

# SIXNET<sup>®</sup>

## APPLICATION STORY

### Contact Information

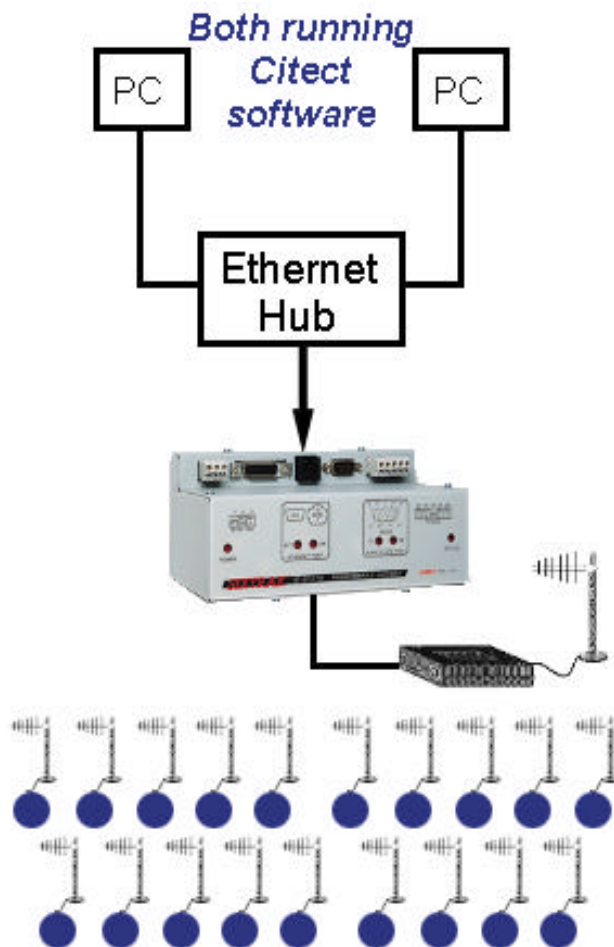
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## Pre-integrated SCS Water System Installs for the Price of Its Components

*Cape Coral, Florida, had a limited budget but a capable staff eager and willing to install their own SCADA system. A pre-integrated SCS solution made that possible.*

### SYSTEM OVERVIEW

The City of Cape Coral, Fla., was looking to upgrade the 10- to 15-year-old Remote Terminal Units (RTUs) at 19 remote well sites feeding the municipal water plant. That plant filters up to 18 million gallons of groundwater a day for the city of 75,000.



The City of Cape Coral, Fla., uses radios to talk to its remote well sites that feed the country's largest reverse osmosis plant.

The reverse osmosis plant – the largest such facility in the United States and second largest in the world – takes water from the 21 remote wells and pipes it into the plant to cleanse it. The water runs through a permeable membrane that allows the water molecules to pass through but strips the salt and other impurities from it, making it clean enough to drink.

The filtered, potable water is pumped from the plant and into a 5-million-gallon storage tank, which provides it to city residents and businesses as needed.

Employees of the Gulf Coast community had started having trouble communicating with the aging RTUs – bad values returning to the SCADA (Supervisory Control and Data Acquisition) software or, in some cases, no communication at all. The city had originally planned and budgeted money to just add analog cards to the existing RTUs to expand the capabilities of the older system.

Then they found out that an entire new plug-and-play SIXNET system composed mainly of Mini-VersaTRAK RTUs would cost roughly the same as merely adding a few analog points to their

aging system, and they would get all the advantages of "I/O for Windows" including ISaGRAF IEC 1131-3 programmability.

Officials liked the flexibility and upgradability of the SIXNET Scalable Control Systems, but the final selling point was the ability of the SIXNET RTUs to connect to the existing radio system and the full compatibility with Citect, their choice for SCADA software.

The open hardware and software of the SCS system has many advantages, such as enabling data from existing Modbus devices to become Shared Resource Tags on the Windows / Ethernet based SCADA system.

The master VersaTRAK RTU has an Ethernet port and is connected to two PCs using SIXNET's Control Room software. So if either of the two computers goes down, there is a backup in place. The Mini-VersaTRAKs are connected to radio modems that communicate to the master. An Action Table in the master polls the wells in the field to check on/off status and water level.

Now, from the control room, operators can check the level of the wells and open the valves wider at times of increased demand. Using Citect operator interface screens, workers can log data and view the whole system at a glance.

At high-demand times, water can also be drawn from two ground storage tanks – the one-million-gallon Van Loon tank and the two-million-gallon Lime Plant tank – to supplement city water lines and equalize the pressure. At those reserve sites, Mini-VersaTRAKs monitor level and city water pressure as well as the pumps and fill valve.

At off-peak times, engineers remotely open two valves on the city's water main connected to the two storage tanks and replenish what was used from the tanks during the day.

At the moment, operators make the decision when to open the valves and by how much. However, an expansion is being planned to automatically control the filling and venting process with ISaGRAF programming in the VersaTRAK RTUs.

Future plans call for flow meters to be added to the 21 well sites – two were added after the project began – and connected to the VersaTRAKs to allow that information to be datalogged and monitored along with value status and water level data.

#### SYSTEM COMPONENTS

- Two Pentium PCs
- SIXTRAK Control Room Software
- 23 VersaTRAKs and Mini-VersaTRAKs with Ethernet, RS485 and RS232 ports

**Problem:** An aging RTU system was causing communication failures for the Cape Coral water system, but the town had a limited budget.

**Solution:** A Scalable Control System modernized the operation and increased reliability for the price of just its components.