



C Station keeps more green in Muskegon County

Prein&Newhof
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Rebuilt pump station uses 40% less energy and is far easier to maintain.

For wastewater systems, being “green” means doing more with less – less equipment, less maintenance, and above all, less energy.

The Muskegon County Wastewater Management System (MCWMS) has been working with Prein&Newhof since 2003 to reduce energy waste in its system – and it’s worked, to the tune of more than \$125,000 in annual energy savings.

For the County: Cost savings

From 2003 to 2007, P&N helped MCWMS revamp most of its pumping system: 3 stations were rebuilt, 3 updated, and 5 completely removed from the system by re-routing pipelines.

The last piece of the puzzle was the 55-mgd Pump Station C, the County’s largest station. Rather than trying to modify the station, MCWMS and P&N decided to re-construct it.

“Starting from scratch gave us the chance to make the new station as efficient, reliable, and user-friendly as possible,” said P&N Project Manager Mark Prein, P.E.

With newer equipment and properly-sized pumps, the new station uses 40% less energy, saving the County \$84,000 each year and significantly reducing its carbon footprint.

For the Citizens: Reliable Service

To meet future demands and make the station more reliable, P&N decided to double it: “There are really two separate stations in one building,” said Prein. “Each side has its own power supply, wet well, controls, and three pumps – all run from the station control room.”

This means everything has a back-up, and the station can keep running smoothly during any routine or unexpected maintenance. There’s also a back-up generator that can power two of the 600-horsepower pumps. Even if one power line fails, 5 pumps can still run.



For the Crew: Ease of Maintenance

In addition, this doubling makes everything easier to maintain. The station’s crew doesn’t have to shut down multiple systems to inspect or repair one part, and they have more time to make sure it’s done right.

Pump Station C was designed with ample space around the different components (making them easier to reach and repair), and with built-in bridge cranes to lift valves and pumps for maintenance.

“Our contract may be over once the building is complete,” said Prein, “but then comes the real work of the system. This station will be in service for the next 50 years. We always think about the people who will work there every day – and how we can make their jobs easier and more efficient.”

P&N also helped the crew adjust to the new station: “While the County’s operators were being trained, we helped man the station, so there was knowledgeable staff on site at all times,” said Prein. “During the first week of operation, Prein&Newhof staff were at the station 24/7.”

If you have questions about how your system can be more efficient, contact Mark Prein, P.E., at (616) 364-8491 or mprein@preinnewhof.com.

The new station is a more pleasant place to work, with thick walls separating offices from noisy pumps, and plenty of windows in staff offices.

“P&N has done all of our engineering since 1992. They’re creative in their approach to problems, they look out for the interests of the community, and they’re thorough. The people that I’ve worked with have really high integrity.”

Dave Kendrick, Muskegon County Public Works Director

Contamination won’t slow them down

P&N’s environmental engineers & lab keep airport parking project on-track.

Gerald R. Ford International Airport (GFIA) needed additional parking while its new parking structure was under construction.

They chose to expand the Express Shuttle Parking Lot onto four sites formerly used by rental car companies for storage, maintenance, and fueling. Unfortunately, each site had an unknown amount of contaminated soil from leaking fuel tanks.

P&N was brought in to engineer demolition of the site (including buildings, pavement, fueling systems, and chemical storage), to oversee permitting, and to design the parking lot expansion.

P&N Environmental Engineer Barbara Marczak, P.E., coordinated the demolition and permitting. “We had a lot of meetings with facility owners, figuring out where they were in the process and

what still had to be done,” said Marczak.

The contamination around the fuel tanks had migrated through the fill along utility lines and collected around the building footings. Fortunately, there is a lot of clay on the site, so the contamination didn’t spread beyond the site.

The project required extensive testing, both before and during demolition, but the P&N Laboratory was able to expedite testing. “We had test results in 24-48 hours, so we could quickly determine if there was more contaminated soil to remove,” said Marczak.

It was decided that GFIA could save time and money if a fraction of the contamination could remain on the site – safely contained under the parking lot and surrounded by clay soil.

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“We were dealing not only with the DEQ but with up to six rental car companies, and their attorneys and engineers. When the project was done, even the DEQ rep commented on how smoothly it had gone. We’ve always had good success with P&N.”

Tom Ecklund, P.E.
GFIA Facilities Director

Prein&Newhof celebrates 40 years

Last month, Prein&Newhof celebrated its 40th year in business. Since 1969, P&N has helped thousands of clients in Western and Southern Michigan grow and prosper.

“One of our guiding values is Build Relationships,” said P&N President Jim Cook, P.E. “Our success is built on strong, long-term client relationships. In fact, 30% of our current clients – including 44 West Michigan communities – have been working with P&N for two decades or longer.”

P&N also values its employee relationships. Of our 90 employees, more than a third have been

with the company for at least 20 years. P&N has also employed nearly 100 student interns and, in the last 10 years, has awarded more than 20 college scholarships.

P&N encourages its employees to keep learning throughout their careers. We support employees as they learn new skills, pursue new technologies, and are active in professional associations.

“We’re very thankful to all the clients who’ve trusted us to help them and their communities thrive,” said Cook. “We hope to be here for you for the next 40 years too.”

Sustainable water filters – the gift that keeps on giving

The P&N Laboratory is helping to bring clean water to the world.

For decades, non-profit groups have been developing low-cost water treatment systems for use in under-developed countries. The difficulty is creating a sustainable system that can run for years without ongoing outside support, and that can be easily duplicated and distributed to nearby communities.

Aqua Clara International – a West Michigan-based non-profit – is perfecting a simple system that requires no power, has no moving parts, and can be “made with local materials and by local people all over the world.” After placing their filters, Aqua Clara trains communities and individuals to maintain them and to make more – providing clean water and creating new businesses.

The basic filter system is a 30-gallon plastic barrel filled with layers of gravel and sand. Water is added to the top, passes through the sand, and out a spigot. The sand removes particles in the water and all the bacteria that clings to them.

This spring, Aqua Clara is working with the Prein&Newhof Laboratory to see if the system can remove arsenic by adding a second, 150-gallon filter to the process. Because the pH of the sand in the second filter is slightly above neutral, it should cause metals (like arsenic) to turn into metal hydroxides, which aren’t soluble in water, and get trapped in the sand.

Laboratory staff are running 25 gallons of water (with extra arsenic added) through the filter twice each day during the spring and summer. Tests are run on the water before and after it is filtered.



If the system doesn’t remove enough arsenic, a third filter (a membrane invented by Dow for arsenic removal) will be added to the system, and the tests will be run again.

If you’d like to know more about Aqua Clara, visit their website at aquaclara.org.

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Marczak worked with GFIA’s attorneys to develop a Deed Restriction, putting stipulations on future use of the property: it can never be used as a residential site, there can’t be wells on the property, and any soil dug from the property has to be properly tested.

“By working closely with the DEQ throughout the project, they were able to approve the closure for all four sites on the same day,” said Marczak, “Even the DEQ commented that it was highly unusual to get that many done at once.”

If you have questions about contamination in your community, contact Barbara Marczak, P.E., at (231) 798-0101 or bmarczak@preinnewhof.com.

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Prein&Newhof specializes in civil and environmental engineering, environmental consulting, surveying, GIS, and laboratory testing.

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- Invest Wisely
- Develop Relationships
- Take Responsibility
- Build Expertise
- Build Our Community

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