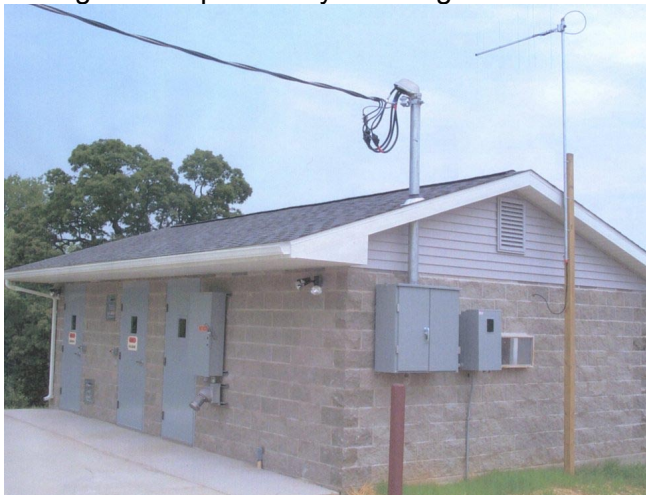


- Navionics And Richards Deliver Packaged Electrical Control And Telemetry System

# NAVIONICS UPDATE

## Navionics Research Inc. and Richards Electric Motor Company Deliver Packaged Electrical Control And Telemetry System To Jersey County Rural Water Company For Its New Booster Pump Station.

In July 2000, Navionics Research (Saint Louis, MO.) and Richards Electric Motor Company (Quincy, IL.) delivered a pre-packaged pump station electrical control and telemetry system to Jersey County Rural Water Company of Jerseyville, Illinois, which is managed and operated by Mr. Greg Bates.



The new booster pump station, which was designed and engineered by Heneghan and Associates, P.C. (Jerseyville and Centralia, IL.), contained two 75 HP pumps, a Toshiba VFD (variable frequency drive), and both "soft-start" and "across-the-line" backup starters. Designed as a split-level building to take advantage of the sloped landscape, the station also features chlorine and ammonia feeds, climate control, security alarm, and TVSS (Transient Voltage Surge Suppression).

The entire operation of the pump station is coordinated by a Navionics Wireless RTU (Remote Telemetry Unit), which monitors and controls the operation of the pumps and drive, the flow-rate, the suction and discharge pressures, and the building temperature. The ON/OFF operation and rotation of the pumps is controlled via the radio link between the pump station and the remote Water Tank at Dow, IL.; and the speed of the variable speed drive is regulated

to keep the local suction and discharge pressures within an acceptable range.

**Variable-Speed Drive Regulation.** In order to protect the pipeline on the discharge side of the pumps from pressures which exceed the pipeline rating, the speed of the pumps must be regulated so as to not drive the discharge pressure too high. Additionally, in order to keep the suction pressure above an acceptable threshold, the speed of the pumps must also be regulated so as to not draw the suction pressure too low.

Using an optimized multivariable feedback control algorithm, the RTU runs the pumps at the highest possible speed that also keeps the pressures within these operator-selectable limits.



**Backup Controls.** In the case of a telemetry RTU failure at the remote Dow Water Tank, the pump station RTU is programmed to automatically enter into a backup control method (operator selectable) so as to maintain pressure and storage in the system. As backup control methods, Mr. Bates can select either "hybrid-pressure", "telemetry timer", or "mechanical timer". In the case of a telemetry RTU

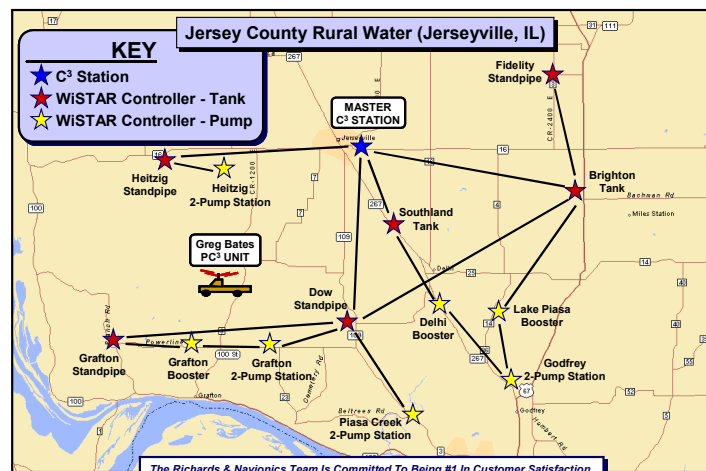
## Pre-Packaged Electrical And Telemetry Controls (Continued)

failure at the pump station, all controlled devices have redundant backup control methods. For example, the suction and discharge pressures are protected from extremes with backup mechanical pressure switches, and the pumps are controlled by a mechanical timer; while the failover speed of the pumps are pre-set to run at a known-acceptable speed.



**Remote Monitoring And Alarms.** From both the main office at Jersey County Rural Water and also from the PC3 (Portable Laptop Interface), the entire operation of the pump station is monitored, along with the other 4 remote pump stations and 4 remote water towers. User-friendly history charts, realtime displays, and pager alarms are integral to the radio telemetry system.

**A Wealth of Monitored Flags.** Within the pump station, the following flags are monitored and reported to the WiSTAR2000 Windows98 Operator Interface at the Jersey County Rural Water Office: Power Status, Pump ON/OFF Status, Pump Failure Status, Flow-Rate (gpm), Meter Reading (gallons), Pump Room Temperature, Chlorine Room Temperature, Ammonia Room Temperature, VFD Temperature, Chlorine Scale (lbs), Ammonia Scale (lbs), Flood-Detect, Suction Pressure, Discharge Pressure, Low-Suction Cutout, High-Discharge Cutout, Entry Alarm, Suction Transducer Fail Alarm, Discharge Transducer Fail Alarm, Communications Fail Alarm, #1 Pump Runtime Total (minutes), #2 Pump Runtime Total (minutes).



**A Wealth of Operator Setpoints.** In order to provide Mr. Bates with the most flexibility possible so as to achieve optimal operation, a wealth of setpoints are available for station tuning:

- Pump Alternation ON/OFF
- Hybrid-Pressure-Mode Setpoints
- Timer-Mode START/STOP Times
- Low-Suction Cutout Setpoints
- High-Discharge Cutout Setpoints
- VFD Speed Discharge Pressure Limit
- VFD Speed Suction Pressure Limit
- Station Mode Select (Radio, Hybrid-Pressure, RTU-Timer, Mechanical-Timer)
- Failover Mode Select (Hybrid-Pressure, RTU-Timer, Mechanical-Timer)
- #1 Pump: AUTO-ON-OFF
- #2 Pump: AUTO-ON-OFF
- Lead And Lag Pump Rotation Definitions

### Would You Like To Have A Similar System?... Or Do You Just Need More Information?

Give us a call. Working together, we can configure a Navionics *WiSTAR*™ System to solve your Water or Wastewater System's Control and Telemetry needs.

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