

# Computer Corner

## New Technology Dream Turns into Costly Nightmare



Once upon a time, there was a progressive water district that, just as water boards should do, was always looking for the best and most cost-effective ways to provide quality service. Not so long ago they were a self-read water district, meaning their customers read their own meters, figured their own bills, and sent in the readings along with monthly payments.

Like many others had done before them, this self-read water district transitioned to electronic read. These transitions usually come with minor trials and tribulations before the process is complete. But, their transition went pretty well, and the district settled into this new way of doing things. They went to a radio read system that required the meter reader to drive a truck around the district, picking up radio signals sent from a transmitter on each customer's meter to a receiver mounted on the truck.

Time passed, and they found they had a growing number of meters that were less than dependable for transmitting the reading signal. This meant the maintenance person had to hand-read an increasing number of meters each month. At first, they tried to solve the problem by replacing meters or transmitters, but they found that supply chain problems had hit the water meter industry just as it has affected so many others. The number of transmissions missed each month was approaching ten percent of their total accounts, causing the need for hand reading meters or the estimating of readings to get out monthly bills.

The board decided maybe it was time to take another technological step forward. In recent years mobile meter reading has become very popular. With this method, each meter has a transmitter that sends information via a cell phone tower, unlike the radio waves used by radio-read. These transmissions may be sent daily, but

naturally, only one is used each month to create the water bill. The water system contracts with a company that provides them access to a website displaying their meter activity. With the use of an interface for their utility software, the water system can download that information to produce monthly bills in minutes by just clicking a few buttons.

The ability to see meter activity for any customer daily? No more driving a truck around the countryside to read meters? Just hit a few buttons and bills are calculated and printed? It sounds like a dream! Unfortunately, dreams do not always come true. Instead, this progressive water district, with such high hopes, found itself plodding through an ever-worsening nightmare it has yet to wake from.

I cannot stress enough that this is NOT a criticism of mobile read. On the contrary, our company has many customers enjoying this convenience with great success. This is a cautionary tale to remind people that, while no one has a crystal ball to ward off all possible bad outcomes, and, as with any enterprise, things can go awry when taking a big leap, any defense against trouble that can be employed in advance should be. Of course, sometimes the unforeseeable rocks the boat or even sinks the ship. But, it doesn't hurt to try to employ the adage "an ounce of prevention is worth a pound of cure". At the end of this article, once this tale is told, we will want to use some hindsight to see if there might have been anything the victims of this saga might have done to avoid the disaster, or at least, mitigate the damage.

This nightmare started when the water district heard about a neighboring system that had entered into an agreement for mobile read. That neighbor had just started the process and was not up and running yet. As

they had just begun, there were no problems known at that time. The neighbor was a good-sized system, so if this product and this company were good enough for them, it should do fine for us, too, right? To my knowledge, there was no deep dive into what other companies might offer or what successes or failures other water systems might be experiencing.

The way the agreement was structured was that the water district would pay a leading company, a meter distributor that had been around for many years. We'll call them Company A. Company A would provide a particular brand of meters and then contract with another company to provide the meter readings transmission collection and website display of that information. This second company, we'll call Company B, had only been in business for a short time compared to the years of service to the industry by Company A.

Company B recommended a team from out-of-state who could travel to Kansas to install the meters. The board accepted their recommendation. And the team, we'll call them Larry, Moe, and Curly, came to Kansas to switch out the water district's meters. They were paid in advance to take down the final readings on the old meters and remove them, replacing them with new ones purchased from Company A. The team was supposed to record each of the old readings and supply that information to the district's office as computer data. With this data, at the end of the month, the water district would be able to process the final readings on the old meters along with the readings on the new ones. With that digital information, the utility software would be able to produce accurate charges based on accurate usage from old and new with the press of a few buttons.

All of this was to take place inside one monthly billing cycle. The job was to be accomplished in less than a month, in time for the next billing cycle. Meanwhile, the district's office manager went to work scrapping the electronic information on the computer from the old radio read system, like the old meter numbers and



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electronic identification numbers, and filling out the same fields of data with the new system's information. The office manager accomplished this task and had the computer ready to receive the promised data of the old meter's final usage and the new meter's usage since installation. But, when the next billing time rolled around, the team of installers and Company B said they needed more time.

Even though at that time, more old meters were still in service than new ones, the old electronic information had been discarded and replaced with the new, so automatic reading of those old meters was not possible and the new system was, as it turns out, nowhere near ready.

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Even if the water district's only maintenance person started hoofing it from place to place, reading each meter, some newly installed, and some old meters yet to be changed out still would have left the district's office without the final readings on the pulled meters to create accurate bills.

Believing that they would have a working system within just a brief time, the decision was made to put off billing a few days and just be late sending out statements. But a few days turned into a week and longer, and soon, the next billing date was looming.

After being put off repeatedly, the district finally decided they would need to produce minimum bills for

no usage. Fortunately, the district's monthly minimum was a standard charge independent of usage. In other words, the minimum charged each month was strictly a water availability fee. The usage cost was in a separate charge field. This meant that even if they did a zero usage minimum bill for one month, waiting to catch up on that month's usage in the next billing, the money the customer would be charged over those two months would not be any more or less than if the district had accurate readings for the cycle each month. Customers would simply pay a small amount, the minimum, the first month, then, on the next bill customers would be charged that minimum plus the standard charge per thousand for all the water used in those two months.

Because they were in the midst of the meter change-out process and no data was being provided to the district's office which meters were already switched and what their final readings were, producing estimated bills by advancing the readings with an estimated usage could create unfair charges. Anything besides a zero usage might advance the readings beyond where those meters would ever go. In other words, customers could end up being over-charged.

Time passed, and the next billing time came and went. Once again, the district was told the vendor needed more time. Once again, the bills would be terribly delayed. The new electronic system was still not in service. But, there was a glimmer of hope as Larry, Moe and Curly were now ready to hand over the spreadsheet containing the final reads on the old pulled meters. That glimmer of hope faded as the district learned that the final readings were not logged for hundreds of accounts. While some readings from the old meters were typed in, many of those readings were not accurate. Some were reading far lower than the latest verified reading for the account. Some were wildly high, suggesting ordinary people had managed to use as much or more than a million gallons since the latest verified reading.

It was the district's maintenance person who came to the rescue. Bless his heart... he sat outside where the old meters were in piles, painstakingly handling each one, taking down the meter number and the final reading on paper. These sheets of paper were provided to the district's office manager, who, bless her heart... had to go to a backup of the software to learn what accounts matched with each of the old meter numbers.

Remember, the clerk had already changed out all the meter identification data. After she determined what meters went with what accounts, she then had to use the hand meter reading and switch-out entry feature in the

billing program to key in every one. If the company had provided what they were supposed to provide, NONE of that handwork would have been necessary. If the electronic data had been supplied on time, and as promised, all of that work would have been accomplished by the computer in minutes with only a few keystrokes.

Even with all this work to achieve an accurate accounting of the last of the usage of the old meters, this still left patrons with no calculation for any usage since the new meters were installed. If the office had been able to have the readings on the new meters, where they now stood, she could have had the computer figure the use for the end-of-life meter and pair that with the usage thus far on the new, calculating what the customer owed in total. But, as the usage on the new was unknown, all she could do with the switch-out procedure was let the computer figure out the final usage of the old and cause the new read to land on zero where the new meter would start.

The hope was that by the next billing, the system would be up and running, and the bills would show the usage for each account from the moment each new meter was installed. Since each monthly billing had been delayed from the start of this project, the next scheduled billing came up quickly. Some of the new meters had now been in the ground for as long as nearly four months without billing the person for any usage on their new meter. That meant many customers would have received exceedingly small bills for the latest billings but would now be sent a large bill covering multiple months of usage.

While this district suffered great misfortune in this enterprise, they were blessed to have a steadfast and hard-working staff and supportive board members who did their level best to deal with the failures they faced. More than once, when the office manager sought a resolution for these problems, her technical advisor from Company B was less than helpful. On more than one occasion, her patience was tried when she heard, "You're not our only customer, you know!"

Finally, after many phone calls, Company B came through with new readings on the new meters. Well, sort of... There were accurate readings for hundreds of meters, but for several hundred more, there was NOTHING and no word of encouragement that this was being resolved.

To address this, the office manager supplied the district's maintenance person with a list of all the unread meters. He headed out with clipboard in hand to read

each one. Once again, the bills were going out exceedingly late and some represented as much as four months of usage. Again, something that should have been instantly available to them was instead achieved after more than a week of effort.

The following month they were still only getting readings for a portion of the district. Rather than excessively holding up billing yet again, taking an extra week to read by hand those meters that failed to electronically report, they estimated instead. Normally meter estimating would have been a simple and quick matter by using estimate features built into their utility billing software. But as the usage over the latest months went from zero usage reported for one billing, to only the final usage on pulled meters for another, to billing that reflected multiple months' use, those recent months' data would have skewed the results. This left the office manager doing some back-in-time research on each account that needed to be estimated. Another time-consuming chore.

The staff, who was trying to keep up with all this extra work, longed for the days when their electronic radio read would only fail on less than ten percent of their accounts. But it gets even worse...

The district's staff hoped against hope that this next billing would be the winner, that the dream of simply accessing a website and transferring that data to their billing software and printing bills might finally be at hand. These hopes were dashed when the office manager found she was not able to access the website, nor could she reach anyone with Company B by phone. She tried and tried and came up with nothing. She heard from their neighbor water system that used Company B and learned they too were unable to reach anyone. She also learned that Company A was not able to contact anyone with company B.

Rumors were circulating that Company B had suddenly gone out of business. WOW! Those rumors have since been confirmed. So the B in Company B stands for Bankruptcy. Company A arranged a date to meet with the board and staff of the water district to discuss the matter and consider options to address this quandary.

While all this was going on time did not stand still and once again it was billing time. Now the district would have to produce bills with NO actual meter readings whatsoever. Using the ability of the utility software to

query groups of customers who generally used similar quantities of water in earlier times, the district was able to produce estimated bills without researching every single account individually and without entering each reading individually. This grouping of use categories allowed the district to at least accomplish reasonable bills without delaying yet another billing any longer.

Since that billing, the district has had their meeting with Company A. One option they were given was to return to radio read but instead of driving around in a truck to pick up signals for all their customers the plan would be to mount a receiver on the tower. If any couldn't be read that way then the truck method could be used. If they decide on this method the hope is to accomplish it before the next billing and if that

scheduled goal can't be met, they are talking about hiring temporary meter readers to get the job done.

So, looking back, what might have been done differently, if anything? Well, hindsight is always twenty-twenty, isn't it? An obvious change might be to not pay for something in full before any work is complete. Of course,

that wouldn't have addressed all the problems they faced. Perhaps a board might want to research multiple methods and hear from multiple vendors. They also might want to consider the time ALL the companies involved have been operating and check into their track record. Depending on patterning what they would choose after only one other water system, and one that hadn't completed start-up procedures themselves, was perhaps not the best approach. Comparing notes with several other water providers wouldn't hurt. That's what is nice about the Kansas Rural Water Association Exhibition and Conference. It provides folks with the chance to chat with their counterparts in other parts of the state and it provides a one-stop shopping experience for meeting and getting to know about vendors and their products.

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