

Maps that lie – and not worth the paper they’re printed on

In my opinion, many Kansas water systems are in trouble. Many wastewater systems are in trouble. What’s the problem? Many utilities have no way of accurately determining where their mainline valves, manholes and pipelines are located.

During years of experience working in a city and then for Kansas Rural Water Association, I know first hand that many systems have never updated system mapping products. Some maps of cities with populations of 3,000 or more consist of a single sheet of 24” x 30” paper. It usually has been folded and unfolded so many times that it is separating on the folds. Operator Joe or Jim has been employed for 38 years and will generally “know where things

are.” But no one else in the city or RWD seems to be aware that Joe and Jim may not be available one day and there is no one else in the community who can locate the distribution system. In a worse case scenario, large portions of a community could burn to the ground simply because neither the water system operator nor anyone else could locate a valve to shut part of the system off so that fire flow could be better directed.

New pipes, incorrect maps

Many other systems have had improvement projects in the last two decades. These projects were closed out with new, easier to read

maps. Yet, on many of those projects, key valves, pipelines and other appurtenances such as cleanouts or hydrants cannot be located using those new maps. Waterlines are being plowed through by fiber optic cable

heightened focus by the owners (cities and RWDs), the funding agencies, and consultants to help remedy this problem. Few of the professionals would be out in RWD 1 or City X, Kansas looking for valves and searching for leaks

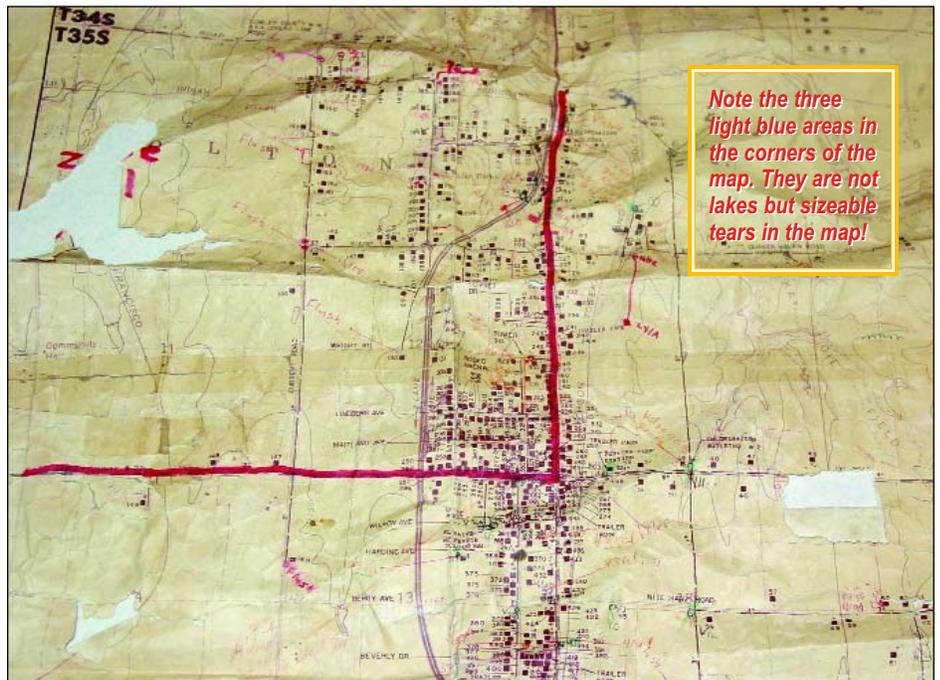
Joining Kansas One Call may be a good thing – but joining One Call will do nothing to help a water or wastewater system locate their facilities.

installers and phone line installers because the utility cannot locate their pipelines. Joining Kansas One Call may be a good thing – but joining One Call will do nothing to help a water or wastewater system locate their facilities. What is needed is a

when the community has no maps. When working with water loss and leak detection surveys, it is not uncommon for the pipeline to be on the opposite side of the road or street from where the RWD’s or city’s maps indicate it to be.



*Doug Guenther
Tech Assistant*



Note the three light blue areas in the corners of the map. They are not lakes but sizeable tears in the map!

This is the only map that one Kansas RWD had available. Included are 40 miles of pipeline, 460 customers, valves, pumps and a tank – all consolidated on one very well worn sheet. This hardly constitutes an ‘as-built’ map that is usable for future operators.



New technology allows for the creation of printed maps with the resolution as shown in this photo. In addition, water systems can view their maps on a computer or project to a larger image for better discussions and presentations when considering future projects. The real advantage is to have data available to consultants without having to recreate the mapping project for each improvement project.

The engineering industry doesn't get all the blame for these problems. I know that changes in the proposed location are frequently made in the field during construction. That is commonplace, as it should be. I have made such changes myself as an operator. However, when a change is made from the proposed plan, I also made a corresponding change on the

map. I have observed many changes made for contractor convenience or in some cases, changes were made for the safety of the existing system or a hardship such as avoiding unknown

obstacles. But many times those changes were never reflected on the maps.

Updating maps when changes are made is beyond important. Not doing so makes the maps useless. Working with new operators on trouble shooting issues and then to have inaccurate or in cases, no maps, is confusing at best and highly frustrating. In some cases it's outright dangerous to the customers of the systems.

New technology

Much has changed since early topographers traveled pioneer America and carefully plotted the first US Geological Survey maps. That work was completed by hand. Advances in survey techniques, instrumentation, and design and printing technologies, as well as the use of aerial photography and satellite data, have dramatically improved mapping coverage, accuracy, and efficiency.

The Kansas Corporation Commission (KCC) has recognized that inadequate water and



ONLY AMERICAN FLOW CONTROL GIVES YOU EVERYTHING YOU NEED:

a product line tested and proven to be the best. The expert guidance of people who truly care about their customers. And the knowledge and experience gained from 100 years of helping engineers design the perfect solutions for their projects. American Flow Control. When you use our products, confidence is built in. In Kansas, contact Cort Place at 913-484-8418 or go to www.acipco.com/afc.



1. 14" 48" Series 7500 Ductile Iron Flangeless Wafer Gate Valve
2. American Standard H 84-H
3. 5.1/4" Waferless Flange
4. 7" 12" Series 7500 1 Ductile Iron Flangeless Wafer Gate Valve
5. Series 7100 Resilient Seated Check Valve
6. American-Deering D-62-D
7. 4.3/4" Waferless Flange
8. American Deering Mark #3 Z
9. Trench/Adapter and Retrofit Inset

American Flow Control, a division of American Cast Iron Pipe Company

15111 31st Avenue North, Birmingham, Alabama, USA 35241/
phone: 800 326 8051 fax: 800 610 3569

www.acipco.com/afc



Maps that lie . . .

wastewater maps and other utilities are common in many communities. In 2001, the KCC provided a grant to assist KRWA to determine appropriate methods to improve facility mapping for RWDs and cities in Kansas. While there have been a number of setbacks, KRWA is now getting this program up to speed. A lot has also been learned. Communities have been educated and informed as a result. In many systems however, the first challenge is to get the staff and governing bodies to appreciate that a mapping revolution is underway. New technologies are altering the production and use of traditional maps.

Today's computers and software are extending mapping far beyond that single sheet of weathered and wrinkled map – the only one that many water systems have. But this new technology is changing rapidly. Many communities assume that they can also just “dive in” and prepare their own digital mapping project. What I've seen is that it requires a tremendous amount of

discipline to just complete the data collection, much less the time and sophistication of connecting the dots. The process is time consuming and detail demanding.

The new digital data applications make it possible to

consultant, which in turn should reduce the costs of the project design.

I hope that more systems will make improving their mapping products a higher priority. KRWA also encourages funding and

The new digital data applications make it possible to display maps on a PC. The data can be provided to other city entities, government agencies, or engineering firms. In effect, each time a city or RWD has an improvement project, it should not require the creation of a new set of maps.

display maps on a PC. The data can be provided to other city entities, government agencies, or engineering firms. In effect, each time a city or RWD has an improvement project, it should not require the creation of a new set of maps. The utility should be maintaining those on file and providing that mapping data to the

regulatory agencies to emphasize the need for better maps. The new computer-assisted map production technology makes it easier to produce new paper maps and to revise existing ones.

If you would like to have more information on how to efficiently and affordably obtain new maps of water, wastewater, gas or other facilities, I encourage calling KRWA. KRWA staff members Pete Koenig or Jessie Knight would be pleased to provide a presentation to a city or RWD to show what's possible in the area of digital mapping. Call KRWA at 785/336-3760.

In the meantime, I'll keep extra batteries in my tool kit for my metal detector and the wires connected to the headphones of the leak detection equipment I use. I only hope that someone can show me where the valves are located and where the pipelines run. In the worst case, let's start with where you think they are.

National Waterworks

2500 NW SOUTH OUTER RD. 11510 STRANG LINE RD.
BLUE SPRINGS, MISSOURI 64015 OLATHE, KANSAS 66062
(816) 229-9604 (913) 469-5820
FAX (816) 229-9607 FAX (913) 469-5825
(800) 892-4304 or (800) 821-4306

GREG “MUDDY” WATERS
METER SPECIALIST

CHRIS HOEBENER **MIKE MURPHY**
SALESMAN SALESMAN

Invensys Metering Systems

Sensus/Rockwell & Precision Meters