NSF/ANSI 61 Certified PCPs Fit Specific Water Treatment Requirements

Several North American government agencies and organizations share the responsibility of protecting the public’s health and safety while serving the best interests of water treatment facilities. Most water treatment facilities recognize that environmental protection is not just the responsibility of government agencies and organizations. In fact, most municipalities use the governmental regulations as guidelines to establish and maintain their own basic standards as best practices for water safety.

Ferrate Treatment Technologies LLC (FTT) works with municipalities to follow such best practices. To complete a new water disinfection device’s design and meet the safety needs of municipalities, FTT partnered with a progressive cavity pump manufacturer that offered specialized metering pumps for their chemical handling challenges. Chemical metering pumps are actually not required to be National Sanitation Foundation (NSF) certified in disinfection systems, but as a critical component of a water treatment system process, pumps often come under careful scrutiny because they meter chemicals that could be harmful if not handled properly.

Many objectives came into consideration, mainly meeting the governmental laws and regulations affecting drinking water processes. Deciding what type of pump technology to install for water and wastewater treatment applications can be a daunting task.

Government Regulation

The U.S. Environmental Protection Agency (EPA) is responsible for maintaining and enforcing water pollution prevention under a variety of environmental laws. The EPA has sanctioned other organizations like NSF International that have common interests and goals. NSF provides standards development, product certification, testing, auditing, education and risk management services to the public. NSF is accredited by the American National Standards Institute (ANSI) to develop American National Standards
for the safety of all materials and products that treat or come in contact with drinking water, such as plumbing components, water treatment chemicals and drinking water filters. ANSI is a private nonprofit organization that oversees the development of standards by representatives of other standards organizations for products, services, processes, systems and personnel in the United States.

In 1990, the EPA replaced its own drinking water product advisory program with NSF/ANSI standards. The NSF mark on any product affiliated with drinking water treatment processes means that the product complies with all standard requirements and ensures water industry stakeholders that the product will not create adverse effects on the health of those consuming the drinking water or on the environment.

NSF/ANSI 61, titled “Drinking Water System Components—Health Effects,” sets health effects criteria for water system components. Forty-eight states currently require NSF/ANSI 61 compliance of any product that is manufactured, sold or distributed for water treatment and comes into contact with drinking water.

Drinking water system components fall into two categories of regulation. Centralized water treatment plants and water distributions systems up through the water meter are typically regulated by state drinking water agencies. Water distribution systems downstream of the water meter or inside a building are typically regulated by state or local pumping codes.

Types of products requiring NSF certification include:

- Protective barrier materials like paints or coatings

A fully automated water treatment system produces ferrate, a chemical generated onsite at water treatment facilities. (Images courtesy of seepex)
• Joining and sealing materials such as adhesives
• Mechanical devices
• Water meters or valves
• Plumbing and piping related devices
• Nonmetallic potable water materials

This is essentially every component of a water treatment system. However, the EPA’s Safe Drinking Water Act guidelines for drinking water treatment plants do not require NSF compliance for all mechanical chemical feeders. This is because feeders do not come in contact with finished drinking water or post-treated water in the distribution system.

Metering pumps are used as feeders primarily to deliver precise dosages of chemicals to the pretreatment process. NSF 61 Section 8 further provides a guidance of “high rate feeders,” a category that includes metering pumps, and states a minimum ratio allowance calculated based on an area of the wetted surfaces to a specific volume of water treated. This allows the exemption by a waiver allowance of appropriate diluted surface area (DSA) ratio calculation meeting a specific threshold level. Metering pumps qualify for exemption with the DSA ratio calculated per a design’s flow rate for a specific plant flow throughput. However, many facilities require all parts of their treatment systems, including their metering pumps, to be constructed of NSF-certified components as part of their own best practices regardless of this omission.