



Metropolitan Water Reclamation District of Greater Chicago

Press Release

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Kirie Water Reclamation Plant finds energy efficiencies through new sewerthermal recovery system

Illinois Clean Energy Community Foundation grant, UIC partnership add up to savings

University of Illinois at Chicago (UIC) Chemical Engineering Department Head Sohail Murad and UIC Dean of Engineering Peter Nelson joined Metropolitan Water Reclamation District of Greater Chicago (MWRD) Commissioners Terrence J. O'Brien, Frank Avila, Debra Shore and Mariyana Spyropoulos in unveiling a new sewerthermal heating and cooling system today at the James C. Kirie Water Reclamation Plant (WRP) in Des Plaines.

An \$87,500 grant provided by the Illinois Clean Energy Community Foundation along with the UIC partnership will result in significant energy and cost savings at the Kirie WRP. The MWRD received the funding in 2010 to help cover the total \$175,000 cost. Anticipated savings include a 25 to 50 percent reduction in electricity usage for heating and cooling needs as well as reductions in maintenance expenses and pollutants associated with separate heating and cooling systems.

The Kirie WRP has a daily average flow of 52 million gallons per day (MGD), a capacity of 100 MGD and operates 24 hours per day, 7 days a week, 52 weeks per year. The Kirie WRP serves a 65.2 square miles and serves approximately 217,000 people.

"The MWRD originally embarked on the project due to across the board increases in energy costs and the desire to become more environmentally-friendly," said Commissioner Avila, chairman of the MWRD Board of Commissioners' Engineering Committee. "Taking advantage of alternative resource options goes hand in hand in increasing overall efficiencies at MWRD facilities."

Dr. Murad served as a consultant on the project. Murad has over 30 years of experience with geothermal systems and was involved in the construction and op-

eration of full-scale systems at the UIC, which now provide year-long heating and cooling for two campus buildings.

"The Kirie system is one of the first to use wastewater for heat recovery and provides us the opportunity to evaluate both open and closed loop systems for efficiency and overall performance," said Murad.

Murad and the UIC team worked with the MWRD's Monitoring and Research department to develop a feasibility study for the Kirie WRP, including system design, equipment requirements, historical system data, space requirements and installation.

The sewerthermal heat and cooling system is expected to harness energy from effluent water (treated wastewater) and is expected to supply the Kirie WRP with up to 40 percent of its heating and cool-

ing energy needs. This plan could provide a model for heating and cooling energy needs at other MWRD facilities.

The sewerthermal system will take advantage of relatively constant high temperatures of effluent water and will use only 20 percent or less power than what is needed for a traditional, direct heating system. Rather than extracting heat from the ground as is common for geothermal systems, the MWRD's system is designed to extract heat from the effluent water, which holds a steady minimum temperature of 55 degrees Fahrenheit.

The sewerthermal system is only one of the energy efficiency upgrades planned for the Kirie WRP. Other plans include enhanced insulation in all buildings and installation of motion sensors that automatically adjust lighting, heating and cooling systems.



MWRD Commissioners, staff and representatives from the UIC engineering department participated in the ribbon cutting ceremony. (L - R) MWRD Board President Terrence J. O'Brien, Commissioner Debra Shore, Executive Director David St. Pierre, Assistant Engineer of Operations at the Kirie WRP Mary Moscinski, Commissioner Frank Avila, Commissioner Mariyana T. Spyropoulos, Director of Maintenance and Operations Manju Sharma, UIC Dean of Engineering Dr. Peter Nelson and UIC Chemical Engineering Department Head Dr. Sohail Murad.

Our water environment... Take it personally.

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