



CONVERSION FROM CHLORINE GAS TO SODIUM HYPOCHLORITE SOLUTION TO DISINFECT PUBLIC WATER

The Authority's 2016 Capital Plan includes converting the Authority's disinfection system from gaseous chlorine to a sodium hypochlorite solution.

The use of gaseous chlorine at our pump stations has for many years, been an effective method of disinfection. It remains by far the most common method used globally to disinfect water and wastewater and is the most commonly used disinfectant in treatment plants throughout the United States.

The safety of chlorine gas has, however, come under increased scrutiny in recent years. At many facilities, minor chlorine gas leaks occasionally occur with faulty valves and poor connections, and the risk for major leaks is always present. At low levels, chlorine gas can cause eye, skin and respiratory irritation, while exposure in high enough doses can be fatal.

In addition to the side effects related to chlorine gas exposure, the nature of the gas allows migration to distances well beyond the point of release. In addition, storing, moving, handling and changing chlorine liquid or gas cylinders are cumbersome and potentially hazardous. HAZMAT endorsements are required in Pennsylvania to transport to each Authority location. Safety equipment must be continually replaced according to regulatory requirements.

The regulatory compliance issues related to chlorine also are significant. The OSHA Process Safety Management Plan was developed and requires continual update and revision. The United States Department of Homeland Security and the United States Environmental Protection Agency's (EPA) Risk Management Plan have identified chlorine gas as a high risk potential for water providers when completing vulnerability assessments.

The decision to undertake the conversion project for the Authority is driven by the result of vulnerability assessments and progressive safety initiatives. The Authority is continually has looked to develop a flexible alternative disinfection strategy throughout our service area that would enable promote operator and community safety, reduce unnecessary Hazmat training while meeting EPA regulations

High level Hazmat training is not required for handling the disinfectant as proposed by the Authority. As a result, there is no need for the use of self-contained breathing apparatuses.

