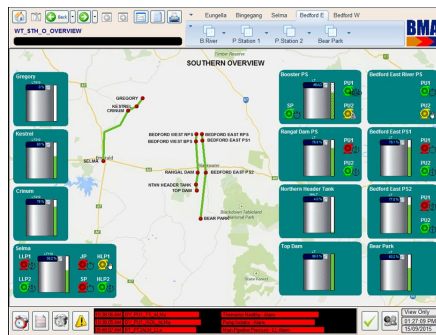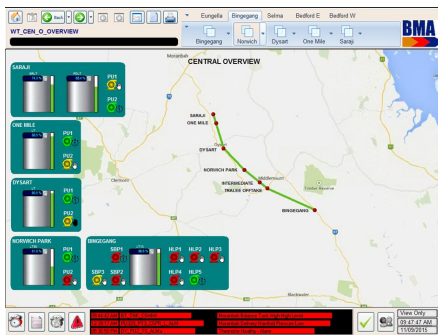*Inete Case Study:*

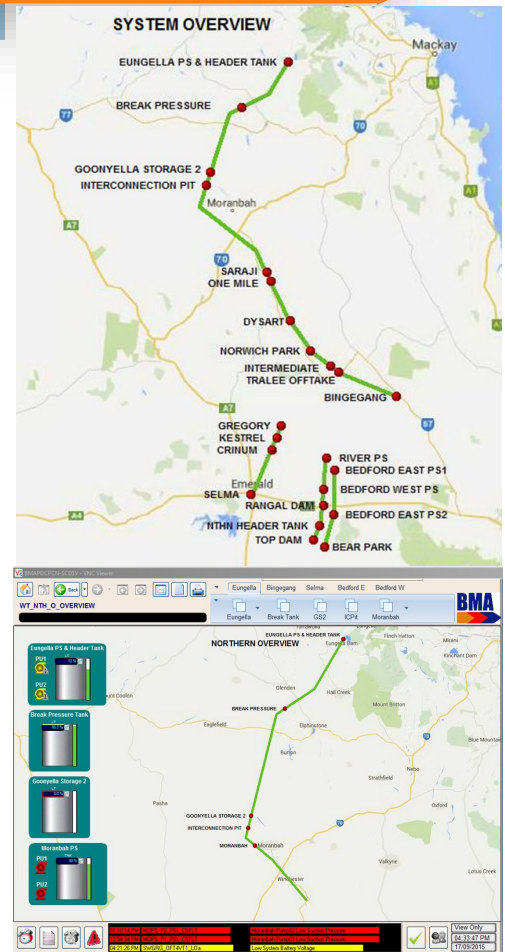# Water Pipeline Control System Upgrade

The Project

Implementation began in mid 1960 for the client's water network which has grown to over 700 km of pipeline across 21 different sites with 37 pumps, 21 water storage reservoirs and multiple control valves. 'These pipelines provide water via multiple offtake points to a number of Bowen Basin Community stakeholders. There are five (5) pipelines that make up the water network which are Eungella, Bingegang, Selma, Bedford West and Bedford East pipelines. The purpose of the upgrade was to standardise the Citect SCADA projects, the PLC code and have one central point of information while still maintaining local client access.

The works included replacing radio links with 4G / 3G modems, upgrading and standardising the Citect SCADA projects, upgrading and standardising the PLC control code, upgrading the PLC's to Allen Bradley Compact Logix controllers and tying all sites back to the Brisbane central server. Inete was engaged to carry out the upgrade of the water network and to work with other contractors to ensure the best possible outcome for the new system.

Project Works

- Preparation and development of the functional descriptions and Citect SCADA manuals;
- Design and select PLC, 4G / 3G modems and control network for the upgrade of the system;
- Develop new PLC add on instructions for pumps, valves and level control;
- Design of new genies in Citect SCADA for pumps, valves, process variables and reservoirs;
- Design of new faceplates for pumps, valves, analogue inputs and duty controllers;
- Develop interlocks to accommodate for run, start, level 1 and level 2 trips;
- Develop a duty controller capable of handling up to 8 pumps;
- Develop dual duty, timer, lead / lag and duty / standby modes;
- Develop an alarm page with filtering capabilities for all 5 pipelines;
- Develop a command log that records any changes made within the Citect SCADA runtime;
- Roll out and commission PLC code and Citect projects to local sites and Brisbane server.

Project Overview

Project
Infrastructure & Asset Management Water Pipeline Control System Upgrade

Location
Central Queensland and surrounding Bowen Basin communities.

Infrastructure

- 5 pipelines;
- 21 sites controlled via local/remote Citect SCADA with local PLC control;
- 4G/3G network modems and radio links to local and remote Citect SCADA clients / servers;
- Central Citrix Server located in Brisbane.

Project Scope

Major works included:

- Commission 4G / 3G Communications Network;
- Design and commission 21 site specific PLC & SCADA projects;
- Tie all 21 Citect SCADA projects to Brisbane server.

Collect data & Annunciate Warnings and Alarms via

- Citect SCADA / PLC control;
- Citect SCADA Web Server.

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Integral Electric Technology