

CASE STUDY

Badger[®] ORION[®]

Radio Frequency System



Badger Meter's ORION[®] Radio Frequency System

The Badger[®] ORION[®] System Goes the Distance to Help Conservancy Read Remote Customers

By: Kevin Orfield

Constructed by the U.S. Army Corps of Engineers, Rend Lake Conservancy District was built to provide a dependable domestic water supply to 55 municipalities in southern Illinois. The 18,000-acre reservoir has an abundance of fish and waterfowl, making it a popular destination for fishing and hunting. The Conservancy also attracts many boaters, campers, golfers, swimmers, and visitors who simply want to enjoy the wildlife. Hikers may encounter deer, raccoons, fox, opossums, cranes, herons, and even an occasional eagle.

Work on the \$60 million project began in 1965, finishing in the early 1970s with the final filling of the lake. Since that time many improvements have been made to improve the quality of the Conservancy, including the water metering system.

Badger[®] ORION[®] perfect solution for widely spread customers

The Conservancy serves over 150,000 people over a 2,000 square-mile area. Its water plant pumps an average of approximately 13.5 million gallons a day, peaking at close to 19 million gallons.

Most of the water is sold wholesale to other communities, with the exception of approximately 1,200 customers, who live in remote areas far from population centers. The Conservancy provides water service directly to these customers, who are spread out over 1,000 square miles. "Many of these customers run water lines to our main, which runs along a railroad track as far as a quarter mile away," explains Keith Thomason, general manager.

The Conservancy has invested significant manpower to manually read these customers' meters. "We were spending more money to read many of these meters than they were paying us each month for the water," says Thomason. "These meters are a long way off the road, up and down hills, over cattle fences, and across ditches. For safety reasons we'd have to send out two readers."

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To read the meters, the reader often had to bail water out of many of the pits which had flooded during rainy season. If all the water couldn't be bailed out, readers resorted to using a homemade device similar to a telescope to read the meter.

With so many customers far off the beaten path, the Conservancy decided that an automatic meter reading (AMR) system made perfect sense. It had a number of companies bid on the project, and Midwest Meter, a distributor of Badger Meter, provided the most cost effective solution.

Before awarding the bid to Midwest Meter, the Conservancy tested the Badger® ORION® system extensively by installing meters and radio devices in some of the most rugged, remote locations. It then read meters under varying weather conditions every day for a week.

The Badger ORION system passed the test with flying colors. "The system has worked really well," says Thomason. "We're reading meters a half mile away or more, some without visual line of site – it's amazing. We're very pleased."

"If we have any trouble reading a meter, we'll modify the drive route. On a few meters, we've simply set the radio transmitter on top of a three- to four-

foot PVC pole, and that did the trick."

Read times reduced from weeks to hours

Installation began in February 2007. The Conservancy replaced any meters over ten years old or with over a million gallons on them and retrofitted the rest. By summer, the Conservancy had installed or retrofitted over half the meters; their goal is to complete installation by year's end.

Using the Badger ORION system, meter reading is significantly faster. To manually read the meters, it takes one crew of two people three weeks, or three crews of two people one week, depending on staff availability. Now a single person can read a route in six hours by driving around with a laptop and collecting reads.

Using the optional GPS mapping program, the location of any missed meters appears conveniently on a map. "It really helps because some of our meters are really far off the road," explains Thomason. "So if we miss a read we can see right on the map that we can take this driveway or that side road to get a little bit closer to pick it up."

An audible alert also lets meter readers know when they've missed a read. This is especially helpful for a driver who is reading a route alone without a partner to watch the computer screen. The driver doesn't have to take his or

her eyes off the road.

The Badger ORION system is also safer because readers never have to leave their vehicles. "Our readers have trudged across miles of rural areas and gotten their fair share of twisted ankles, sore backs, and smashed fingers," says Thomason. "We're not talking manicured lawns here, but farms. Riding around in a car means much less wear-and-tear on our folks."

Thomason also appreciates the tamper detection function, which alerts him if anything is amiss with the meter. "We've had a few people tamper with the meters, more out of curiosity than anything else – they didn't know what the devices were and decided to take them apart," he says. "ORION alerts us to any tampering immediately so we can fix the meter right away."

Tech support has been excellent. "Badger Meter has got the best tech support I've ever used," says Thomason. "They have an answer to every question, and they really know what they're talking about."

Thomason would highly recommend Badger Meter's ORION system. "I'd be shocked if there was another application as severe as ours," he says. "We're reading meters from a half mile away – in some cases even more – in very difficult conditions. If you can perform in our environment, you can perform in any environment." ■