



*Campbell gear used in municipal
water-supply interconnection*

Water-Supply SCADA System

In 2010, Trenton and Amalga, two northern Utah towns separated by only a few miles, created a plan to design and build an interconnection between their two municipal water systems. The interconnect system would automatically allow water from Trenton to flow to Amalga and vice versa, allowing the two towns to share water during emergency situations. To accomplish this, the towns worked with JUB Engineers of Logan, who contracted with Intermountain Environmental (IEI), also of Logan, to install a supervisory control and data-acquisition (SCADA) system to allow each town to view the status of their water system and control the interconnect system as needed.

Each town has separate water sources, pump tanks, and distribution systems, so the challenge was to connect them in a way that would easily allow sharing of water. Intermountain

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Application at a Glance

Application type:

SCADA monitoring and control system

Project area:

Trenton and Amalga, Utah

Author:

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Environmental

Contracting agencies:

Trenton Town, Utah; Amalga Town, Utah

Dataloggers and peripherals:

CR1000, AM16/32B, SDM-CD8S,
SDM-CVO4, CURS100

Software:

LoggerNet

Communication links:

NL120 Ethernet interface, RF450 radio

Measured/calculated parameters:

Water level, pressure, and flow; pump
status; door and hatch status; chlorine
in water; chlorine gas leaks

Equipment controlled:

Pumps, valves

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Environmental used the CR1000 Measurement and Control System (manufactured by Campbell Scientific) and VTScada software (by Trihedral) as the foundation for the SCADA system. The outcome was independent systems in each town.

The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other.

VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall.

Each town received similar equipment and the systems are independent of each other. The CR1000 was used as a remote terminal unit (RTU) at each site and also as the programmable logic controller (PLC) at each base station. The dataloggers communicate with each other using Campbell's RF450 spread-spectrum radio. At each town hall there is a master station that consists of a CR1000 and an NL120 Ethernet interface. LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections.

The system has been in operation since May of 2011.

