Culinary Water Interconnection Project – Town of Trenton Utah
Completed July 2011

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Project Summary:

The Town of Trenton and the Town of Amalga, in Cache County Utah, contracted with JUB Engineers in Logan, Utah to design and build a water interconnection system. This will allow the two towns to share water during emergency situations. The interconnect system will automatically allow water from Trenton to flow to Amalga and vice versa. Intermountain Environmental was contracted to install a SCADA system that allows each town to view the status of their water systems and control the interconnect system when needed. Intermountain Environmental used the CR1000 Measurement and Control System manufactured by Campbell Scientific and VTScada HMI Software by Trihedral to create the SCADA system.

Campbell Scientific Products Used:

1. CR1000 Datalogger
2. RF450 Radio
3. NL120 Ethernet Interface
4. AM16/32B Multiplexers
5. SDM-CD8S Solid State DC Controller
6. SDM-CVO4 (Current Voltage Output (for future use)
7. LoggerNet Software (system programming and testing)
8. CURS100 4-20mA interface

Each town received similar equipment and the systems are independent of each other. The CR1000 was used as an RTU at each site and also as the PLC at each base station. The CR1000's are communicating with each other using the RF450 Spread Spectrum radio that is also supplied by Campbell Scientific. At each Town Hall there is a master station that consists of a CR1000 and a NL120 Ethernet Interface. The VTScada software is running on a Windows 7 PC and communicates with the CR1000 Master over an Ethernet connection. The VTScada software uses the Modbus protocol to send and receive data values to the CR1000. VTScada is a graphical user interface or HMI software package that allows the town water managers to view the status of pumps, water levels and door and hatch alarms. The software will also send out text, email and voice telephone alarms based on user defined alarm designations. The VTScada also allows users to access their system information over the Internet; this includes the ability to control the system devices as if they were sitting at the main PC at the town hall.

Interconnect System Description:

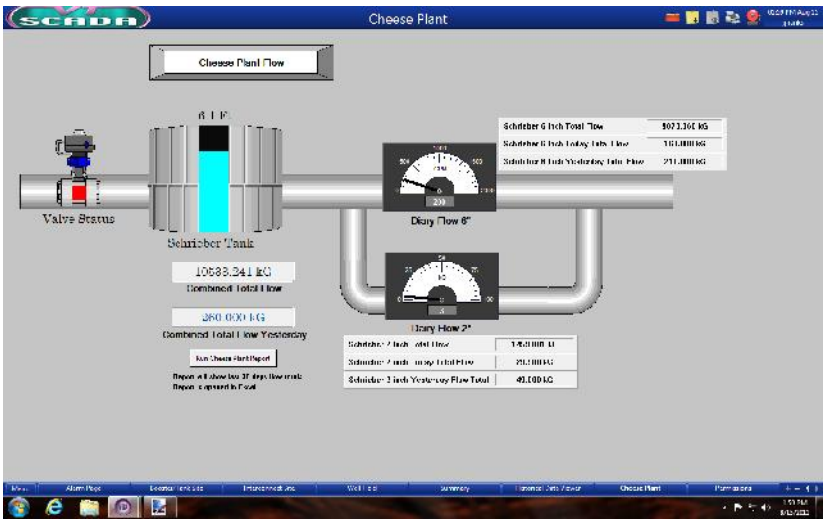
The interconnect system is a building that houses pumps and valves and also serves as a storage facility for a portable emergency generator. The interconnect has two pumps that will pump water to the Town of Trenton and two valves that will open and allow water from Trenton to flow to Amalga. The SCADA system controls the pumps and valves, and monitors flow, pressure and door alarms. There is also a water alarm installed near floor level that will detect flooding in the building. Both Towns have separate systems that monitor the same parameters. Trenton can control the valves to allow when to allow or disallow the water flowing to Amalga. Amalga controls the pumps and can allow or disallow the ability to pump water to Trenton.

Trenton System Description:

The Town of Trenton has two tanks west of town. The SCADA system monitors tank levels, flow from the tanks to the town, flow into the tanks from springs in the mountains above, and door and tank hatch alarms. There is also a system to check for Chlorine tank weight and for the presence of a Chlorine gas leak in the building. Trenton water managers have the ability to view historical data concerning all of these monitored devices using the VTScada software. Mangers can also turn the pumps on at the Interconnect site to take water from the Amalga system in emergencies. They also have the ability to cancel interconnect water access to Amalga if they do not want to allow Amalga to access their water.

Amalga System Description:

Amalga Town has two tanks and a well field that is monitored and controlled using the SCADA system. The town water manager can view tank status, pump status, flow amounts and run water usage reports. The system can manually control the pump from the well or can be set to automate the filling of the city tank based upon a full and empty set point that us user changeable in the VTScada software.



For more information concerning this project and the products used please contact us through one of the following options:

Toll Free (800) 948-6236

Direct (435) 755-0774

Web: http://www.inmtn.com

Email: info@inmtn.com