected by Ecowise Environmental for:

- flood mitigation
- real time infrastructure operations
- resources assessment
- environmental management
- water supply operation legislation
- integrated catchment management
- flood and floodplain management and modelling.

Catchment Monitoring

Ecowise Environmental operates a number of critical stations within the Cotter and Murrumbidgee Catchments, which are significant components of Canberra's water supply. The stations provide continuous monitoring of water level and flow (streams and rivers), dam level and volume, water temperature, conductivity, pH, DO and turbidity.

Using a network of Campbell Scientific instrumentation Ecowise has been able to develop a monitoring system that can utilise ActewAGL's existing radio telemetry system to stream data back to a central computer.

Data on the network is polled every five minutes and uploaded onto a web site every hour. The data is then made available to ActewAGL staff in a number of different formats to suit their requirements.

Monitoring stations at Corin Dam and other locations within the Cotter and Murrumbidgee catchments provide information crucial to the efficient management of Canberra's water supply.

Project Summary

Application Type

A network of over 170 sites monitoring Meteorological, Hydrological, Water Quality and Air Quality parameters.

Location

Australian Capital Territory and surrounding region, Australia

Contracting Agency

ActewAGL, National Capital Authority, Territory and Municipal Services & Bureau of meteorology.

Measured Parameters

Meteorological: Wind Speed, Wind Direction, Air Temperature, Relative Humidity, Barometric Pressure, Solar Radiation, Evaporation and Rainfall

Hydrological: Water level, Flow, Head pressure, Pump rates, Velocity, Discharge.

Water Quality: Water Temperature, Electrical Conductivity, pH, Dissolved Oxygen & Turbidity

Air Quality: H2S gas

Communications

PSTN, GSM and 450 MHz (UHF) Radio Telemetry



Sewer Monitoring

Waste water related stations are operated by Ecowise for ActewAGL, providing information on sewerage levels, velocities, temperatures, pump station activity and H2S gas concentrations.

Due to the nature of the sewer network, many stations are situated in hazardous locations that are designated as a confined space. This places high levels of responsibility on staff when planning the work so as to minimise risk to both instrumentation and the personnel involved.

Several key stations are required to produce instantaneous data to ActewAGL for operational purposes. Ecowise has worked with ActewAGL to develop a system where data is relayed real time using the ActewAGL radio network to integrate on the ActewAGL SCADA network.



Scrivener Dam Flood Warning

Scrivener Dam was constructed in 1963 and impounds the Molonglo River to form Lake Burley Griffin, an important cultural and recreational feature for Canberra that forms the heart of the city.

In order to efficiently operate Scrivener Dam and maintain the level of Lake Burley Griffin within tight operating limits, it is essential that accurate, reliable and up-to-date hydrological information is provided to the dam operators - this is especially important during flood events.

This data is provided by a large network of ELPRO Event Reporting Radio Telemetry System (ERRTS) stations, installed and maintained by Ecowise.

An ERRTS Flood Warning station.



Road Crossing Flood Warning

Ecowise maintains and operates four low level road crossing sites around the ACT. These sites are critical to the safety of the public, as they indicate when bridge conditions are unsafe to negotiate.

They do so visually by controlling warning signals on-site and sending warning emails and text messages to the relevant authorities.

The stations have been specifically designed to handle the harsh conditions experienced during flood events, and remain robust and reliable during these periods.

Road Crossing stations provide advance warning of potential life threatening situations.

