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Faced with the daunting task of communicating with 2 remote tanks, the Autoridad de Acueductos y Alacantarillados (AAA) of Cabo Rojo is using a state-of-the-art SCADA system to monitor activities in otherwise remote locations (Fig. 1). The AAA needed to monitor the level of 2 remote tanks to control water distribution pumps and to verify ruptures in the line. Adding to the difficulty of the task is the absence of site power. Photovoltaic systems were added to power the remote locations (Fig. 2). With distances up to 5 miles between various nodes, traditional networking via wire proved to be a difficult and costly task.

With this type of critical information being monitored, a dependable and reliable system is vital. Prior to installing their system, AAA personnel teamed with Accurate Solutions & Design engineers to thoroughly investigate all the options available on the market. They needed hardware capable of meeting today's demands with the flexibility and means to meet future needs. After considering all the options, the obvious choice was a SCADA system utilizing ESTeem wireless modems.



Figure 1: Cabo Rojo Remote Tank

a data rate of 19,200 bps while maintaining a data accuracy of greater than one part in 100 million. Because the ESTeem modems possess the unique ability to operate as a master, remote or repeater node, there is a tremendous cost advantage over conventional systems.

ESTeem, the recognized leader in industrial wireless modems, worked with Accurate Solutions & Design engineers to design a tailor-fit wireless network capable of networking the facility. It was determined that the 2 remote storage tanks could communicate with the master modem. Due to an obstructing mountain between Tank 2 and the master site, the network uses the ESTeem 192C at Tank 1 as a repeater. Solar arrays were installed to provide the necessary power. This created a common network interconnecting the entire facility.

At each remote node, an ESTeem 192C is interfaced

The ESTeem 192C modem was chosen due to its affordability, secure packet burst transmissions and

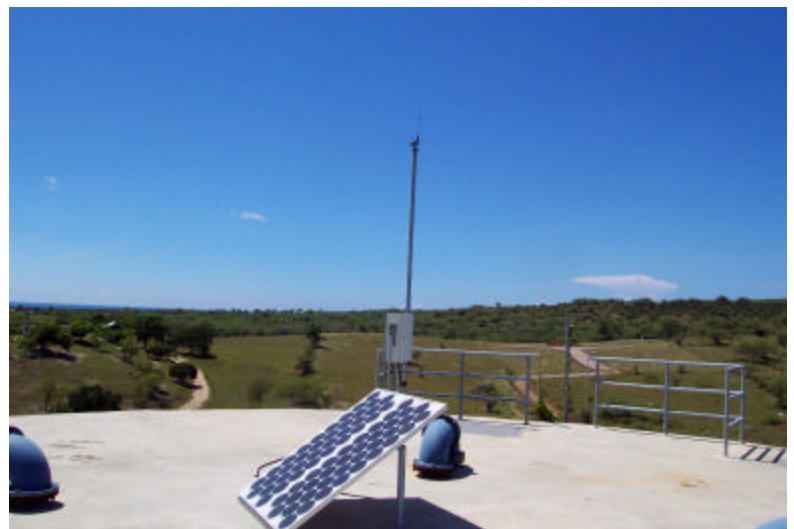


Figure 2: Solar Powered Remote Node

with a GE Fanuc Versa Micro PLC. Data is transmitted to a central computer at the master site via a connected ESTeem192C. Using the I/O Server of GESNP, the central computer continuously polls data from the remote PLC's. Using this configuration, the entire system functions as one network, using the radio modems to interconnect (Fig. 3).

AAA of Cabo Rojo has successfully implemented a state-of-the-art wireless technology to network the individual remote tanks and the master control room. The ESTeem wireless modems allow communication links to otherwise inaccessible areas while eliminating the constraints of hardwiring costs and time-to-implementation.

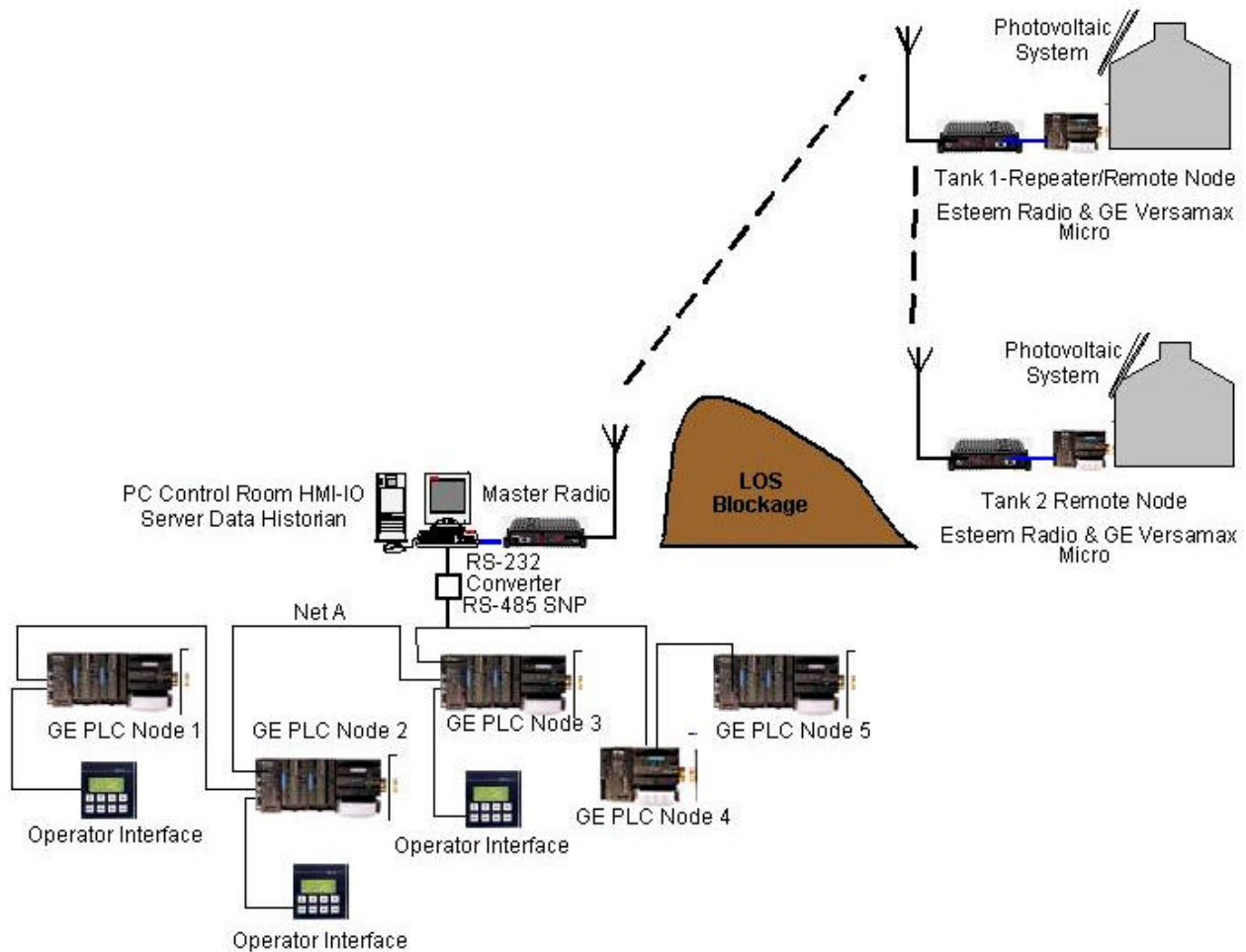


Figure 3: Cabo Rojo Tank Monitoring Site Diagram

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