



## UP THE CREEK

December 1, 2009

### True or False?

Your annual exam on water quality and other things - circle True or False, then check the answers below (or vice versa, if lazy).

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|--|---|---|
| 1. A water softener is a beneficial addition to your home.                                     | T | F |
| 2. Soft water is easier on pipes and fixtures than hard water.                                 | T | F |
| 3. The greatest health risk in a public water supply is chemical contamination.                | T | F |
| 4. Ultraviolet light is a safe and effective disinfectant for drinking water.                  | T | F |
| 5. Our distribution pipeline system is clean and impervious to outside contamination.          | T | F |
| 6. Ozone is a safe and effective disinfectant for drinking water.                              | T | F |
| 7. Chlorine is very difficult to remove from water, once added.                                | T | F |
| 8. <i>Giardia</i> and <i>Cryptosporidium</i> are germs carelessly imported from Mexico/Russia. | T | F |
| 9. Systems supplied by well water need not chlorinate; the water is naturally safe.            | T | F |
| 10. Our obsession with clean water is making us into weaklings with no natural immunity.       | T | F |
| 11. Because of the economic downturn, USCDWUA is broke and wants more of your money.           | T | F |
| 12. It is safe to ignore the "Call of the Annual Meeting"                                      | T | F |

### Answers - don't peek!

- FALSE.** Our water is already plenty soft. The total hardness numbers are 40-60 milligrams per liter, or about three grains per gallon. Don't waste your money on additional softening.
- FALSE.** Soft water is more corrosive than hard water. Hard water causes scaling, which is often mistaken for corrosion. But very soft water will actually eat holes in metal pipe and fixtures. Water is the universal solvent. Hardness (dissolved minerals) makes it a little less aggressive toward plumbing.
- FALSE.** Living pathogens (germs) cause the vast majority of illness from drinking water. Most cases of waterborne disease are traced to causes beyond the control of the public water supplier, e.g. house plumbing.
- TRUE.** UV is used in water and wastewater disinfection. But it only works once, at the treatment plant. It is still necessary to add a chemical disinfectant, such as chlorine, which will persist throughout the distribution system to combat contamination there.
- FALSE.** We only wish it were true. Pipeline breaks, degraded pipe materials, and illegal cross-connections are potential sources of contamination in all distribution systems, yes, even ours.
- TRUE.** However, it is expensive to generate, and, like UV, leaves no residual disinfectant to combat potential contamination downstream. Ozone, like chlorine, creates undesirable byproducts in the water.
- FALSE.** Some people are naturally sensitive to chlorine, and want it out of their water. A properly designed *and maintained* activated charcoal filter will remove chlorine from your tap water. Having done so, it makes possible the growth of bacteria in the filter or elsewhere. If you have a home filter, you must take care of it or you can create more problems than you started with.
- FALSE.** These creatures have been here all along. They are intestinal parasites, living in the gut of a variety of mammals, even those who walk upright and wear clothes. They are a common problem in water treatment because they are very small, live for a long time in cold water, and resist chlorine. They should not worry you, because our membrane filters remove them.
- TRUE(?)** Last year, people in the city of Alamosa, Colorado were forbidden to drink tap water contaminated by *Salmonella* bacteria that caused 400 illnesses and one death. It took 24 days to disinfect the system and return to full use of the water. The Alamosa water is from deep wells and was unchlorinated, thanks to a disinfection waiver issued by the Colorado Dept. of Health. The city now chlorinates.
- TRUE.** But it's like our common concern with hygiene. We rid ourselves of fleas and other vermin because few people want to risk acquiring "natural immunity" to bubonic plague. Why not take the same approach to water? Probably most of us would rather not die while trying to develop immunity to hepatitis, cholera, *E. Coli*, *Salmonella*, and the like.
- FALSE.** We have remained solvent by making use of two little-known accounting tricks: (1) adopt a balanced budget; (2) follow it. You can help perpetuate this radical mode of operation by participating in your Annual Meeting December 15.
- FALSE,** unless you don't care if your water rates are doubled, imbeciles\* are put in charge of the Association, and the reserve cash is invested in Las Vegas slot machines. Otherwise, you better be there.

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\*we mean worse ones than those already in charge.