

**Safe Chlorine Handling
for
Public Water Supply**

CASE STUDY IN IOWA: Safe Chemical Handling for Public Water Supply

More than 2.5 million people in Iowa are served by public water supplies. According to the annual DNR compliance report, the 2,000 regulated water public supplies, have seen significant improvement in compliance with new rules which require systems to measure the byproducts of the disinfection process. The byproducts can have an effect on public health especially pregnant women, the elderly, children and people with a weakened immune system. These rules were put in place as part of new federal regulations which created more requirements for water system operators and state oversight staff.

“Overall, the public water supplies in Iowa are serving safe water,” according to Dennis Alt, supervisor of the DNR’s water supply engineering section which monitors sampling and report of public water systems. “The drinking water industry is very complicated with many requirements. Iowa is fortunate to have dedicated, qualified water treatment and water distribution system operators, and state drinking water oversight staff. And I’m sure we can work together to improve the compliance rate.”



One of the Water Districts delivers drinking water to almost 1000 customers who live about in one of the small towns in Iowa. The water comes from the local lakes and is piped out to the area. To ensure that the water is potable, chlorine is fed into the system twice a week at the well field before it reaches the booster station for the community. Recently, to save money, the District switched over from tablets to liquid chlorine. Because of the toxic nature of chlorine, the District had been purchasing the liquid in 5 gallon containers. Research by employees showed that purchasing the disinfecting agent in 55 gallon bulk containers saved quite a lot of money but made safe handling a problem. They found that once the drums of chlorine were tapped, workers were still left to deal with the inherent difficulties that gravity-fed spigot systems presented. First, extracting fluid was still very labor intensive and awkward. Spigots clogged easily and were difficult to remove. Second, it was difficult to control the flow rate, and the spigots leaked, contributing to spills and fugitive

inventory loss. Finally, the spigot system did not allow complete removal of all fluid from the drum, so additional labor and handling were required by two people to dump out the drum to get the remaining fluid out.

Through additional research on the internet, the Metro District staff member discovered and purchased a GoatThroat Pump which created a very safe handling situation for the chlorine in 55 gallon drums. With these pumps, the containers remain upright, so there is no extra handling required for drums and no chance for accidental spills or lost work days. The pump’s working pressure of 1-5PSI produces consistent flow rate of 4.5gpm. A drip-proof faucet with finger tip control dispenses small amounts or gives steady flow. Having used the pumps since 2004, site operators have been very impressed with their pump. It has allowed them to decant chlorine safely and with no messy spills. Additionally, these pumps have spring loaded faucets which provide significant accuracy rate in the amount of fluids dispensed so there is no chance for uncontrolled addition of the chlorine into the system thereby eliminating the fear of excess chlorine byproducts in the water.