KNOW WHAT YOU ARE DOING AND WHY

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How many times have we heard, "That's the way we have always done it?" This response is not enough. As professionals in our field, we are required to know why we do things and what the expected results are. If we don't know, we need to ask. As a young operator many years ago, I encountered the Good Old Boy attitude when I asked why? "Don't go changing things, we have always done it this way and it works".

An excellent source of information is the internet, just be sure to understand what you are reading. My personal choices are to contact the chemical supplier. They have a wealth of knowledge on their products and can direct you to the proper person. They want their products to work for you. Another excellent source is your local DOH official. They can help you to understand the reasoning behind a certain treatment.

I was called to work with a small community water system serving a population of around 500 full time residents. Their operator, a part time position was having an issue with chemical application. They are a groundwater source with a raw water pH of 7.4. They have been required to maintain a pH of 8.5 by adding caustic soda at the source. This was causing issues with the piping at the injection point.

They were seeing a layered buildup just after the injection point. The layering was very obvious and clearly defined. The caustic soda had been in use for about 12 years, the 4" pvc piping was narrowed to about a 1" opening causing pressure issues and strain on the pump.

The piping was replaced and a resilient seat valve was installed. Within 2 years this valve was inoperable. Why was this happening and why were they required to add this chemical? As their Circuit Rider, I set out with the task of obtaining answers.

What is caustic soda? Caustic soda - or sodium hydroxide - is the natural co-product of chlorine production typically marketed as a 50% solution. Liquid caustic soda is a colorless, odorless liquid that is highly corrosive and reactive. A 50% solution has a pH of 14.

A good source of information is the local Department of Health office. A call was placed to them so that I could better understand the reasoning behind the requirement to add the caustic soda. The operator and administrator only knew that it was for pH adjustment. Normally water with a pH of 7.4 is acceptable unless it is slightly alkaline causing issues with the leeching of lead and copper. The DOH confirmed that this was the case. Elevated lead and copper levels resulted in the requirement to adjust the pH and to add a layer of protection that the caustic soda provides.

It was then necessary to contact the chemical supplier and ask their recommendation. A 50% solution is very temperature dependent. It performs best when stored at 70° F. The room was kept cold during the winter months causing the solution to not properly mix with the water and adhere to the pipe very close to the injection point.

The municipality was given two options; the first was to switch to a 25% solution that would work in lower temperatures, 35° F, or to raise the temperature of the room to around 70° F. With the stock on hand it was decided that a temperature adjustment would be the answer. In the spring the piping will be removed and cleaned, the valve brought back into operation and a routine check of the piping will be done.

In conclusion, if you are not sure, ask. Don't rely on the old "That is the way we have always done it" answer. You have unlimited resources at your fingertips. The supplier wants to be sure their product is meeting your expectations. The DOH is there for you, your concern is their concern. New York Rural Water Association is here for you. If we don't have the answer, most likely we know someone that does. I hope to see you in my travels throughout Western NY.

If you have any questions or are in need of assistance, please contact me (518) 828-3155 ext. 24 or holley@nyruralwater.org