



Metropolitan Water Reclamation District of Greater Chicago

Press Release

Allison Fore

Public and Intergovernmental Affairs Officer

312.751.6633

public.affairs@mwr.org

100 East Erie Street, Chicago, Illinois 60611

For immediate release
March 24, 2016

Innovation of traditional technology sparks MWRD to channel cleaner Chicago waterways

Ultraviolet rays from light bulbs lead to disinfection of Chicago Area Waterway System

New disinfection technology from the Metropolitan Water Reclamation District of Greater Chicago (MWRD) will push the Chicago region one step closer to direct contact of local waterways in time for boating recreation season. The MWRD Board of Commissioners, U.S. Senator Dick Durbin, Skokie Mayor George Van Dusen, other elected officials, local leaders and representatives of the U.S. Environmental Protection Agency (EPA) gathered Wednesday to mark this new era of cleaner waterways with a ribbon cutting at the O'Brien Water Reclamation Plant (WRP) in Skokie.

The MWRD's O'Brien WRP introduced ultraviolet (UV) radiation to disinfect water as a final layer to its treatment process to reduce pathogenic bacteria in the water being released from the plant into the North Shore Channel. Between last year's disinfection upgrades implemented at Calumet WRP

on the Far South Side and the latest enhancements at the O'Brien WRP, the MWRD now has a system in place that will dramatically improve the quality of water throughout the Chicago Area Waterway System (CAWS) while protecting the region's drinking water supply in Lake Michigan.

"We announce today a new layer of protection that will safeguard our waterways for generations to come," said MWRD President Mariyana Spyropoulos. "This agency in its storied history has continuously broken ground on projects that foster major improvements to our rivers and streams, whether that was reversing the flow of the Chicago River, building the Deep Tunnel, constructing the world's largest combined stormwater reservoir, and now providing disinfection technology. We dedicate this new facility to the residents of Skokie who have endured the

(continued)



MWRD President Mariyana Spyropoulos introduces U.S. Senator Dick Durbin at the O'Brien WRP's disinfection facility ribbon-cutting on March 23.

Innovation of traditional technology sparks MWRD to channel cleaner Chicago waterways *(continued)*

last few years of construction; the crew of engineers, builders and contractors who made this project possible; our federal and state lawmakers and municipal leaders who supported the project; and everyone who has believed in our waterways as a tool to enhance our quality of life, our environment and our economy. The patience of area residents and business owners and the resolve of our leaders and communities to invest in our waterways has made this cleaner waterway a reality today.”

The O’Brien WRP serves more than 1.3 million people within 143 square miles. The UV disinfection system is now the largest wastewater treatment UV installation in the world, having the potential to treat 450 million gallons of water per day (mgd), using 896 lamps that provide a low pressure, high output (LPHO) performance. The disinfection technologies neutralize or kill bacteria and microorganisms in treated water and reduce the risk of health problems resulting from direct contact with the water while swimming or recreating on a waterway.

“Today, we take a big step toward protecting Chicago’s second shoreline as the valuable community resource and leisure destination it has become,” said U.S. Senator Dick Durbin. “It’s not uncommon to see residents and tourists strolling along the Riverwalk, fishing, or taking in the skyline from a

canoe or kayak. A vibrant river system will bolster Chicago’s economic development and strengthen its lakefront. I commend the MWRD for its work on this cutting edge facility and look forward to working together to make our waterways a priority and ensure the Chicago River is as safe and accessible as possible.”

As recently as 2011, the CAWS had secondary classification for water quality standards, meaning direct contact with water was not recommended. But in advance of a possible decision by the U.S. EPA to one day re-classify the CAWS to allow primary contact, the MWRD Board of Commissioners proactively adopted a policy to disinfect on June 7, 2011. MWRD officials instituted a blue ribbon panel to evaluate available disinfection technologies and devoted eight months to research and testing to determine optimal solutions for disinfecting at the most economical cost. As a result, the MWRD was able to provide disinfection at less than half the cost of the original estimate. The MWRD restructured its Capital Improvement Program and adjusted operational efficiency goals to reserve \$240 million in the budget for construction based on early estimates; however, the task force was able to hold the line on expenses so that the estimated costs for capital did not exceed \$109 million. Further, the MWRD was able to allocate resources to allow

(continued)



U.S. Senator Dick Durbin addresses attendees celebrating the ribbon-cutting ceremony on the new disinfection facility at the O’Brien WRP today while MWRD President Mariyana Spyropoulos and Robert Kaplan, acting U.S. EPA Region 5 Administrator, look on.

Innovation of traditional technology sparks MWRD to channel cleaner Chicago waterways *(continued)*

disinfection to occur without tax increases. The total projected cost for disinfection at O'Brien is \$61.7 million.

"The Chicago River is the city's new recreational frontier, and it's been in our backyard the whole time," said Robert Kaplan, acting U.S. EPA Region 5 Administrator. "I'm proud of the role U.S. EPA has played in upgrading water quality standards, and making that backyard safe for everyone."

Disinfection occurs after wastewater passes through a series of treatment processes, including screening, filtering, and settling in the primary stage and microbial aeration in the second stage. After going through primary treatment and secondary treatment, water then flows through the disinfection facility via seven channels. Each channel has the capacity to disinfect 75 mgd using the UV light. With two banks of lights per channel and 64 bulbs per bank, there are a total of 896 bulbs installed in the facility, although the bulbs will not all be in use at all times. The lights provide a green glow that emanates through the treated water. Since the UV disinfection system uses light to deactivate the bacteria, the light output is optimized for light in the UV spectrum and not the normal visible white light.

"Illinois EPA is pleased to see the completion of the disinfection facilities at the O'Brien Water Reclamation Plant, which will reduce a significant source of bacteria to the Chicago Area Waterways, and will greatly reduce risk to area residents

recreating on these waters" said Illinois EPA Director Lisa Bonnett. "The completion of this project not only showcases MWRD's commitment to improving water quality for its customers, but it also exemplifies the benefits of the Agency's low-interest loan program."

O'Brien utilizes a Trojan UV Signa lighting system that employs 1,000-watt LPHO Solo lamps. Although each bulb costs \$1,000 per bulb, the bulbs can operate for up to 15,000 hours, or two years of service. The low pressure lamp means that fewer lamps are needed to accomplish disinfection versus medium pressure (MP) lamps. Fewer lamps require less tank volume, which translates into a lower capital cost, versus MP lamps. The low wattage of operation translates into longer lamp life and lower power consumption. The total power requirement for the traditional MP UV lamps to disinfect a 530 mgd effluent flow at the O'Brien WRP is 5068 kW versus 1191 kW for the Solo lamps. The significant difference in power means a lower annual operating cost for the MWRD system. The smaller number of lamps for the Trojan Signa system compared to the MP system also translates to reduced maintenance costs due to fewer lamps to clean and replace. In addition, the inclined configuration of the Signa system makes routine maintenance and lamp replacement quick and easy while the banks are in the channel and the UV system is in operation.

(continued)



In the photo (L-R): MWRD President Mariyana Spyropoulos, Vice President Barbara McGowan, Commissioner Cynthia Santos, acting U.S. EPA Region 5 Administrator Robert Kaplan, Commissioner Kari Steele, Commissioner Debra Shore, Exec. Director David St. Pierre, Representative Elaine Nekritz, Commissioner Frank Avila, State Representative Laura Fine and U.S. Senator Dick Durbin participate in the ribbon-cutting ceremony to unveil the new disinfection facility at the O'Brien WRP on March 23.

Innovation of traditional technology sparks MWRD to channel cleaner Chicago waterways *(continued)*

“The Village of Skokie congratulates the MWRD on this state-of-the-art, environmentally progressive facility,” said Mayor Van Dusen. “I value the Village’s strong partnership with MWRD, and I greatly appreciate President Spyropoulos dedicating the O’Brien Water Reclamation Plant to the residents of Skokie who displayed patience with the multi-year construction project to enhance the facility’s ability to protect the region’s water supply.”

The facility will feature water source heat pumps that are roof-mounted to provide heating and air conditioning in the UV disinfection building and neighboring switchgear building. This system consumes roughly 25 percent of the energy of traditional HVAC systems. An energy recovery ventilator was also installed in a sampling room and collection area that is used to monitor the UV and ensure the treated water meets federal regulations. The new facility will also house a control room and between the two buildings a rain garden was planted.

Calumet WRP, unlike O’Brien, uses a chlorination and dechlorination process to disinfect its treated water. By using the two distinct technologies the MWRD will have saturated the CAWS with disinfected water that enters the waterways from the south through Calumet WRP and the north at O’Brien WRP. In addition to directly benefiting the water environment, the disinfection project created 620 jobs for tradespeople during the construction of the facility.

“Disinfection at the O’Brien Water Reclamation Plant is one of the most important next steps in making the Chicago River system a true recreational, natural, and economic resource,” said Margaret Frisbie, executive director of Friends of the Chicago River. “The ambient water quality will be dramatically improved and that will promote the development of enhanced public access and serve as a catalyst for community revitalization along our historic waterway.”

Link to video: <https://www.youtube.com/watch?v=MUTRFuqb4qA&feature=youtu.be>



The U.S., MWRD and state of Illinois flags are proudly displayed in the new disinfection facility at the O’Brien Water Reclamation Plant in Skokie, IL.

###

Recovering Resources, Transforming Water

Established in 1889, the MWRD (www.mwr.org) is an award-winning, special purpose government agency responsible for wastewater treatment and stormwater management in Cook County, Illinois.