

# Submersible Pump Stations Improve Efficiency and Safety in Lake Superior Community



*The Pump People®*

*A small community on Lake Superior upgrades lift stations for employee safety, operations efficiency, and resilience in harsh winters.*

Located along the southern shore of Lake Superior, Chocolay Township, situated in Marquette County, Michigan, has nearly 6,000 residents requiring an average daily wastewater flow of 50,000 gallons. The township uses several lift stations to move wastewater to the Marquette Regional Wastewater Treatment Plant. The community has upgraded its lift stations to improve employee safety, operational efficiency, and resilience in harsh winters.

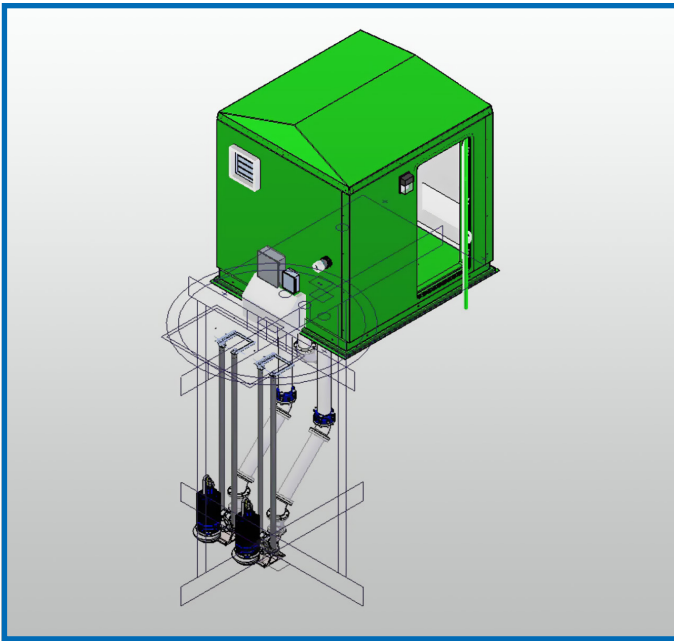
Prior to installing the upgraded units, the stations used a traditional design with a steel can that reached 20 to 30 feet below grade to the suction pumps. Staff used man lifts to descend and ascend into and out of the stations, with an emergency ladder available when needed. Due to the confined space, maintenance required at least two workers to fix an issue when service was required. Special attention was also necessary to ensure safe air quality, with a four-



**The stations designed for Chocolay Township occupy a smaller footprint than previously manufactured Gorman-Rupp ReliaSource® lift stations and offer adequate space for performing maintenance should a problem occur.**

gas tester and a fan operated by a whisker switch to guarantee the safety of maintenance staff.

Chocolay Township Public Works Superintendent Brad



**The Gorman-Rupp sales and engineering teams worked together to develop a customized pumping solution to meet Chocolay's specific system requirements. Each station included drawings based on previously designed ReliaSource® lift stations.**

Johnson said the bi-weekly maintenance checks were a "nightmare." Not only did lift station maintenance require at least two workers due to the confined spaces, but the old stations were worn out after operating for nearly a half century.

"The lift stations were nearing their 50th birthday with mostly original parts," Johnson said. "The parts that were used back then were extremely difficult to find or even obsolete in some cases. In several cases, we had to be creative to keep the stations operating properly." Pressed with maintenance challenges, and the end of service life, Chocolay Township Public Works developed a renewed asset management plan, which determined the best course of action was new installations. The township board agreed.

## Raising the Floor

Eric Finnila, Director of Sales for Water and Wastewater at Crane Engineering, worked with Chocolay Township to install Gorman-Rupp Reliasource® Above-Ground Submersible Valve Packages (ASVP) stations as a starting point. These systems, Finnila explained, addressed the maintenance concerns of the Chocolay Public Works Department while also ensuring they were resilient in the harsh winters of Northern Michigan on Lake Superior where heavy snowfall and whipping winds are common.

"We talked to them about switching to this newer style that includes an enclosed building," Finnila said. "The piping header, controls, and everything are all inside versus the other, traditional style where guys are outside with the double doors open, flapping up against them while they're on their knees."

Chris Suomi, Gorman-Rupp Municipal Central District Manager, indicated that the design for these lift stations was custom-tailored to the project based on designs from Crane Engineering.

"Further, they wanted a completely engineered lift station that could be manufactured, tested, shipped, and installed as a single unit – reducing installation time and costs," Suomi said. "Crane Engineering and Gorman-Rupp had been discussing the idea for some time, and this project provided a catalyst to make it happen."

Suomi said Gorman-Rupp's mechanical and electrical engineering teams used existing station designs as a guide to develop the custom-designed lift stations for Chocolay Township.

"Gorman-Rupp listens to our customer's needs," he added. "Many of our product innovations have come as a direct result of Gorman-Rupp customer requests."

Finnila explained that initially five of the township's stations were converted to this style with a sixth one

converted near a commercial development. All these stations use the Gorman-Rupp SF Series submersible pumps. Suomi said neighboring utilities have begun to request similar designs for their lift stations as well.

## Maintenance Made Easy

Johnson said the workflow for maintenance has not changed dramatically — the township still conducts bi-weekly checks to ensure smooth operation – but there have been other benefits.

“They did make life much easier for our crew by adding SCADA and standby generators,” Johnson explained. “When a repair is needed now, it is extremely nice to be able to make one phone call and have the part on its way versus trying to find parts for 45 to 47-year-old equipment that is now obsolete.”

Finnila noted that the lift stations are equipped with alarms that can reach the operators over a cellular network if something goes wrong. Because the maintenance work is no longer done in a confined space, Finnila said when there is an issue with a lift station after hours, they no longer need to call two people in to do the work.

“It’s a huge game changer and upsell for them,” Finnila said. “They only have two guys on the maintenance staff, so both of them were essentially on call all of the time.”

## Completing Conversion

Finnila said with the new Gorman-Rupp lift stations, the township maintained the same horsepower of pumps at the new lift stations as with the previous stations, but due to improved efficiency, the stations were able to increase flows by 10 to 15%.

Chocolay Township, he added, is continuing to convert the remaining lift stations to this new style. Johnson said the township’s ninth conversion will come online in the second quarter of 2023, but there is interest in more uses for the stations.



**Brad Johnson (left), Chocolay Township Public Works Superintendent with Craig Koch (Field Service Project Lead – Crane Engineering) in front of one of the original ASVP stations.**

“After that, we would like to add two to three more to get a couple more subdivisions tied into the system,” Johnson said.

## About Gorman-Rupp Pumps

For more than ninety years Gorman-Rupp Pumps USA has manufactured pumps for municipal, sewage, industrial, mining, construction, petroleum, OEM, government, agriculture and fire markets.

The company’s extensive line of pump products includes self-priming centrifugal pumps, standard centrifugal pumps, submersible pumps, rotary gear pumps, diaphragm pumps, engine-driven pumps, and priming assist pumps. In addition, Gorman-Rupp manufactures a complete line of state-of-the-art packaged lift stations and booster stations that include pumps, motors, controls, piping, accessories and enclosures.

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