CH2M Improves Water Management for Saipan with Sierra Wireless® Gateways

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CUSTOMER CRITICAL CHALLENGE

- Despite abundant rainfall, Saipan’s water supply is insufficient to serve the needs of residents due to 70% non-revenue water. Saipan Commonwealth UtilitiesCorporation (CUC) asked CH2M for help – to improve monitoring of the water system and to improve operational efficiencies. CUC had no water monitoring system in place to help them identify problems.

SOLUTION

- CH2M provided an integrated technology solution with a Schneider Electric programmable logical controller and Sierra Wireless gateways to install a remotely manageable monitoring solution for CUC.

BENEFITS

- CUC can now monitor water operations in the pilot area of their system and address problems immediately.
- Being able to remotely monitor the system saves sending field crews to investigate and is helping to reduce the amount of water lost.

Business Challenge

Located 120 miles north of Guam, Saipan is the largest of the Northern MarianaIslands, the most westerly territory of the United States. With a population of over40,000, the island boasts sandy beaches, an offshore coral reef and Mount Tapochau,a limestone covered mountain. The island’s primary source of revenue in the past was associated with the garment business, but recently has primarily come from tourism.

Commonwealth Utilities Corporation (CUC) is a state government corporation thatoperates the electric power, water and wastewater services on the three main islandsof the Commonwealth – Saipan, Tinian and Rota. At the time, CUC had few controls inthe system and had no means of monitoring or explaining water loss and operationalinefficiencies. CUC recognized they needed a plan and some real-time controls if theywere going to be able to serve the population’s needs for fresh water. And as CUC doesnot have any SCADA communications system in place on Saipan, they recognized the benefit of deploying a cellular based communications solution.

Sierra Wireless AirLink Solution

CUC contracted CH2M, a global engineering company, to help them reduce waterlosses and improve the efficiency of their operations on the island. CH2M proposed apilot project where they would isolate and demonstrate how water monitoring could reduce water loss or non-revenue water.

CH2M installed programmable logic controllers in an isolated section of thewatersupply network, at 16 wells, 1 pump station and 2 reservoirs. The PLCs areprogrammed to measure multiple operational parameters at each facility, and SierraWireless gateways were installed alongside the PLCs to send information from thePLCs back to a human machine interface (HMI). The gateways send information overthe LTE cellular network back to a host interface, enabling CUC to understand howwater is flowing through the system and when problems are occurring in near real time.

Results

The installation was 80 % completed in a week in July 2015 and everything wasoperational. Unfortunately, a typhoon hit the island later that month, and destroyedmuch of the infrastructure. This is now being rebuilt, and will be fully up and runningby May, 2016. Once it is, it’s expected that CH2M will expand beyond the pilot projectto install similar infrastructure across the entire island for the water system and ultimately for the entire wastewater system.

“The Typhoon has taken out more than 1000 power poles, right at their roots, floodedthe main power plant, and damaged many of the water system components, so therebuild has been time-consuming. But the communications infrastructure has stayedup and running, and we are now able to resume normal operations shortly”, said John Riegel, Director of Engineering, CUC.