

# MADISON SUBURBAN UTILITY DISTRICT

MADISON, TENNESSEE

CASE STUDY



## HIGHLIGHTS

- From 8-10 readers with 4-5 vehicles reading residential meters in 20+ days to two readers with one truck in two days
- Eliminated estimated billing for all residential accounts, achieving true monthly billing for first time
- Freed up personnel for other tasks besides meter reading
- Reduced repetitive motion injury of meter readers
- Reduced high water bill complaints; E-Coder®/R900/™ data logging provides proof of consumption; data logging helps protect the utility from the liability of water damage
- N\_SIGHT™ R900® software integrates seamlessly with billing and other systems for more efficiencies



## The Road to R900® RF Technology Leads to More Actual Reads and Proof of Consumption

### Estimates Were Rough on Reading and Billing

Located in Davidson County eight miles northeast of downtown Nashville, Madison, Tennessee sits within the country music capital's metropolitan area while maintaining its own friendly, small-town charm. Here, the Madison Suburban Utility District (MSUD) serves as the state's oldest non-municipal utility district, having been established in 1925 as a private utility for a country estate, and later becoming a public utility district in 1937. Today, MSUD serves approximately 19,000 water connections and a population of nearly 70,000.

According to General Manager Cindy Ellis, around 2,500 of the District's meters represent small commercial and industrial accounts; the remaining 16,500 or so are residential customers. Until recently, these residential meters were read manually every other month, requiring between eight and ten readers in four to five vehicles 20 or more days. During the intervening months, residential reads were estimated, based on a customer's 12-month history, using an automated adjustment process.

The same personnel responsible for meter readings were also tasked with providing regular maintenance to the water system. During times when those personnel were tied up repairing multiple distribution mains and taking care of other emergencies, readings would be necessarily delayed. The District's board has long been committed to keeping water rate increases to a minimum, so additional hiring was not an option. Weather-related delays to the meter reading schedule had also been a hurdle.

## Neptune's R900® System – Flexible, Reliable, and Ready to Roll

With its board members wanting to move to actual meter readings for all its residential customers as well as to remedy the many reading delays, the MSUD initiated a number of pilot programs over several years. It wasn't until recently, however, that "the technology and the reliability were finally there," said Ellis. That technology was Neptune's R900 System.

"We went out to Mallory Valley, a utility district in Franklin, Tennessee," said Kenneth Turner, MSUD's Distribution Manager. "Like us, they served a congested commercial area with many pit meter applications and similar weather. They showed us how their Neptune system was able to collect several hundred readings without them leaving a parking lot."

Ellis added, "We wanted the flexibility to collect entire areas rather than at the meter. At Mallory Valley, we saw that the R900 System was reliable in the field and that, for what we were looking for, Neptune best fit our needs."

Another factor in Neptune's favor – its lead free, bronze-body water meters. "We liked that," Ellis said. Not only have the meters met current regulatory standards such as the latest 2014 revisions to the Safe Drinking Water Act, but they've met them for years. That's a plus, when according to Ellis, "We didn't know how regulations would change in the future."

## Wait Reduction – Driving Down Time, Labor, and Customer Complaints

Working with Senior Territory Manager Scott Elwell and Chris Wiseman of Nashville's Southern Pipe and Supply, the District began the first phase of its transition to a radio frequency AMR (automatic meter reading) system in July 2012. In just six months, all active residential meters were changed out. Now, those routes are covered by two readers with one truck in just two days using RF handheld units or the MRX920™ mobile data collector. "We've already gotten rid of three vehicles from our fleet so far, and may reduce it by more." Already, since the first phase of the changeout, personnel have been freed up to address other tasks, including fire hydrant maintenance such as painting, and performing additional maintenance issues.

MSUD Office Manager Melissa Skipworth noted other quickly-realized benefits of the new system. "We haven't had as many calls or complaints regarding bills. We now have very few adjustments

that we have to make. We also don't have any misreads or re-reads." She continued, "It's simplified the billing process for our residential customers – who are happy that their bills are more uniform and predictable." And with time reduced for meter reading, the same has been true for the time needed to bill customers – with true monthly billing for residential accounts for the first time.

Providing more than just basic meter reading, another bonus has been the capability to demonstrate to consumers the existence of continuous leaks as well as proof of their water consumption. "Several times, data logging has helped resolve complaints," Ellis said. "It's been a really helpful tool for us and for the customer. We had a customer who believed we'd flooded her house by turning her water on. But because we could view her consumption down to the hour using the E-Coder®)R900/™ data logging capability and N\_SIGHT™ R900® software, we could compare the time of that water usage to when our truck arrived – which happened to be an hour later." Ellis and her team are also pleased with how simple it has been to integrate their N\_SIGHT software with billing and other systems within the utility, including tracked utility vehicle logs.

## Next Steps to More Mobile Routes

Moving forward, Ellis is enthusiastic about additional benefits of applying the R900 System. "One area we're addressing is repetitive motion injury, which is an ongoing problem in our industry. The automatic reads save our readers from having to continually lift pit lids. It helps prevent the 'invisible costs' that eat you up."

Phase one was to change out all the residential meters, which has now been completed. Phase two is to change out all the small commercial meters, and phase three will focus on the intermediate and large commercial meters in the system. Madison Suburban is currently tackling phases two and three at the same time. "We have had discussions of adding an R900® Gateway when they have completed all of their phases. The addition of the R900 Gateway v3 will further expose the meter reading efficiencies that Madison Suburban has already realized," added Elwell. Turner mentioned that "the E-Coder's compatibility with existing meters" – including Neptune's large commercial meters – will prove advantageous.

In the meantime, speaking to the "time management, reliability, energy savings, and support received from Neptune and Southern Pipe and Supply throughout the transition and follow up," Ellis is happy to say, "We're just enjoying this right now."

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