

Wastewater Utility Uses MOSCAD to Upgrade Existing INTRAC SCADA System

FOND DU LAC, WI. – The City of Fond du Lac's Wastewater Utility utilizes Motorola's MOSCAD RTU to upgrade their aging but reliable INTRAC SCADA system.

By utilizing Wonderware's InTouch software, Integrated Telecommunication Systems was able to integrate the operation of Motorola's MOSCAD RTU with existing Motorola INTRAC technology. The result is an expandable SCADA system that fully accommodates the wastewater management and metering service needs of the Wastewater Utility.

The newly installed MOSCAD RTUs (Remote Terminal Unit) provide remote alarm monitoring and auto/manual control of lift station operations, while the existing INTRAC portion of the system continues to perform remote meter reading functions at metering pits throughout the city.

The Challenge

The City of Fond du Lac requested a phased approach to the integration of newer MOSCAD RTU technology into the existing INTRAC based SCADA system. MOSCAD's ability to emulate the INTRAC protocol allowed for the smooth integration of MDLC and INTRAC data. This integration of unique data protocols results in an operator interface providing complete access to both INTRAC and MOSCAD RTU sites from a single point of control. As the system grows, so too will the RTU functional requirements. As it may become necessary to replace additional INTRAC RTU sites with MOSCAD technology, the conversion process has been made transparent to the operator. The conversion is as simple as the push of a button through a customized InTouch system management window.

The Solution

The Fond du Lac Wastewater Utility system can be broken down into three primary RTU types: sanitary lift stations, storm water lift stations, and metering pits. The InTouch central workstation

interfaces to the integrated data network through two MOSCAD FIUs. Each FIU consists of a MOSCAD CPU module. The first CPU, programmed as the MOSCAD FIU (M-FIU), provides a gateway from the InTouch workstation into the distributed MOSCAD RTU storm water lift station system. The second MOSCAD CPU module, programmed as the INTRAC FIU (I-FIU), provides an interface to monitor and control all INTRAC RTU metering pit and sanitary lift station sites. The InTouch workstation utilizes the Modbus serial protocol to exchange data with both the M-FIU and the I-FIU via separate dedicated serial ports.

Wonderware's InTouch serves as the operator interface for lift station control functions, alarm monitoring, metering and overall system maintenance. Both the M-FIU and the I-FIU are responsible for initiating separate polling routines by which the sanitary RTUs are interrogated. The MOSCAD radio communications protocol, MDLC, provides the data network with reliable, error-detecting communications by handling peer-to-peer communications between MOSCAD RTUs and the M-FIU. A shared radio concentrator between the M-FIU and the I-FIU effectively acts as an intelligent network interface manager and splits the MOSCAD and INTRAC FIUs into two separate sub-systems.

Metering pit and sanitary lift station applications are managed through the operation of the MRTU INTRAC protocol. INTRAC MRTUs residing in the field accommodate manual pump controls and use "report-on-exception" methodology when transmitting alarm and event data back to the I-FIU.

System Features

Reporting

Lift station and metering pit data arriving at the InTouch workstation may be logged to an alarm printer and filtered based on event type, RTU site and alarm priority. Pump operations throughout the system are logged to a Microsoft Access database also residing on the InTouch workstation. Operators have the flexibility to

configure data reports based on RTU site, start and end date, report time and report type (detail or summary). Database reporting may include a variety of information:

- Pump activity daily detail reports
- Pump activity monthly summary reports
- Lift station pump runtimes and no. of starts
- Metering Pit flow rates
- Rain gauge readings

Paging

WIN911 paging software by Specter resides on the InTouch workstation and uses a serial interface to communicate with the Motorola PeopleFinder local area paging system. Alarm data received at the InTouch workstation from MOSCAD and INTRAC RTUs may be forwarded through the People Finder paging system. Descriptive text alarm pages are then transmitted, notifying all applicable field personnel of current alarm conditions. WIN911 paging software may be applied to create and modify pager groups, define paging alarms and set alarm priorities.

Automatic & Manual Pump Control

Currently, MOSCAD provides manual and automatic control of Fond du Lac's storm water lift station system. Complete "real-time" monitoring of all flow, well level and pump status data at the lift station RTUs is made possible through a variety of MOSCAD I/O modules. Remote controls sent from the InTouch workstation to MOSCAD RTUs are used to manually control pumps and to configure automatic pump operations at each storm water lift station. Operators may exercise MOSCAD programming flexibility as they adjust wet well level setpoints for auto pump control based on the current wet well level.

Benefits

With the ITS solution, Fond du Lac's Wastewater Utility was able to make significant progress in achieving its goals of updating its technology in a phased approach, lowering costs and increasing operational efficiency.

A prominent advantage to using MOSCAD, besides its scalability, was the reuse of some of the existing RTU hardware. This included the NEMA housing, power supply, and even the conduit and field wiring which resulted in lower equipment and installation costs.

In addition, MOSCAD provides the City with the capability to remotely monitor, upload, and download programs into any MOSCAD RTU over the radio link from any location.

MOSCAD and InTouch continue to provide an economical solution for Fond du Lac, allowing it to expand its capability in wastewater monitoring and control. By allowing seamless migration from older INTRAC RTUs to application specific programmable MOSCAD RTUs, ITS has provided a highly effective and modular solution that will continue to meet the needs and demands of the growing Wastewater Utility for years to come.

For More Information

For more information about ITS's services or Motorola's MOSCAD product line, please call 847-368-8400.

To access information via the World Wide Web, go to:

<http://www.itsinfo.com>

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