

# ENVIRONMENTAL SERVICES DEPARTMENT

CLERMONT, FLORIDA

CASE STUDY



## HIGHLIGHTS

- Number of services: 19,000
  - 17,800 residential, 1,200 C&I
- Cut meter reading staff from three full-time readers to only one
- Reads entire system daily with time-synchronized and hourly reads
- E-Coder's ability to detect any negative flow has saved the City from having to replace thousands of dual-check valves
- Now performs "soft" disconnects – final reads not requiring shutoffs for move-ins/move-outs without sending personnel on-site
- Enhanced N\_SIGHT™ R450™ exports data to spreadsheet for presentation to customers



## R450™ System Grabs More Info from the Inflow

### Water Services Felt Drained by Manual Reads

The City of Clermont, Florida is located in Lake County 22 miles west of Orlando; and, like its neighbor, has an economy driven largely by tourism. Although founded in 1884 and incorporated in 1916, it wasn't until 1956 that Clermont erected one of the state's first constructed landmarks, the 226-foot-tall Citrus Tower. Once surrounded by orange groves, the City is now largely residential with a current population of 29,358.

Water services began in the Clermont area in the early 1920s. In 2012, the Environmental Services Department for the City of Clermont manages approximately 19,000 connections, including 17,800 residential and 1,200 commercial and industrial customers. Environmental Services Director James Kinzler oversees a staff including Collection, Distribution, and Storm Department Manager Raymond Rogers, and Distribution Chief Tim Mattozzi. Until the late 2000s, the City collected meter readings by manual methods; 70 to 80 percent with touch probes, the other 20 to 30 percent with keyed entry handheld reading. The entire process involved three meter readers walking the routes for three weeks each month.

There were other drains on time, labor, and revenue as well. The Florida Department of Environmental Protection (DEP) requires dual-check valves to be replaced every five years to address reverse flow

issues – meaning thousands of valves were to be scrapped without knowing if they were, in fact, "guilty as charged". Likewise, a lack of data on exactly when and how much water was consumed meant the City could not refute high water bill complaints. It didn't help that many aging meters in the system were measuring flows with less than 100 percent accuracy. To better track reverse flow events and account for lost water, in 2008 Kinzler started to look into the possibility of radio reads.

### Moving Ahead with Reverse Flow and other AMI Data

Clermont hired an engineering firm to make recommendations for a new meter reading system. After the report, Environmental Services made the decision to delay any implementation until the best option emerged. When the City learned of Neptune Technology Group's advanced metering infrastructure (AMI) system based on R450™ RF technology, "it was not a huge decision [for us] to move forward," according to Rogers.

Following a propagation study in June 2010 to determine the optimum positions for fixed network data collectors, the City began installation in July with the assistance of Jeff Kimbrough, Sales Representative for Sun State Meter & Supply, and Terry Gullett, Senior Territory Manager with Neptune. R450™ Data Collectors (R450 DCs) were installed atop water towers. On the ground, Clermont installed



Clermont, FL water meter installation team. (Back Row L-R: Wilmer Gamboa, Mark Griffin, Jeff Tovet, and Bruce Bennett; Front Row L-R: Bob Hallee, Jorge Leyro, and Tim Mattozzi.)

E-Coder® solid state absolute encoders paired with R450™ radio frequency meter interface units (RF MIUs). Kimbrough said, “I’ve been involved in many projects over the years, and this one’s gone extremely well.” As of early 2012, 85 percent of the project is complete. Installations have continued at an average rate of 800 to 900 meters a month with a total 13,000 currently installed and projected completion by July or August of 2012.

Mattozzi was especially eager to deploy the E-Coder, emphasizing its attributes as “a true smart meter with its instant backflow and leak alarm” capability. Leak, tamper, and reverse flow conditions are quickly and accurately flagged by the R450 System’s priority alarms.

And, Rogers added, “Unlike other registers, [the E-Coder] registers any negative flow,” not just taking a composite picture of flow back and forth. This ability, added to the flags for reverse flow, has saved the City from having to replace thousands of dual-check valves; instead, it now replaces only the check valves that trigger a reverse flow alarm in the meter.

As installation has progressed, the City has cut its meter reading staff from three full-time readers to only one, with the other two reallocated to other tasks. Clermont has also begun to leverage the R450 System to do “soft” disconnects; delivering even more value by performing those final reads not requiring shutoffs for move-ins and move-outs without having to send personnel on-site.

### **Raising Awareness to Lower Customer Consumption**

Having such a wealth of factual information – including actual auditing between the metering and the billing systems – was something new, according to Rogers. “Now we can list flow rates for a specific account from highest to lowest, put that information on a door hanger, and present it to the customer. We’re already working on email notifications in the near future.”

Being able to show customers in graphic detail when and how much water they’ve used and when they’ve had a leak has led to another benefit. “Within four to five months [of implementation], we could see a change in the crediting of accounts. Billing is now more precise, and it’s easier to catch and track problems.”

“People like the extra information,” said Mattozzi. “Now we can show them just what’s going on with their water usage and even show them how to use the data as a tool to lower their consumption.”

Rogers added, “We’re in the process of educating our customers via our website on how the [R450] System works, showing photos of some of the components, and offering ways to help customers control their usage.”

The System is also proving itself useful as a conservation tool. The kinds of detailed consumption information presented to customers can also “help the City check for illegal watering on wrong days,” according to Rogers. “Before, we would have photos taken of water

at the curbs of residences with the date posted. Now we have [consumption] graphs to go along with these photos as factual evidence to send customers.”

### **N\_SIGHT™ R450™ – the Software that Makes Data Speak**

The City’s long-term goal is to allow customers to proactively monitor their own consumption and review their own accounts. That will be possible with the optional web portal offered by Neptune’s N\_SIGHT™ IQ™ intelligent data management, presentment, and analytics software. Clermont is already reaping the benefits of the sister software package in the suite, N\_SIGHT™ R450™ host software. In a real sense, N\_SIGHT R450 was made to order for the City. According to Gullett, Neptune listened to its requests for added features and came back with enhancements to the software.

“One of the enhancements we asked for,” said Rogers, “was the ability to export data to a spreadsheet format instead of having to print screens or write the information down by hand.” Mattozzi mentioned that N\_SIGHT R450’s new customizable dashboard that shows leaks, collector efficiency, and other data at a glance has been another big hit.

Once Clermont has completed installation of R450 MIUs across the system, it plans to leverage more benefits of N\_SIGHT R450

software. The grouping feature in particular will allow the City to make meter-to-meter comparisons among similar accounts as within neighborhoods or even across area franchises of a commercial enterprise. Mattozzi is enthusiastic about the City’s future with Neptune’s R450 System. “The System is capable of providing a tremendous amount of usable information,” he said.

The R450 System has not only drawn thousands of meter readings and associated consumption data from around the City – but has drawn interested utilities from other parts of the state to Clermont as well. “The System speaks for itself,” said Rogers. “I just show it to them.” Other utilities evidently are hearing loud and clear as Pompano Beach is now in the process of implementing its own R450 System.

Still, it’s the City’s own customers who count the most. Mattozzi said, “We now have responses to our customers when they call about usage...it amazes them that we can be so accurate.”

Rogers agrees about the R450 System’s most important contribution to their efforts. “It’s a very robust system – you can do as much as you want with it...but it’s the factual evidence for us and for the customer that’s the greatest benefit.”

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*Raymond Rogers, Storm Department Manager, Environmental Services Department for the City of Clermont*

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