

CASE STUDY

BUHL

On-Site Disinfection Generation Enables Southern Idaho City to Provide High Quality Water for Burgeoning Industrial Food Processing Customers



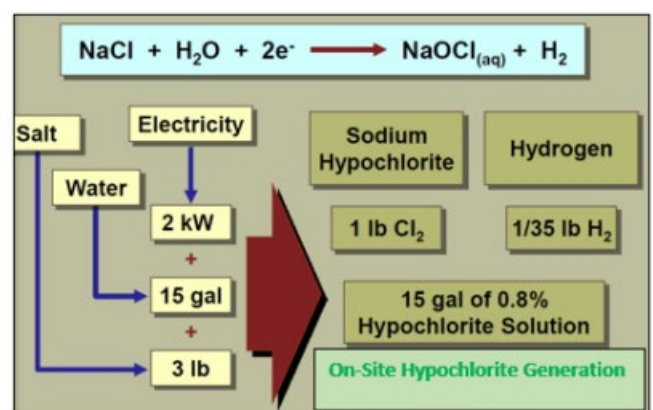
OVERVIEW

Buhl is a city located in south central Idaho in Twin Falls County, on the old Oregon Trail. The city was founded in 1906 and named after Frank H. Buhl, a major investor in the Carey Act project that brought largescale irrigation to the area in the early 20th Century. The city is home to just over 4,100 residents. Typical of a rural region, Buhl's economy is based largely on agriculture. In recent years, several food processing plants have set up in Buhl, including numerous fish hatcheries that produce a majority of the rainbow trout consumed in the United States. The fish hatchery exports have earned Buhl the distinction of being the Trout Capital of America.

Despite being close to the Snake River, the city of Buhl obtains all its drinking water from groundwater sources through multiple wells. Prior to 2009, the city did not treat the groundwater but only added chlorine in the form of bulk 12.5% sodium hypochlorite to provide a disinfectant residual. A combination of factors including changes in EPA and state DEQ regulatory requirements, growth of the residential population and growth of the industrial food processing customers forced the City of Buhl to build a new water treatment plant to provide filtration to address the naturally occurring arsenic present in the groundwater.

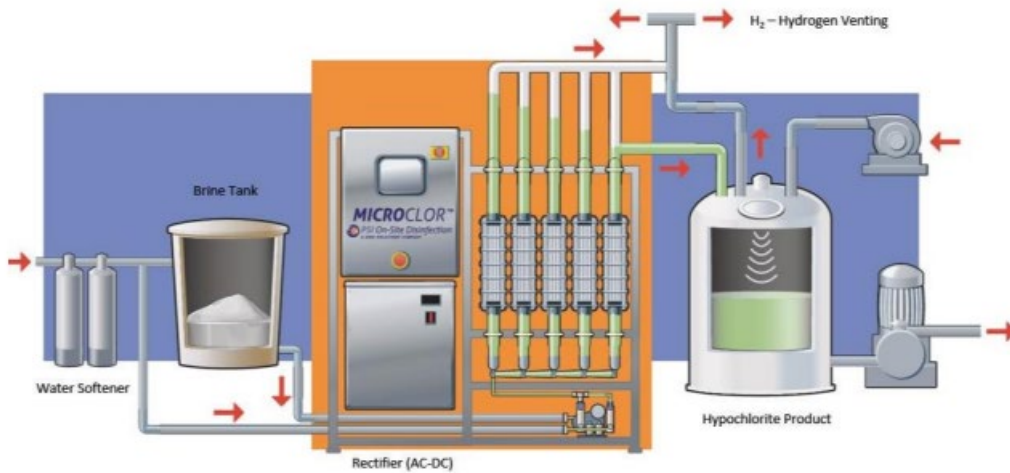
A water treatment plant with a capacity to produce 2.2MGD was constructed in 2009 and brought on-line in March of 2010. The plant treats the raw water with ferric chloride and utilizes two 600 gallon per minute (gpm) pressure filter systems with anthracite coal to remove arsenic through flocculation and adsorption. During the design phase of the treatment plant, numerous disinfection processes were considered. The City, along with their engineering consultants, agreed upon on-site hypochlorite generation (OSHG) for overall reliability, safety and consistency. While the city had been using 12.5% bulk hypochlorite in the past, they had concerns over degradation which could lead to

inconsistent residual levels in the distribution system. OSHG produces sodium hypochlorite at a concentration of 0.8% (8,000 ppm) with the electrolytic conversion of simple table salt to sodium hypochlorite (bleach). A Microclor® MC-80 OSHG system by PSI Water Technologies with a capacity of 80 pounds per day equivalent gas chlorine was selected for the plant. PSI Water Technologies provided engineering design support and on-site technical training at the time of installation and start-up.



Water plant operators aim to maintain chlorine disinfectant residual levels in the distribution system in a range of 0.5mg/l to 0.65mg/l as an extra level of precaution for the industrial food processing customers. The city's distribution system includes three storage tanks (nearly three million gallons of total storage) and many miles of pipe across a large geography. The ability to produce fresh hypochlorite disinfectant is key to maintaining reliable residual levels in the distribution system.

Due to the hardness of the groundwater, the operators have found they must clean their pressure filters more frequently than expected. The same is true for the Microclor® MC-80 OSHG system. However, with its patented, vertical multi-cell design, the maintenance of the MC-80 system is straightforward and easy to do with proper training. In addition, the MC-80's practical design allowed the City to perform an easy upgrade to the latest generation of electrochemical cells recently. Nearly ten years after installation, the OSHG system is still producing safe and consistent sodium hypochlorite for disinfection.



"Reliability and strong service are key to customers in rural areas. We have been extremely pleased with the Microclor® OSHG unit and the excellent service we have received on multiple occasions. I own several on-site generation products and I don't hesitate to recommend Microclor®."

Andrew "AJ" Gray, Manager of Water

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