

MEMO

To: Falls Water Co. 25-14114

From: Sandy Hemenway

Date: 11/18/2010

REF: Data Logger Condition

I called Scott Bruce, General Manager at Falls Water Co. (208) 522-1300, in reference to not seeing anything in the field exam talking about a data logger being installed (which is usually for surface water, even though Falls Water Co. has ground water sources. The condition involving the data logger was included on the approved permit, due to the stipulation to resolve the protest between Falls Water Co., and the Canal Companies.

Scott Bruce stated that they had installed a wireless radio telemetry SCADA System. SCADA refers to a system that collects data from various sensors and then sends this data to a central computer which then manages and controls the data (input, output, flow, etc.).

One of the key processes of SCADA is the ability to monitor an entire system in real time, which is the same thing that a data logger does for a surface water system.


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SCADA

SCADA is an acronym that stands for Supervisory Control and Data Acquisition. SCADA refers to a system that collects data from various sensors at a factory, plant or in other remote locations and then sends this data to a central computer which then manages and controls the data.

SCADA is a term that is used broadly to portray control and management solutions in a wide range of industries. Some of the industries where SCADA is used are Water Management Systems, Electric Power, Traffic Signals, Mass Transit Systems, Environmental Control Systems, and Manufacturing Systems.

SCADA as a System

There are many parts of a working SCADA system. A SCADA system usually includes signal hardware (input and output), controllers, networks, user interface (HMI), communications equipment and software. All together, the term SCADA refers to the entire central system. The central system usually monitors data from various sensors that are either in close proximity or off site (sometimes miles away).

For the most part, the brains of a SCADA system are performed by the Remote Terminal Units (sometimes referred to as the RTU). The Remote Terminal Units consists of a programmable logic converter. The RTU are usually set to specific requirements, however, most RTU allow human intervention, for instance, in a factory setting, the RTU might control the setting of a conveyer belt, and the speed can be changed or overridden at any time by human intervention. In addition, any changes or errors are usually automatically logged for and/or displayed. Most often, a SCADA system will monitor and make slight changes to function optimally. SCADA systems are considered closed loop systems and run with relatively little human intervention.



One of key processes of SCADA is the ability to monitor an entire system in real time. This is facilitated by data acquisitions including meter reading, checking statuses of sensors, etc that are communicated at regular intervals depending on the system. Besides the data being used by the RTU, it is also displayed to a human that is able to interface with the system to override settings or make changes when necessary.

SCADA can be seen as a system with many data elements called points. Usually each point is a monitor or sensor. Usually points can be either hard or soft. A hard data point can be an actual monitor, a soft point can be seen as an application or software calculation. Data elements from hard and soft points are usually always recorded and logged to create a time stamp or history

User Interface (HMI)

A SCADA system includes a user interface, usually called Human Machine Interface (HMI). The HMI of a SCADA system is where data is processed and presented to be viewed and monitored by a human operator. This interface usually includes controls where the individual can interface with the SCADA system.

HMI's are an easy way to standardize the facilitation of monitoring multiple RTU's or PLC's (programmable logic controllers). Usually RTU's or PLC's will run a pre programmed process, but monitoring each of them individually can be difficult, usually because they are spread out over the system. Because RTU's and PLC's historically had no standardized method to display or present data to an operator, the SCADA system communicates with PLC's throughout the system network and processes information that is easily disseminated by the HMI.

HMI's can also be linked to a database, which can use data gathered from PLC's or RTU's to provide graphs on trends, logistic info, schematics for a specific sensor or machine or even make troubleshooting guides accessible. In the last decade, practically all SCADA systems include an integrated HMI and PLC device making it extremely easy to run and monitor a SCADA system.

SCADA Software and Hardware Components

SCADA systems are an extremely advantageous way to run and monitor processes. They are great for small applications such as climate control or can be effectively used in large applications such as monitoring and controlling a nuclear power plant or mass transit system.

SCADA can come in open and non proprietary protocols. Smaller systems are extremely affordable and can either be purchased as a complete system or can be mixed and matched with specific components. Large systems can also be created with off the shelf components. SCADA system software can also be easily configured for almost any application, removing the need for custom made or intensive software development.

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