

# Pigging project improves RWD chlorine residuals

It's not uncommon for KRWA to receive calls for assistance to help a water system maintain or increase chlorine residuals or aesthetics of water being provided to the customers. Low chlorine residual was the issue that KRWA worked in the fall of 2006 at Rural Water District 3, Mitchell County. The district serves 564 users in portions of Mitchell, Jewell, Lincoln, Cloud, and Ottawa counties in north-central Kansas.

Mitchell RWD 3 purchases water from Mitchell RWD 2. RWD 2's water source is Waconda Lake near Glen Elder. The treatment plant is a clarification plant and the processes include rapid mix, flocculation, sedimentation, and filtration.

Mitchell RWD 3 has been in operation since 1976. During that time a buildup of sediment has occurred in the distribution system. This sediment has contributed to bacterial growth and the subsequent loss of chlorine residual.



Doug Guenther  
Tech Assistant

## Large problem for a small town

The small town of Randall is located in the northern portion of RWD 3 and is approximately 20 miles from where RWD 3 purchases water. Late in the summer of 2006, KRWA was contacted by Randall about low chlorine residual in the water from RWD 3. The town resorted to using a small chlorine injection pump to boost residuals. Poor

bacteriological sampling results spurred a request from the city for KRWA to provide assistance.

Initially, I was unsure of all the factors that might be

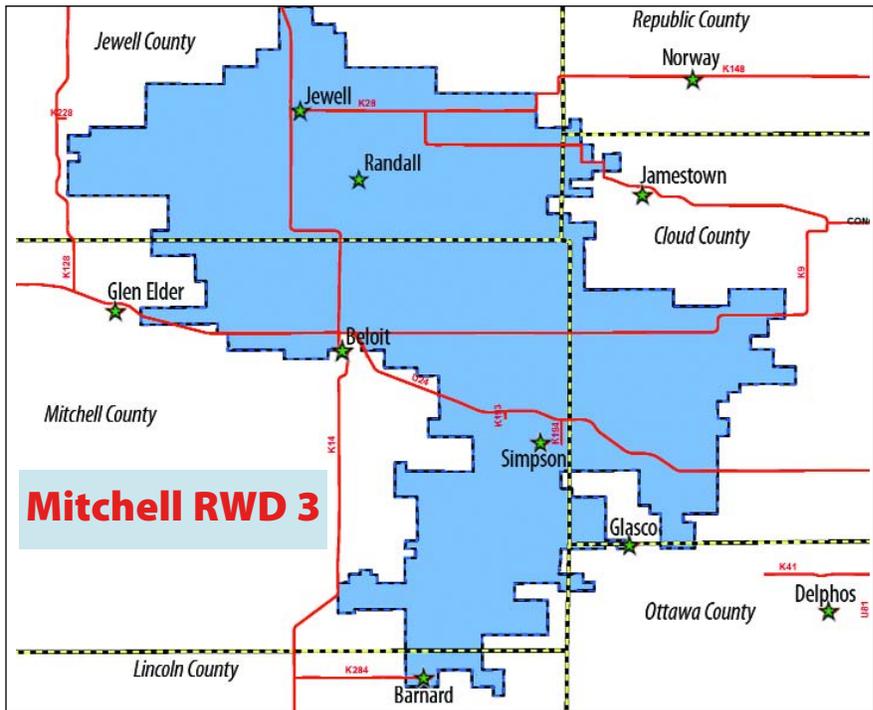
## Pigging is an option

Pat and I suggested to RWD 3 that pigging sections of that district should be tried. KRWA recommended using foam swabs

A quick check of chlorine residuals in town showed that residuals dropped by varying amounts in the Randall distribution system, depending on the length of time water was in transit.

contributing to the low residual problems in Randall. What the city and I knew was that the city was obtaining water from RWD 3 with low residuals. Pat McCool, KRWA Consultant, and I worked on this problem.

with the project to begin on the main, 8-inch PVC transmission line. Working with the district personnel Roy Arasmith and Jim Gilbert, a locale contractor was hired to excavate the pipeline so that we could insert the foam



Mitchell RWD 3 serves rural 564 customers in six north-central Kansas counties and supplies water to the towns of Barnard, Glasco, Jewell and Randall. The district was originally constructed in 1975.

swabs. We added a 50-ppm dosage of chlorine solution.

**The plan is finalized**

The launch point for the foam pigs would be just downstream of the district's main booster station. The booster pump would provide the water supply to propel the pigs through the 8-inch main. We decided to have the pigs travel a shorter distance by making two segments for the project. This would reduce service interruptions and allow for better control of the situation overall.

Most water system personnel can be a bit terrified at the thought of inserting a foam swab into a main waterline and then pigging for a considerable distance. Reducing the distance of work down into sections was welcomed by the district versus attempting to pig the entire line for 15 miles, that is, all the way from the booster station to Randall. These reductions also minimized service disruptions. Flushing the service lines along

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The contractor's tractor anchors the 8-inch line in place with a log chain. The set-up will serve as the pigging project flush point.

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**Above:** The last of the pigs, seen here still in the air, have exited the pipeline. The other two are seen on the ground below the pipe.

**Right:** This image shows the flush point for the pigging operation. The picture was taken following the run of the foam swabs that scoured sediment from the line. Fresh water follows this last swab. After flushing, chlorine residuals were checked by KRWA and district operators. These photos were taken by Operator Jim Gilbert.

## Great American Water Taste Test!

Drink up! It's the Best Tasting Water In Kansas Contest. The Kansas winner will be entered to participate "in the Great American Water Taste Contest" in Washington. This year marks KRWA's 7th annual Water Taste Test contest. In 2002, the city of Emporia won and was among the five finalists in the nation. In 2003, the Kansas winner was Public Wholesale Water Supply District No. 4 at Big Hill Reservoir near Cherryvale. Public Wholesale 4

went on to win the national contest. In 2005 and 2006, the Kansas winner was Emporia. How to enter? Just bring a gallon of water from your city or RWD in a glass container to the conference registration desk by 2 p.m. on Tuesday, March 27. A panel of industry experts will judge the samples later that afternoon. The winner will be announced during the Awards Presentations held on Wednesday evening, March 28.



the main could be accomplished easily in a day's time. The service lines were broken at the meter and a special attachment and hose was used to keep the flush water out of the meter pit.

#### New numbers tell the story

We spent several days on this project. The photos at above show the results. At the time we began this project, the chlorine residual leaving the Mitchell RWD 2 treatment plant was 3.0 ppm and higher of combined chlorine. Prior to pigging, the residual would drop to 0.2 ppm to 0.00 detection at all the far ends of the Mitchell RWD 3 system. After pigging and flushing the 8-inch line, the chlorine residuals improved to 3.0 ppm along the main transmission line and held at 2.5 ppm at the ends of the distribution system.

After the successful pigging of the 8-inch main, we moved out to some of the sections of 6 and 5-inch mains in RWD 3. The amount of sediment was dramatically

reduced the further we worked from the main supply lines.

If your water system considers any pigging project, it's important to make sure that the flushing point is at a location that allows for good drainage. By calculating the capacity of the pipeline, and the flow rate being supplied to propel

something to fear – the benefits of removing any foreign matter from mains go far beyond the cost in time to conduct the work.

#### The KRWA Annual Conference

The 2007 KRWA conference March 27 – 29 at Century II in Wichita features several sessions

**Pigging water lines is not something to fear – the benefits of removing any foreign matter from mains go far beyond the investment in time to conduct the work.**

the pig, it's relatively easy to predict the transit time of the pig.

KRWA was pleased to provide the service to Mitchell RWD 3 and to subsequent systems that purchase water from the district. If your community or water district has any interest in a similar "main clean-up project," KRWA would be pleased to visit with you about that at a board or council meeting. Pigging water lines is not

that will address maintenance of chlorine residuals and other water quality concerns. Attending those sessions, visiting the exhibits in EXPO and having discussions with vendors, presenters and fellow water and wastewater utility owners and operators will be an investment that's well worth your time. I hope to see you there.

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