

# Summer Has Passed; Are You Ready for Winter?

**I**t seems that the older we grow that time goes by faster and faster. Actually this is not the case but with the fast pace that lives are lived, we wonder where the year went. Water and wastewater utilities have been fixing, upgrading and even installing new components or complete new distribution systems, treatment plants and other improvements. Are they ready for winter?

In the course of the daily operation of the water system we sometimes neglect to check everything to make sure that the system will continue to operate smoothly during the next season. I found a list of monthly operational duties from an EPA booklet entitled “Preventive Maintenance Tasks for Tribal Drinking Water Systems”.

The information is well-suited to all water systems, because they all have at least one thing in common – a distribution system. All mainline gate valves should be operated at least once per year. It’s important to maintain a record of each valve and when it was operated. There’s nothing more frustrating than to see a nearly new system that has inoperable valves.

Photo by KRWA; Seneca, KS, December 11, 2007

The following is a month-by-month listing of duties that may help you with the operation of your system.

**January:** Overhaul feed pumps. The chemical feed pumps should be completely overhauled at least once a year. Spare parts should be kept on hand so breakdowns can be repaired quickly. Inspect and clean chemical feed lines and solution tanks. Inspect the lines to make sure they are not clogged or kinked and that the solution tanks are clean. This should be completed every three months.

Calibrate chemical feed pumps after overhaul. At least every three months and after the pumps have been overhauled the pumps should be re-calibrated. Be sure to record any new speed and stroke settings anytime a change is made.

**February:** Inspect chemical safety equipment and repair or replace as needed. Chemical safety equipment should be checked and tested at once per year. Follow the manufacturer's instruction on the proper maintenance, including portable ventilators or respirators, safety harnesses or belts, goggles, gloves, hard hats and protective clothing. Gas monitors should also be checked for calibration and repaired as needed. Operate all gate valves inside the treatment plant and pump house(s). The inspection should include completely closing, reopening and re-closing the valve until it seats properly. Record the number of turns to close. Leaking or damaged valves should be scheduled for repair.

**Allowing facilities to deteriorate creates an added expense to the system, which contributes to a higher cost for water or wastewater service to ratepayers.**

**March:** Inspect, clean and repair control panels in the treatment plant and pump house(s). The control panels in the pump house and treatment plant should be inspected at least once per year for corrosion and other problems that could cause shorts or failures. Exercise half of all mainline gate valves. Record the number and direction of turns to close. A map should be developed that identifies the valves and their location. Any failures should be scheduled for repair.

**April:** Flush the distribution system and exercise/check fire hydrant gate valves. The complete distribution system should be flushed at least once a year in one direction, starting from the plant or storage facility. Inspect and clean chemical feed lines and solution tanks – Inspect the lines to make sure they are not clogged or kinked.

**May:** Calibrate chemical feed pumps. At least every three months the pumps should be re-calibrated to ensure they deliver the appropriate amount of chemicals to the system. Inspect fencing and gates. Treatment, storage, and pumping facilities should be inspected at least twice a year to ensure they provide adequate protection against vandalism and unauthorized entry. Fencing, locks, and locked well covers should be used to protect the facilities from livestock and tampering. Warning signs should be posted to deter trespassing. Inspect storage tanks for defects and sanitary deficiencies. Storage tanks should be inspected annually.



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## Ready for winter

Screen any openings to stop small animals, insects and other organic matter from entering. Screens should be in place on overflows (or a flap gate on any overflows). Check overflows, water level measuring devices, secured hatches and any deterioration in the tank's walls or foundation. Clean storage tanks if necessary. Make sure tanks are thoroughly cleaned and disinfected after any construction, maintenance or repairs.

**June:** Perform preventative maintenance on treatment plant and pump house buildings. Plant piping, buildings and tanks should be painted regularly to prevent deterioration. Store all pipe, fittings, chemicals, tools and other materials in a safe place. Pump house ventilation should be checked to ensure there are no blockages and that the fans are operable.

**July:** Inspect and clean chemical feed lines and solution tanks. Inspect the lines to make sure they are not clogged or



**Before:** This photo shows a pump station as found by KRWA staff in a northeastern Kansas rural water district: plugged drain, cracked wall, rusting equipment and piping. The operator abruptly resigned.



**After:** This photo shows the same pump station after it was cleaned and painted by KRWA Techs Lonnie Boller and Tony Kimmi. They have worked with board members and the office manager to get this facility and numerous other operational issues under control.

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**August:** Operate all gate valves inside the treatment plant and pump house(s). The inspection should include completely closing, reopening and re-closing the valve until it seats properly. Record the number of turns to close. Leaking or damaged valves should be scheduled for repair.

**September:** Exercise mainline gate valves that were not exercised in March. Record the number and direction of turns to close. A map should be developed that identifies the valves and their location. Any failures should be scheduled for repair. Prepare system for winter operation. This includes checking all exposed facilities to make sure they are properly sealed, insulated and heaters are functioning.

**October:** Inspect and clean chemical feed lines and solution tanks. Inspect the lines to make sure they are not clogged or kinked. Calibrate chemical feed pumps. At least every three months the pumps should be re-calibrated to ensure they deliver the appropriate amount of chemicals to the system.

**November:** Finish preparing the system for winter operation. This includes checking all exposed facilities to make sure they are properly sealed, insulated and heaters are functioning.

**December:** Contact an electrician to check running amps on well pumps, booster pumps, etc. A change in the running amps can indicate a change in the condition of the motors or pumps.

Water and wastewater operators have numerous duties to perform every day in operating a utility. Recently KRWA has assisted a rural water district when their operator resigned. The pump house was in a deplorable condition. Lonnie Boller and Tony Kimmi cleaned the building and repainted the interior and all the plumbing. At one corner of the building, daylight could be seen through a rather large crack; this was also repaired. Had this building not received attention, the cost of heating would have been abnormally high and perhaps a major freeze-up would have occurred. Board and council members should be involved in tours of the facilities they are ultimately responsible for. Allowing facilities to deteriorate creates an added expense to the system, which contributes to a higher cost for water or wastewater service to ratepayers.

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*Greg Duryea has worked for KRWA since 1993 as Technical Assistant. He presently manages the Emergency Operator Program, with a variety of other responsibilities. He holds a Class I water certification and is the certified operator for Sycamore Springs Resort in Brown County.*

