

LaHaye & Associates, Inc./Phil LaHaye

waterbiz448@aol.com

407-782-1196/Fax 407-264-8881

(This document is copyrighted and may not be reproduced without written permission from Phil LaHaye)

CHLORINATION SYSTEMS© (3/12)

The purpose of this manual is to assist you in maintaining high quality water in your home or business. We put this together with the intention of helping you understand your system.

All chlorination systems will be similar to the diagram. However, since individual wells and family/business needs vary, there may be more or fewer pieces of equipment than shown in the diagram. These systems will last many years with reasonable care and a program of regularly scheduled maintenance.

SUMMARY OF MONTHLY CHECKS*

- 1) Check levels of chlorine mixture, salt, and other chemicals.
- 2) Check chlorine residual with test kit. Adjust, if necessary, to 2-4 ppm free chlorine.
*(**If you add chlorine or water or adjust the chemical feed pump setting, recheck the chlorine residual tomorrow.**)*
- 3) Set clocks to proper time.
- 4) Blow down Retention Tank
- 5) If you have questions, call the office.
- 6) Enjoy your water!

*NOTE: If your system is new or if you have had major changes in the equipment, plan on WEEKLY checks for the first month.

MAINTENANCE INSTRUCTIONS:

FLOW SWITCH

(Not found on all systems)

OPERATOR MAINTENANCE: Normally none; however, some flow switches can be pulled apart and cleaned. Call the office for details.

CHEMICAL FEED PUMP (Chlorinator Pump)

PURPOSE: To inject chlorine into the system to kill all bacteria, eliminate all sulfur and iron by precipitation and to sanitize water. The correct bleach-to-water ratio used will be specifically for the conditions in your well. If you are unable to adjust your "Chlorine Residual" (see next section), please call the office for assistance.

OPERATOR MAINTENANCE:

WEEKLY - Check level in tank. (Once you know how much liquid is used weekly you may be able to check less frequently.) Refill as needed.*

MONTHLY - Check level in tank. Refill as needed.*

NOTE: The newer **UNI-DOSE** and **STENNER** pumps don't normally need acid cleaning.

SEMI-ANNUALLY--ONLY FOR PULSAFEEDER/CHEM-TECH PUMPS

- !!!!!!!WARNING!!!!!!THIS NEXT PROCEDURE CAN BE QUITE DANGEROUS! IF YOU ARE NOT THOROUGHLY FAMILIAR WITH HAZARDOUS CHEMICAL HANDLING, DO NOT ATTEMPT THIS PROCEDURE!!!! Thoroughly clean foot valve, pump head and injector with muriatic acid (HCl). We recommend that a qualified service technician perform this. Call the office to schedule.

NOTE: DO NOT ALLOW YOUR BLEACH TANK TO FALL BELOW 1/4 FULL AS PUMP WILL PROBABLY LOSE ITS PRIME. CONSIDER INSTALLING A PRIMING VALVE--Call office for details.

RETENTION TANK

NOTE: (Some systems may have more than one retention tank. Some systems may not have any retention tank.)

PURPOSE: To allow sufficient time for the chlorine to mix with the water.

OPERATOR MAINTENANCE:

WEEKLY - Check chlorine residual (immediate chlorine reading) at the faucet located at the top of the tank. Ideal free chlorine residual is 2.0-5.0 ppm determined with OTO (yellow) or DPD (purple) test reagent. Make adjustments to chlorinator pump or by adjusting bleach-to-water ratios if chlorine readings are above or below acceptable range. Call office for assistance.

MONTHLY - "Blow down" retention tank(s). Do not *drain* the tank; simply hook up a hose to the faucet at the bottom of the retention tank, open the faucet wide open, and let the water run at full force until it turns clear. If it does not clear within 15 minutes, call the office.

PH CONTROL (Normally NOT on your system)

In some systems pH control is essential. The pH scale is from 0-14. Neutral pH is 7.0 with readings below 7.0 indicating acidic water and readings above 7.0 indicating an alkaline condition. Most deep well water has a pH of about 7.2-7.8, slightly alkaline. If the pH of the natural well water is below 7.0, iron removal becomes much more difficult as the iron tends to stay in solution. It will likely pass through a filter as if it did not exist. The pH must be raised by adding alkalinity to the water. In a chlorination system this is often accomplished by adding **soda ash** (Na_2CO_3) into the water either with a separate pump and solution tank or by mixing it with the bleach/water solution and injecting it along with the chlorine.

Follow directions from the office for the amount of soda ash to add and test monthly to maintain a pH reading of 7.0-8.0.

AUTOMATIC CARBON FILTER

PURPOSE: The carbon filter removes the chlorine and all tastes and odors from the water. (In some systems, the filter will remove iron while the chlorine will be removed in another part of the system.)

OPERATOR MAINTENANCE:

MONTHLY - Check timer and reset clock to correct time of day, if necessary.

OTHER: Rebed (replace entire contents of tank) every 2-5 years. (Call office).

WATER SOFTENER/CONDITIONER

PURPOSE: To remove hardness minerals from the water.

OPERATOR MAINTENANCE:

MONTHLY - Check timer and reset clock to correct time of day, if necessary. Check salt level in brine tank. If the water level is above the salt, add enough salt to at least cover the water in the brine tank.

NOTE: Water level in tank should never rise above 10-12" deep (the brine tank should not be more than about 1/3 full.) If water level is above this height, call the office.

OTHER: Rebed (replace entire contents of tank) every 3-7 years. (Call office)

IRRIGATION SYSTEM--STAIN PREVENTION

Water treatment for the irrigation system is simple. The system consists of a chemical feed pump, a chemical storage tank (solution tank), an injection system, one or more retention tanks, and in some cases, an atmospheric vacuum breaker.

Proper operation and stain prevention DEPENDS on one simple principal--there MUST be an active chlorine residual in the water used for irrigation, or it will stain. The water may be tested at any sprinkler head in the system. The chlorine must test at a minimum of 0.3 ppm and a maximum of 3.0 ppm at all times. If the chlorine residual is present, staining will not occur. Please call the office if you have questions or your system does not maintain the required residual.

OPERATOR MAINTENANCE:

WEEKLY - Check for chlorine residual in sprinkler head. Maintain adequate solution in chemical storage tank.

SANITIZING (SHOCKING) INSIDE WATER PIPES

NOTE: A chlorine test kit (OTO or DPD) which measures "free" or "residual" chlorine is necessary to perform this procedure. This should be done about ONCE PER YEAR or as often as needed.

- 1) Increase free chlorine residual at top of retention tank to at least 10 ppm or more (the OTO will turn from yellow to orange or red).

--OR--

If you have a 4" or larger well with a submersible pump, pour one (1) gallon of bleach into well casing through the 1/4" or 1/2" plug at well seal. (DO NOT LOOSEN 4 BOLTS IN WELL SEAL!) If you use this method make sure you run at least 50-100 gallons of water into the 1/4" or 1/2" hole to rinse the bleach off the inside of the well casing.

- 2) Place all filtration and softening equipment into BYPASS.
- 3) Begin running COLD water at house faucet closest to well. Run until you have a strong chlorine reading. Now go to EVERY FAUCET—OUTSIDE AND INSIDE and turn each one on about half a turn. Once all the faucets are on (including showers), go back to the first faucet, test it for chlorine, shut it off only when you have a strong reading. Once all the faucets in a bathroom are tested, flush the toilet. (This procedure--paragraph #3--should take about 10 minutes.)

NOTE: If you need to chlorinate the HOT water, follow the same procedure as above, except for flushing the toilets. The HOT water could take about 30-40 minutes to get a strong chlorine reading.

- 4) Once there is a chlorine reading at each faucet, let the chlorinated water remain for 3-4 hours for best results.

NOTE: Begin Step 5 while waiting for the chlorinated water to sanitize the inside pipes.

- 5) Flush the excess chlorine from the well (or bring the reading at the top of the retention tank back to normal by turning the chlorine settings back to normal and running the water from the top of the tank until the reading is 2-5 ppm free chlorine). If you chlorinated the well, run the water until all chlorine is gone.
- 6) Place all filters and softeners back into SERVICE position.
- 7) At the end of 3-4 hours flush all lines with treated water. Test to make sure all chlorine has been removed from both HOT and COLD lines.
- 8) Your pipes are now sanitized!
- 9) We recommend you clean one water closet (toilet flush tank) very clean and look in it once/month. If you see a growth or feel a slime on the sides of the tanks, call the office.