



Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street
Chicago, IL 60611

Legislation Details (With Text)

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Title: Authorization to enter into an Agreement with Island Water Technologies Inc. for Loaning an On-line Microbial Bio-activity Monitor at No Cost and to Partner with the University of Illinois at Urbana-Champaign to Conduct a Pilot Test of the Monitor

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2/21/2019	1	Board of Commissioners	Approved	Pass

TRANSMITTAL LETTER FOR BOARD MEETING OF FEBRUARY 21, 2019

COMMITTEE ON MONITORING AND RESEARCH

Mr. Brian A. Perkovich, Executive Director

Authorization to enter into an Agreement with Island Water Technologies Inc. for Loaning an On-line Microbial Bio-activity Monitor at No Cost and to Partner with the University of Illinois at Urbana-Champaign to Conduct a Pilot Test of the Monitor

Dear Sir:

Authorization is requested to enter into an agreement with Island Water Technologies Inc. (IWT) for loaning an on-line microbial bio-activity monitor at no cost, and to partner with the University of Illinois at Urbana-Champaign (UIUC) to conduct a pilot test of the monitor for 12 months from March 2019 to March 2020.

The Monitoring and Research Department of the Metropolitan Water Reclamation District of Greater Chicago (District) will partner with UIUC to conduct a pilot test of a novel technology that performs real-time monitoring of biological wastewater treatment processes using a bio-electrochemical sensor. The pilot test will be conducted at the Stickney Water Reclamation Plant (WRP) with a biological phosphorus removal (Bio-P) process. This work falls within the scope of the District's Master Agreement with UIUC.

The novel technology was developed by IWT, which is a company located in Prince Edward Island, Canada. IWT will provide the monitor to the pilot test at no cost to the District. This will include the on-site preparation and installation of the monitoring system and technical support to the use of the monitor after entering into an agreement with the District for providing these services.

The pilot test involves placing the monitor in the influent to the aeration tanks to quantify the amount of food available to microorganisms in real time, in the anoxic zone where portion of the return sludge deposits and ferments for enhanced Bio-P, and in the anaerobic zone where phosphorus accumulating organisms (PAOs)

use available carbon and release phosphorus for enhanced biological phosphorus uptake in the following aerobic zone. The District will provide the sites for monitor installation, retrieve the data from the monitor on a weekly basis, and collect and analyze one to two grab samples per week for additional information.

The District will get all the data from the monitor and the pilot study as well as the evaluation from UIUC, which will provide valuable information for understanding the potential impact of influent fluctuation on Bio-P, the extent of fermentation of the deposited sludge in the anoxic zone on Bio-P, and whether PAOs would respond differently to variable food sources. This understanding is crucial for the development of operational strategies for maintaining stable performance of enhanced Bio-P and meeting the monthly effluent total phosphorus limit in the near future, which is required by the National Pollutant Discharge Elimination System permit for the Stickney WRP. The knowledge gained could be extended to the other District WRPs if the Bio-P process would be implemented.

It is hereby recommended that the Board of Commissioners authorize the Executive Director of the District to execute the Agreement with IWT and approve the partnership with UIUC to conduct a pilot test.

Requested, Edward W. Podczerwinski, Director Monitoring and Research, EWP:KB:HZ:kq
Respectfully Submitted, Debra Shore, Chairman Committee on Monitoring and Research
Disposition of this agenda item will be documented in the official Regular Board Meeting Minutes of the Board of Commissioners for February 21, 2019.