SEEPEX.
An Ingersoll Rand Business

PC PUMPS REPLACE UNRELIABLE DIAPHRAGM PUMPS

APPLICATION DETAILS

- Adding sodium hydroxide and aluminium sulfate to treat water

KEY SPECIFICATIONS

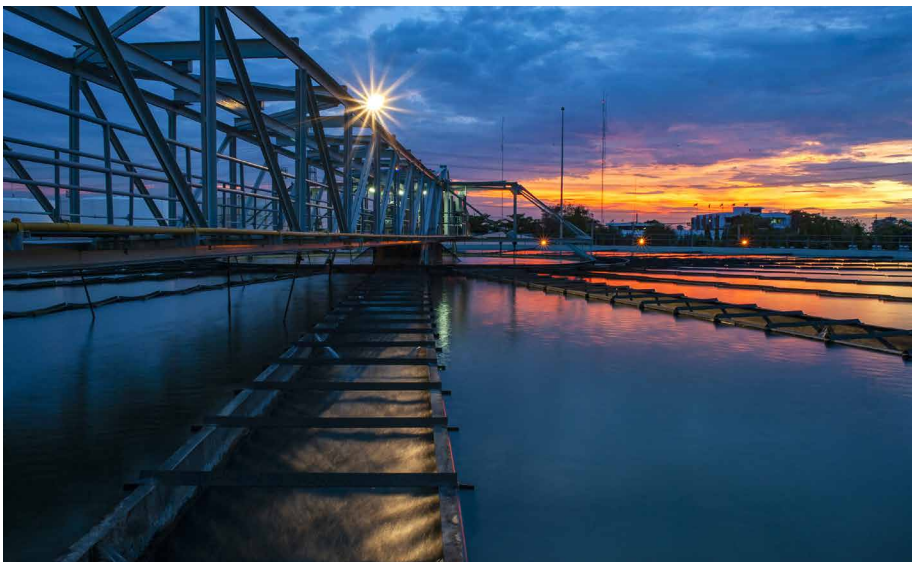
- Replacing diaphragm pumps
- Avoid clogging of springs and check valves as well as heavy crystal build-up

Water is something we often think of as critical to our survival. We use water every day for drinking, cleaning, cooking, and many other activities. However, water is also used in many industrial and manufacturing processes to make things that we utilize in our daily life. It can be used for cooling functions, feed for boilers for steam generation, removal of salt and impurities from crude, and other processing applications. Industrial facilities with these types of processes rely on clean water to keep their operations running smoothly.

The following case study takes a look at how one Mississippi industrial water treatment plant replaced unreliable diaphragm pumps with SEEPEX progressive cavity pumps and the positive results derived from this.

BACKGROUND

The Jackson County Port Authority Surface Water Treatment Plant is a facility that provides water to an oil refinery and other local industrial plants. The facility draws water from a nearby river for treatment and has the ability to clean 30 million gallons of water each day. The process for cleaning the water has several stages with many different components, some of which require pumps to add in chemicals to treat the water.



SEEPEX D range dosing pumps are the perfect fit for water treatment.

FEWER CHEMICAL USE

COST SAVINGS

DECREASED CHEMICAL USAGE

VIRTUALLY MAINTENANCE-FREE

STEADY FLOW

INCREASED COSTS SAVINGS AND SAFETY

NO ADDITIONAL EQUIPMENT NEEDED

INCREASED RELIABILITY

SEEPEX PRODUCTS

Metering Pump MD Range

- D 025-6L

TASK AND TARGET

Maintenance personnel at the Jackson County Port Authority Surface Water Treatment Plant were spending a considerable amount of time working on diaphragm pumps throughout the plant. Each system requiring a pump would have at least two diaphragm pumps. This redundancy was needed due to the immense amount of downtime the pumps would experience over time. The pumps were essentially being rotated as maintenance was a constant issue.

The diaphragm pumps had many moving parts, creating countless opportunities for malfunction and maintenance. The pumps had issues with moisture causing the springs and check valves to clog and also with heavy crystal buildup causing clogging issues on a sodium hydroxide application.

Short, compact and very exact: Dosing pumps of the D range.

SOLUTION

The Superintendent of the plant was working with Ryan Bailey from Fluid Process & Pumps on several projects and discussed the diaphragm pump issues. Ryan invited Bill Martiniere, SEEPEX Chemical Market Manager, along with him on his next visit to the Jackson County Port Authority. The two presented a detailed presentation on SEEPEX's progressive cavity pumps being a solution to the issues the plant was experiencing with the diaphragm pumps. Ryan and Bill brought in an actual metering pump on a skid to give a hands-on demonstration of how a progressive cavity pump operates.

The plant already had several SEEPEX pumps on a polymer system, but leadership was unsure how they would perform for their sodium hydroxide and aluminum sulfate applications. The Superintendent had heard about progressive cavity pumps from several engineers, but had also heard about one running dry and burning up the motor. Bill and Ryan eliminated this concern by advising that a SEEPEX TSE dry run sensor could be installed on the metering pumps, preventing the pump from ever running dry.

PC-PUMPS OUTPERFORM DIAPHRAGM PUMPS

The Superintendent moved forward with the purchase of a SEEPEX MD 025-6L pump with a dry run TSE sensor and a 0.5 hp gear motor for their aluminum sulfate application. This was in March of 2017 and, since then, the Jackson County Port Authority has purchased additional pumps for this application, as well as for the sodium hydroxide application. The plant now has a total of 11 operating SEEPEX pumps.

RESULTS

The Jackson County Port Authority continues to operate their SEEPEX metering pumps enjoying the cost savings, minimal maintenance, and increased safety. Chad Havens, Jackson County Port Authority Surface Water Treatment Plant Superintendent, commented, “The SEEPEX pumps have been really good to us. They outperform the diaphragm pumps and use fewer chemicals.” Chad continued, “On the aluminum sulfate application, the diaphragm pumps would give a shot, wait, then give another shot, wait. The SEEPEX pump is better with a constant flow and better blend.”

SEEPEX progressive cavity pumps are known for their laminar flow, low pulsation, and ability to be virtually maintenance-free. With their steady flow, they are highly repeatable and accurate, decreasing the amount of chemicals required for applications compared to other technologies.

Another advantage of the SEEPEX metering pump is its ability to achieve low pulsation flow with no ancillary equipment. These pumps eliminate the need for pulsation dampeners, and do not produce pipe hammer. SEEPEX progressive cavity pumps are a simple plug-and-play installation and do not have any valves that could potentially stick or require maintenance. They have also led to cost savings and an increase in safety for the Jackson County Port Authority. Not only does less maintenance time save costs, but the reduction in chemicals that are utilized is also saving them money. Less maintenance also means that personnel are exposed to hazardous chemicals for less time, resulting in an added boost in safety.

The maintenance crew is also a fan of the SEEPEX pumps. On the polymer application, the previous diaphragm pumps would break down weekly and take approximately one hour to clean. The diaphragm pumps had also failed before and the maintenance crew would have to work through the night to get the system up and running. No longer is the maintenance crew working irregular hours on pumps. Chad added, “We definitely have dependability with SEEPEX.”