Metropolitan Water Reclamation District of Greater Chicago

OSTARA

The World's Largest Nutrient Recovery Facility

Stickney Water Reclamation Plant, Cicero, IL USA

The Metropolitan Water Reclamation District of Greater Chicago in partnership with Ostara Nutrient Recovery Technologies

THE LARGEST NUTRIENT RECOVERY PLANT IN THE WORLD

4,500,000
EQUIVALENT POPULATION SERVED

4,000,000
GALLONS PER DAY
3 PEARL 10K TREATMENT FLOW CAPACITY

9,000
TONS PER YEAR CAPACITY
CRYSTAL GREEN® PRODUCTION

OVERVIEW

Setting the bar for water stewardship and recovery for reuse

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) in partnership with Ostara, opened the world's largest nutrient recovery facility.

Recovering nutrients from where they shouldn't be – in the water, and converting them into an eco-friendly fertilizer – the facility helps protect the Chicago/Calumet River system and the Mississippi River basin from an overabundance of nutrients. Ostara's process optimizes operational efficiency and provides revenue from the sale of the high value phosphorus fertilizer recovered.

THE SITUATION

Nutrient pollution is one of the greatest environmental issues of today

In the form of fertilizer, phosphorus is necessary to produce the food needed to sustain growing populations, but in excess it can cause algae to grow and bloom in waterways resulting in toxic conditions that destroy aquatic life and limit recreational enjoyment of lakes and rivers.

Unchecked, urban water treatment facilities can be a major contributor to nutrient pollution, and within the facilities, nutrient overload can be detrimental to pipes, pumps and valves, restricting flow and causing costly operational challenges.

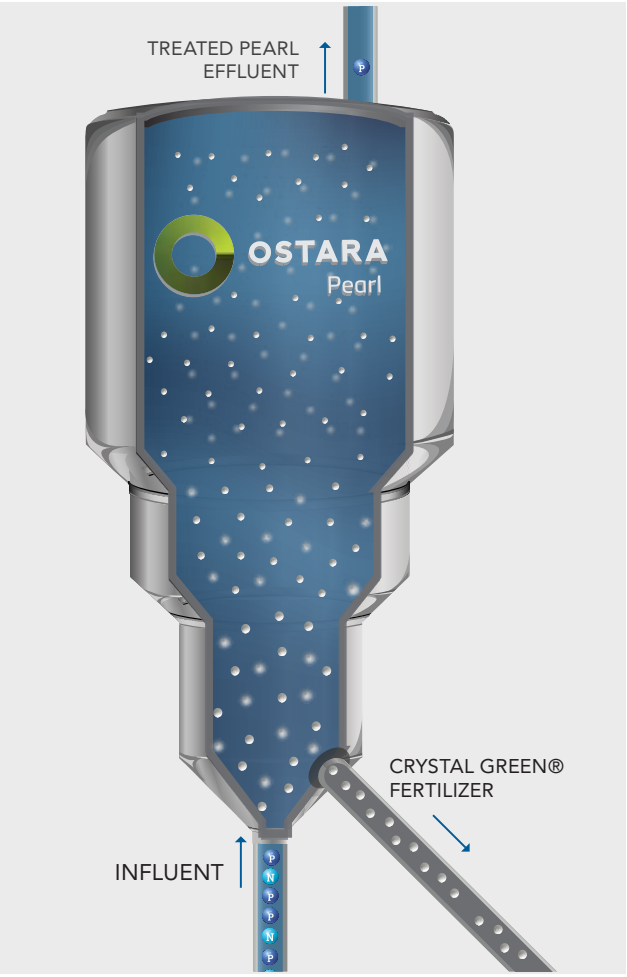
THE CHALLENGE

A closed-loop and cost-effective phosphorus management strategy.

Designed to treat up to 1.44 billion gallons of water each day and serving over 4.5 million residents, the Stickney Water Reclamation Plant (WRP) is the largest water reclamation plant in the world. With billions of gallons of water being treated daily, the MWRD was facing stringent regulatory limits affecting effluent discharge permits in addition to operational issues caused by an accumulation of struvite.

The MWRD pro-actively sought a closed-loop and cost-effective phosphorus management strategy. As a global leader in nutrient recovery, Ostara provided the MWRD with a solution to their challenges.

"The MWRD is dedicated to becoming the utility of the future. Ostara's technology is a solution to managing the overabundance of phosphorus while creating a revenue stream through the sale of the fertilizer. This is a win for the environment and a win for Cook County taxpayers." - Mariyana Spyropoulos, President of the MWRD Board of Commissioners



THE SOLUTION

Addressing the MWRD's operational and environmental challenges, Ostara's Pearl® nutrient recovery technology has the ability to:

- ☑ Help exceed environmental regulations to meet a 1.0mg/L limit for total phosphorus in effluent
- ☑ Cost-effectively recover excess phosphorus for sustainable reuse
- ☑ Improve plant efficiencies
- ☑ Reduce costly chemical dependencies

Ostara's Pearl® Process is a Closed-loop Solution

Nutrients such as phosphorus are recovered from wastewater and transformed into a high-value fertilizer that generates revenues for wastewater treatment facilities while helping meet environmental regulations and enhancing operational efficiency.

Nutrient recovery at the Stickney WRP meets the MWRD's four key performance indicators: Manage Risk, Return on Investment, Reduce Effluent Phosphorus, and Maximize Value.

The MWRD has installed three of Ostara's Pearl 10K reactors, with an installed production capacity of up to 9000 tons of Crystal Green per year. The District will receive revenue for every ton of fertilizer it produces. The Pearl process has the capability to recover up to 85 percent of the phosphorus from wastewater streams before they accumulate as struvite in pipes and equipment.

The MWRD's nutrient recovery facility will also greatly reduce its nutrient effluent load to the Chicago/Calumet river system, upstream of the Mississippi river basin and as a result, will reduce its impact on hypoxia in the Gulf of Mexico.

THE BENEFITS

The MWRD's nutrient recovery facility will result in an annual cost savings in chemicals, solid waste disposal, maintenance and power.

Following the successful commercial start-up of this facility, the MWRD plans to implement WASSTRIP® — a process that turbo-charges the nutrient recovery process and increases the amount of phosphorus recovered by more than 60 percent for added operational and revenue generating benefits.

OSTARA

Crystal Green 5-28-0-10Mg

About Ostara Nutrient Recovery Technologies Inc. & Crystal Green®:
Ostara's Pearl® technology recovers phosphorus and nitrogen at wastewater treatment plants and transforms them into a high-value, eco-friendly fertilizer, Crystal Green®. The process greatly reduces nutrient management costs, and helps plants meet increasingly stringent discharge limits while recovering a valuable source of phosphorus for beneficial reuse.
Crystal Green's innovative Root-Activated™ mode-of-action improves crop yield and performance, while reducing nutrient leaching and runoff. For more information, visit **www.ostara.com** and **www.crystalgreen.com**.

Metropolitan Water Reclamation District of Greater Chicago

About the Metropolitan Water Reclamation District of Greater Chicago
Established in 1889, the Metropolitan Water Reclamation District of Greater Chicago (www.mwrd.org) is an award-winning, special purpose government agency responsible for wastewater treatment and stormwater management in a 883.5 square mile service area in Cook County, Illinois. The MWRD's mission is to protect the health and safety of the public in its service area, the quality of the water supply source (Lake Michigan), improve and protect the quality of water in watercourses, protect businesses and homes from flood damages, and manage water as a vital resource. For more information, visit **www.mwrd.org**