

NEW Water – Green Bay WI

the brand of the Green Bay Metropolitan Sewerage District

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Photo Credit: Gary Allison / Jacobs

NEW WATER IN NUMBERS

- 2 facilities, in Green Bay and De Pere
 - Average flow, Green Bay: 30 million gallons per day
 - Average flow, De Pere: 8 million gallons per day
- 231,000 customers served
- 285-mile service area
- 110 miles of pipes in interceptor system
- 13 lift stations and 28 metering stations
- \$465 million in capital assets
- 1931: year Green Bay Metropolitan Sewerage District was established
- 15,677 samples analyzed, and results generated for 114,452 analytes last year by the state-certified Laboratory & Research Department
- 34 sites in area waters monitored by the Aquatic Monitoring Program

Football season is upon us, and in Green Bay, the Packers are everything.

Temperatures drop 20 degrees when the Packers lose, and the town loses half its wardrobe after the season ends.

Lambeau Field phoned NEW Water, and asked: “isn’t NEW Water’s pump station the tallest building in town?” staff jumped at the connection. At the time, the Packers were building new additions at Lambeau Field, which competed for the title. Blueprints were pulled, engineers were consulted. The result? Lambeau Field is now several inches taller than the pump station.

NEW Water seized this educational opportunity, and created a congratulatory video for the Packers, posting it online. It made the evening news, created a bond between the two organizations, and is a great story told at each tour given of NEW Water. Watch the ‘Tallest Building’

video, and other videos on NEW Water’s YouTube Channel – linked at www.newwater.us.

Serving as a powerful entrée into community, the Green Bay Packers connection has travelled through the grapevine in Green Bay, and is a fun piece of trivia that starts the conversation. Do you know what’s now the tallest building in town? What is a pump station? What is NEW Water?

Over the past several years, NEW Water has been working to reverse the ‘out of sight, out of mind’ traditional approach to community interaction with wastewater treatment. This approach of going ‘beyond compliance’ includes a new attitude toward resource recovery, forging new partners and connections. Proactively going ‘outside the fence’ to tell the NEW Water story to convey the value the organization provides the community it serves.

A NEW ERA IN RESOURCE RECOVERY

The timing is ripe to emerge from the shadows. With aging infrastructure and a lack of dollars from Uncle Sam for upgrades, the local community is footing the bill now, and they want to know what they're paying for. After the *Clean Water Act* in the 1970s, federal funding was flush for wastewater plant upgrades, and indeed, covered the costs for 77% of the Green Bay Facility. These days, NEW Water has gotten creative, leaner, and more collaborative.

Solids is the Achilles' heel of wastewater treatment, so the saying goes.

So when NEW Water's solids handling facility was reaching the end of its useful life 10 years ago, NEW Water opted to take a different approach to keep nonstop service running.

The old solids facility was about 40 years old, and malfunctioning regularly. A panel in the control room was literally being held together with duct tape. Past NEW Water Commission President Dan Alesch likened the aging facility to a clunky old car. "How many Band-Aids should we keep slapping on this old '74 Pontiac?" he would ask. Furthermore, new, stricter air regulations were on the horizon, and the capacity of the facility was reaching its limits.

Thus launched the quest for a solution to managing solids, in order to provide continuous service the community had come to expect.

NEW Water convened stakeholders to investigate options. Given the international nature of the industry, NEW Water looked around the globe for ideas, best practices, and solutions. More than 100 options were considered; eventually, the concept of coupling fluidized bed incineration with anaerobic digestion, as well as nutrient harvesting was decided upon: R2E2, or Resource Recovery and Electrical Energy. (NB: Yes, the name is a nod to 'R2D2' – Star Wars is always in fashion, and NEW Water believes that resource recovery is, too.)

Ten years in the making, the \$169 million R2E2 Project launched construction in 2015, and is currently going online.

"This approach represents a new era in resource recovery for this organization, and this community," said Tom Sigmund, Executive Director of NEW Water.

Using anaerobic digestion and other technologies, R2E2 will generate electricity from biogas, harvest and reuse heat and nutrients, resulting in an approximate 50% reduction in energy costs each year. Additionally, struvite – a combination of magnesium, nitrogen, and phosphorus naturally present in wastewater – will be harvested for commercial fertilizer, and will bring in additional non-ratepayer revenue.

Public tours will be available in the late fall of this year, and can be scheduled online at www.newwater.us/education/tours.

WHAT'S IN A NAME?

Given the new attitude of the organization, which includes a new philosophy of resource recovery as opposed to traditional wastewater treatment, it was time to think about the name.

Clocking in at 17 syllables, Green Bay Metropolitan Sewerage District is neither easy to say, nor particularly palatable. Turns out, people don't really like the word 'sewerage.'

"It was time to think about changing our name, to better reflect our values, and to better help tell our story," said Tom Sigmund.

So began a rebranding process. While well known to corporations, embracing branding as a principle tenet of doing business is a concept the water industry hasn't fully dived into yet.



NEW Water staff.



Children learn how to televise a pipe with engineers and technicians from NEW Water during the STEM Superheroes Camp.

The hardest – but most important – stakeholders to bring on board were the internal staff at the organization. If the name were good enough for all these years, why change?

The rebranding process included market research, and surveys with staff, Commissioners, municipal and industrial customers, other stakeholders and community organizations. Research showed that ‘water’ is something people can rally around. ‘NEW’ is a Northeast Wisconsin moniker that refers to the region – and is used by many businesses and organizations including the NEW Zoo and the NEW North (an economic development organization). It’s also a nod to the ‘new’ product sent back into the environment each day.

The new brand was rolled out in a tiered fashion: staff first, external audiences second. For staff, the new brand was unfurled at an all-employee briefing, with newly branded ‘swag’ for all – duffel bags and shirts. Next, a new sign at the front gate, media attention, and a brand launch during a community science expo, well attended by families on a Saturday. The new name has since been heralded by stakeholders as a refreshing change. Treatment Plant Operator magazine’s editor Ted Rulseh penned an editorial, calling it a ‘name change for the better.’

The name has helped open doors for another new initiative for the organization: Watershed work.

WATER KNOWS NO BOUNDARIES

With a *dead zone* plaguing the bay of Green Bay, new phosphorus regulations were imminent for NEW Water. Excess nutrients have created low oxygen, or hypoxic zones, which have led to fish kills and clumps of algae that pollute area waters and shorelines. In the bay of Green Bay, NEW Water is responsible for less than 3% of the phosphorus loading into the bay, with 97% coming from sources including urban runoff, agriculture, industries, and other wastewater facilities.

With fish kills, unpleasant odors, and health risks associated with these polluted waters, in came new regulations to curb phosphorus. NEW Water, as a point source, would be required to reduce its phosphorus loadings an additional 25% from its current discharge to the Fox River. A study commissioned by NEW

Water determined that to meet these new regulations, additional facility upgrades would cost more than \$100 million, yet reduce only a fraction of the total phosphorus heading out to pollute the bay.

“The traditional bricks and mortar approach to reducing phosphorus loadings would be extremely costly and yield little environmental good,” said Bill Hafs, Environmental Programs Director.

Instead, NEW Water has capitalized on another option allowed by the Wisconsin Department of Natural Resources for point sources, called ‘Adaptive Management,’ to work out in the watershed to improve practices on the

land to improve water quality before it reaches NEW Water.

To dip its toes into this new idea, NEW Water launched a new division called Environmental Programs. Bill Hafs and team sought a grant from the Environmental Protection Agency’s Great Lakes Restoration Initiative, and succeeded, to the tune of \$1.6 million, to launch a pilot project with partners in Silver Creek, a 4,800 acre-predominantly agricultural sub-watershed of the Lower Fox River Basin. NEW Water convened a plethora of partners from federal, state, local governments,



The Silver Creek Project has brought partners in Northeast Wisconsin together to improve practices on the land, to improve water quality. NEW Water’s pilot project will wrap up soon, with further watershed plans in the works.



Erin Houghton, NEW Water’s Watershed Specialist, helps educate stakeholders on efforts in Silver Creek.

and the Oneida Nation, as well as agronomists, nonprofit organizations, and academia. Partners include The Nature Conservancy, Ducks Unlimited, University of Wisconsin-Green Bay, U.S. Fish and Wildlife, and many more.

“The beauty of this project is in the many partners who have rallied together for the cause of improving water quality,” said Erin Houghton, Watershed Specialist.

A water and biological monitoring program was set up to determine baseline levels of phosphorus, and to document the improvement in water quality throughout the life of the project. NEW Water is seeing, first hand, the water quality improvements that are possible as land use issues are addressed.

U.S. Congressman Reid Ribble praised the project in his Save the Bay initiative, as an example of a sensible approach toward environmental protection – working together locally to improve water quality more cost effectively. He narrated a NEW Water video about the project called ‘Water Knows No Boundaries,’ which is posted to www.newwater.us/programs-initiatives/environmental-programs.

As part of the Silver Creek Project, four wetlands restoration projects were included. Two whooping cranes have been observed in these wetlands by staff from the U.S. Fish and Wildlife Service, and the Oneida Nation.

“This is a sign of success in the wetlands. There aren’t many of them left in the world – and we’re honored by their visit!” said Hafs.

Next up in the watershed for NEW Water: Full-scale Adaptive Management.

“We believe Adaptive Management offers a sustainable approach to improving water quality. By working together with community partners, we can go further for the environment, improving the natural resources for our community to enjoy, at a lower cost to our ratepayers,” said Hafs.

The next areas selected for watershed work are the Ashwaubenon and Dutchman Creek watersheds, which combined are nearly 10 times the size of Silver Creek. What’s new and exciting about this initiative is that a portion of the watershed is urban which will bring storm water and urban runoff water into

the discussion. NEW Water has already begun engaging municipalities in this watershed, and ideas have been met with a positive reception.

BEYOND COMPLIANCE: CUSTOMER ENGAGEMENT

NEW Water has found that stakeholder engagement is paramount to educating the community, moving projects along, and getting buy-in for efforts to protect water resources.

During the R2E2 Project planning process, NEW Water began connecting with and informing community stakeholders of the need for a new solids handling facility. What they found was that people may not always agree with what you have to say – but they will accept it if you include them in the conversation and the decision-making process. Quarterly update meetings for R2E2 were convened with stakeholders including municipal customers, significant industrial users, and the Greater Green Bay Chamber. The in-person interaction proved to be worthwhile, and greatly appreciated by customers. How did NEW Water know? Customers showed up at Commission meetings, and expressed gratitude for being included.

Given the success of the R2E2 stakeholder meetings, NEW Water decided to continue with quarterly meetings – and broaden the scope. Meetings are scheduled at the beginning of the year – and always have donuts. Representatives from municipalities and significant industrial users that NEW Water serves are invited, and staff experts present newsworthy topics happening in their purview. Many of these important community stakeholders stay afterwards to have a cup of coffee or bear claw, and most importantly, to chat with various NEW Water staff. Building these relationships has been key to keeping the community engaged, and informed.

Sara Georgel was recently hired as NEW Water’s new Pretreatment Coordinator, and found that the in-person interaction has helped establish rapport with the industries in her program.

“I was able to meet significant industrial users face to face at the update meeting – it was really helpful to have a friendly introduction to them, prior to me heading over for an official visit to their company site,” Georgel said.

KICK-STARTING THE CONVERSATION: EXTREME WEATHER, INFLOW & INFILTRATION

Heavy rains pummeling Northeast Wisconsin was a recent hot topic impacting NEW Water.

At the height of this weather event, NEW Water experienced peak flows at a rate of 167 million gallons per day, over four times its average of 38 million gallons per day. Shortly after midnight, NEW Water’s De Pere Treatment Facility lost power. Given that the facility has limited storage, getting operations online and pumping water again was imperative to prevent homeowner backups out in the community. Flashlights in hand, and in partnership with the electric utility, staff rallied to get the plant up and running, and their teamwork succeeded.

“I want to commend our staff from many departments who jumped into action in the middle of the night to respond to this emergency,” wrote Executive Director Tom Sigmund in a note to all staff. “True character is revealed during times of crisis. Thank you to all who helped prevent a significant public health emergency.”

Fortuitously, an update meeting was scheduled for a week later. NEW Water leveraged the opportunity to bring its paying customers into the conversation. NEW Water shared the story that extreme weather events like this significantly increase the likelihood of backups. NEW Water – like so many other facilities around the US – simply was not designed to handle volumes of that magnitude.

Why is all that water getting into the NEW Water system? It’s not like people are flushing their toilets repeatedly in the middle of the night.

Sigmund told customers: “We were at capacity with these rains. I can tell you, that’s all clear water added to our system. And you are paying for that.”

One of NEW Water’s customers chimed in on the conversation. A backup had occurred at a home in an older home in his community. The culprit, most likely? The ghastly combo of heavy rains, saturated soils, and leaky pipes.

NEW Water has an ongoing Interceptor System Master Plan Project, where hydraulic modelling is finding

the hot spots in the collections area where heavier flows are likely to cause problems. NEW Water is engaging its customers in the discussion, sharing data and explaining the connectivity of the entire system. As a wholesale provider of services, NEW Water has 15 municipal customers, spanning 285-square miles. What happens in one community impacts the next one – and that heads downhill to NEW Water, at the mouth of the bay of Green Bay.

With studies estimating that some 80% of the clear water enters the sanitary sewer system from the homeowner side, more extreme weather events will mean continued pressure on the collections system and treatment facility. Should plant upgrades be the solution, when the root cause of the excessive water coming in is outside the interceptor system?

“There are no easy answers to this,” said Brian Vander Loop, Business Services Director. “This is truly a community-wide issue, and will require efforts and commitment from the community to address it. But first, they have to be aware that there is a problem.”

EDUCATING, ENGAGING AND INSPIRING THE COMMUNITY

Raising awareness is a key component of NEW Water’s educational and outreach efforts.

In addition to quarterly update meetings, NEW Water interfaces with the community at events to answer questions, and put a friendly face on the work of the utility. One big hit each year is the Einstein Science Expo, which draws some 5,000 attendees. NEW Water invited the Green Bay Water Utility to team up to host a joint educational booth, which features interactive activities for children. This year, children went fishing in mini-swimming pools with magnetic fish and poles – and meanwhile learned that all water is connected. While the children were busy playing, staffs from both utilities took the opportunity to talk about water with the captive audience – the parents.

“The opportunity to talk with the community about water in a fun setting is priceless,” said Sharon Thieszen, Field Services Manager, who is part of NEW Water’s Speakers Bureau. “They say things like ‘I had no idea of the work you do.’ And they often say ‘thank you.’”

It’s really gratifying to see that lightbulb go on in their heads when they realize what goes into cleaning water each day. It’s like they stop for a moment, and don’t take it for granted.”

Getting the community to know NEW Water outside of rate increases, and/or a crisis situation is yet another reason for proactive outreach. One state legislator stopped by the joint water booth this year, and thanked staff for helping to educate the public about water.

An ongoing educational campaign for NEW Water is ‘Love Your Pipes.’ With each tour that comes through, each presentation, and each encounter, NEW Water uses the opportunity to talk about ‘what not to flush,’ in order to protect the system, and waterways. That ongoing campaign has received some attention, in particular for a holiday video in which staff sing ‘O Love Your Pipes,’ to the tune of ‘O Christmas Tree.’ See the video and campaign at www.newwater.us/education/love-your-pipes.

NEW Water leverages educational opportunities to address its greying workforce. In recent years, a significant



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Aaron Eichhorst, NEW Water Treatment Lead, helms the role of “Commander Cleanwater” for the STEM Superheroes Camp.

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portion of NEW Water’s workforce has been retiring – with more on the near horizon. To address this loss of knowledge in its ranks, NEW Water has tried to stay ahead of the game, by teaming up on a Youth Apprenticeship Program with the State of Wisconsin and the Greater Green Bay Chamber. High school students work part-time at NEW Water, learning operations, while they take a course at Northeast Wisconsin Technical College. It’s a program created in part by Bruce Bartel, Treatment Manager.

“Getting the younger generation excited about our industry is key to the continuation of a strong workforce,” said Bartel.

Bartel also dreamed up the idea to create an educational program to reach a demographic not usually connected to wastewater. NEW Water reached out to the Boys & Girls Club, which began a partnership to address a community need for educational opportunities to learn STEM (science, technology, engineering, mathematics) skills. As STEM skillsets are used each day by NEW Water staff, Public Affairs & Education convened Speakers Bureau members from every division to help engage, educate, and inspire the children. The result? A STEM Superheroes Camp. The program includes fun, hands-on activities to learn all about water and STEM, skills that have been identified as a need for the jobs of the future. NEW Water Treatment Lead Aaron Eichhorst helms the role of ‘Commander Clean Water,’ who recruits the kids to defeat the villains, ‘Sinister Sediment,’ and ‘Phosphorus Phury.’ Staff love it too, and have reported feeling a greater sense of pride about working at NEW Water. (NEW Water is grateful to the Central States Water Environment Association’s Wisconsin Section for a grant to help make this camp possible.)

In 2018, the camp celebrated its third year, with children earning ‘Defenders of the Bay’ certificates to learn about the value of water, and how to protect it. Children take their roles as defenders seriously, and many request to come back each year. Children learn the word ‘watershed,’ and many of them for the first time learn where their water comes from, and where it goes. And why it’s important to protect it.

“How old do I have to be to work at NEW Water?” asked John, one of the participants, aged 11.

It’s that kind of enthusiasm and inspiration NEW Water hopes for as it continues its journey, beyond compliance. 