

Have you ever wondered how your water meter gets read?

For years Antioch would read the water meters the old fashion way, by hand. A City employee would walk though each neighborhood, lift the lid on each meter box (if he could find it, because we all know meter boxes never get covered up) write down the reading on a piece of paper. When the route was completed the reading went to finance for processing.

Around 1985 we began using a hand held device that would store the readings. This device was called "I Tron". This new device still required a person to walk a route and manually enter the reading. If the hand-held did not like the reading for whatever reason, the meter reader could force a reading, or even worse, estimate. After a route was read he would download the hand held to a computer and the information would be processed by finance. This type of a reading device is still used widely by water purveyors and other utilities.

In Early 1993, the City decided to invest in newer technology provided by the Badger Meter Company. The system was called Access Plus. This system relied on sending the reading through the resident's phone service. You can imagine what the resident thought when we informed them we would be installing a device connected to their phone line to read the water meter.

Residents' concerns ranged from eavesdropping to damaging their computers, fax machines, telephones and answering machines in some cases this was true, although we were never eavesdropping! To convert our meter reading system to Access Plus meant changing all our meters to Badger Meters and purchasing computers and software to read them – this was very costly. At that time our primary meter had been Rockwell. In the end we found too many problems with the Access Plus system and we dropped it.

After many discussions with the Badger Meter Company the City converted to a radio read system called Trace. We had a substantial investment with Badger and since a good portion of the City had already been converted to Badger meters, it was just a matter of installing another type of register with a transponder unit to each Badger base and converting the remainder of the City to Badger meters with Trace transponders. We then had to purchase and install a new computer and software to read the Trace system.

The Trace system is basically a mobile computer installed in a van. Each transponder has it own frequency, so when the computer sends out a signal, it awakens the transponder and at that point the transponder sends the signal back to the computer which stores the information until it can be down loaded and sent to finance for processing. The final retrofit phase began in July of 1999. Approximately 10,000 meters needed to be retrofitted for the City to be completely radio read. In January of 2000 this task was completed.

For the first year or so we ran into several problems with the system. If the wrong transponder was installed on a meter we would get a bad reading. For example, if a transponder designed for a 2" meter was installed on a 5/8" meter & transponder the reading would be extremely high each time it was read. Another problem occurred if incorrect information was written down when the transponder and register was installed. Each transponder has an individual ID number

that must match the account number when entered into the computer system. Well, as we all know people make mistakes especially when it comes to writing down thousands of number.

After the city had been entirely retrofitted we sent crews out to correlate the transponder to ensure the transponders matched the right account numbers.

Software problem was another issue. Finance needed to work closely with the support staff at Badger Meter to insure that our billing system was compatible and working properly.

Sometime in early 2004 we began to replace defective Badger transponders with Orion Transponders. The Orion products have a longer battery life, newer technology, extended warranty and so far have been working well.

We currently have over 30,455 meters in our system. With the Trace system it is possible to read up to 1800 meters per minute (No way could our finance department even come close to handling this). We have our entire system read and downloaded to finance by the middle of each month. Because we bill monthly it doesn't serve to read any faster than finance can bill.

With all the good & the not so good, AMR systems (Automatic Meter Reading) are here to stay. The way that AMR has transformed our utility from a primitive meter reading operation to one of the most modern available is truly staggering in just short period of time.

I am looking forward to see what kind of new technology is ahead for AMR systems in the future.

This is why you never see anyone reading your water meter