



# Thames Water to Recover Phosphorus from Sewage and Recycle Nutrients into "Environmentally Friendly" Commercial Fertiliser – a UK First

**LONDON, UK and VANCOUVER, CANADA** — **September 29, 2010** — Thames Water and Ostara Nutrient Recovery Technologies announced today they will incorporate a new technology at Slough Sewage Treatment Works to recover phosphorus and ammonia from its wastewater stream and transform them into an environmentally-friendly, premium-quality commercial fertiliser.

Ostara's technology helps sewage treatment works cost-effectively meet environmental regulations (nutrient limits), while producing a fertiliser that releases slowly and eliminates run-off. The fertiliser, called Crystal Green®, is currently being sold in North America, and recent regulatory reviews by the Environment Agency and Trading Standards Service have ensured that Crystal Green can now be sold as a premium-quality fertilizer product in the UK.

Phosphorus is the key ingredient in fertilisers used to grow the world's food supply, and Thames Water will be the first in the UK to extract this precious nutrient from wastewater. Mining phosphorus from a sustainable resource is an important and timely environmental initiative given that phosphorus reserves in North America, Russia, China and Morocco are dwindling, and the extraction of the nutrient from these rock reserves is highly carbon-intensive.

Piers Clark, Asset Management Director, Thames Water; Phillip Abrary, President and CEO, Ostara; and Robert F. Kennedy, Jr., Ostara board member, environmental advocate and attorney, were at Slough Sewage Works today to commemorate the partnership.

Mr. Kennedy, a partner in Ostara investor VantagePoint Venture Partners, said: "This partnership between Thames Water and Ostara provides a cost-effective solution that benefits the environment at all stages, and truly exhibits the shift that we are seeing towards closed-loop sustainable technologies."



### A Win-Win Partnership

The project at Thames Water's Slough Sewage Works marks a unique public/private partnership where Ostara will design, build and finance the nutrient recovery facility, which is expected to be completed in mid-2011. Thames Water has agreed to pay a monthly fee for treatment capacity provided by the Ostara system, which is less than what is currently required to deal with costly maintenance resulting from the damaging build-up of struvite in pipes and valves. If left untreated, struvite forms scale on the inside of pipes etc., increasing maintenance costs, and in some cases blocking the pipes completely. This project will help Slough efficiently meet nutrient limits, reduce operational costs and optimize the plant's efficiency, and enable Thames Water to avoid the use of costly, unsustainable chemicals.

These nutrient recovery benefits will be provided without Thames Water having to make any capital investment in the system. Ostara's Nutrient Recovery Facility at Slough is expected to yield 150 tonnes a year of Crystal Green fertiliser. Thames Water will receive revenue for the production and sale of Crystal Green, further enhancing the economics of the partnership. Crystal Green® is the only slow-release fertiliser with a combination of nitrogen, phosphorus and magnesium. Unlike most fertilisers, Crystal Green® dissolves slowly over a six to nine month period and therefore is environmentally safe because it does not leach into the environment.

"This project is a classic win-win: we are transforming the problem of excess nutrients into a valuable product, reducing our maintenance costs and helping the environment by producing a fertiliser that will not leach and damage local ecosystems. The exciting thing is that this product is derived from a renewable source of phosphate, and will be marketed and sold to growers, horticulturists and the turf industry in the UK. We constantly recycle our product – water – back to the environment from which we first borrow it and this is another way we are making use of local renewable options," said Piers Clark, Asset Management Director for Thames Water.

"This public-private partnership between Thames Water and Ostara is a creative approach to helping wastewater treatment facilities deal with the operational and environmental implications associated with the challenges of polluting nutrients," said Phillip Abrary, Ostara's President and CEO. "Ostara provides a solution that is no-risk to Thames Water from a financial or technical perspective, and will serve as a model for sustainable innovation in the UK."

## From Pilot to Commercial Facility

A pilot scale Nutrient Recovery facility at Thames Water's Slough Sewage Treatment Works began operating in March 2010 to demonstrate the technology's potential to support efficient operation of the plant's biological phosphorus removal process, and to assess the viability of a full scale implementation. Slough Sewage Works was one of the UK's first biological phosphorus removal plants, commissioned in 1993.



"Given we had already conducted our own research on struvite, and how this can be turned into a value-added product, we were optimistic that Ostara's proven technology would help support our objectives of efficiently meeting our phosphorus discharge limitations, and recovering useful materials from wastewater. The results were very encouraging," said Clark. "Resource recovery is a key principal underlying Thames Water's sludge management strategy - this technology fits very well with that principal. The implementation of this innovative technology has the potential to help improve the operational efficiency of our treatment plants, reduce their energy usage and protect water quality - benefits that extend beyond the treatment plant."

Phillip Abrary, President and CEO of Ostara, said many sewage treatment works are effective at removing phosphorus and other pollutants and diverting them into a sludge stream of liquids and solids – but are then left with the problem of disposing of these nutrients, along with the operational challenges created by the build-up of struvite in pipes and equipment. The prevention and removal of struvite imposes significant operation and maintenance costs.

"Ostara's Nutrient Recycling Process integrates directly into Slough's treatment system, processes the sludge liquids, and recovers a high-quality environmentally-friendly fertiliser that generates revenue for the water company."

According to Abrary, several hundred plants in Europe are potential candidates for the technology. "Ostara's technology provides a solution to any sewage treatment plant faced with high phosphate concentrations in their sludge systems."

#### About Thames Water:

Thames Water, which serves London and the Thames Valley, is Britain's biggest water and sewerage company.

Top-quality drinking water: We supply more than a tonne a week of water on average to each of our 8.7m of our drinking water customers. That's 2,600m litres a day.

Recycling water back to the environment: We also recycle safely back to the environment 14m people's wastewater. That's 2,800m litres of sewage a day -24 hours a day, 365 days a year.

Our region: Our service area stretches from eastern fringes of Gloucestershire and Wiltshire in the west, through to the western edges of Essex and Kent in the east.

Bills: Our bills are among the lowest in the UK water sector, with the average household bill currently 83p a day per household for water and sewerage services.

Ownership: Thames Water Utilities Ltd is owned by a group of pension and infrastructure funds from around the world, including Macquarie-managed funds, which have a 46% stake.



<u>Regulators</u>: All water firms in England and Wales are privately-owned and answerable to our regulators, who monitor all our activities.

- Ofwat is the economic regulator for the water industry: www.ofwat.gov.uk/
- The Environment Agency is the environmental regulator: www.environment-agency.gov.uk/
- The Drinking Water Inspectorate regulates the quality of water companies' supply to customers' taps: <a href="www.dwi.gov.uk/">www.dwi.gov.uk/</a>

Renewable energy: As well as providing water and sewerage services, we are also the biggest non-commercial producer of electricity inside the M25. We use anaerobic digestion to derive methane derived from sewage, which we burn to create from which we generate our own renewable electricity to help power our works. "Poo power", as media call it, saves us on average £15m a year in grid energy bills.

# **About Ostara Nutrient Recovery Technologies Inc.**

Ostara Nutrient Recovery Technologies Inc. designs, builds and sells a new generation of water treatment systems – a nutrient recovery solution that creates value from waste by removing nutrients from wastewater and transforming them into revenue-generating, environmentally-friendly commercial fertilizer, called Crystal Green®. In September 2010, Ostara was named a 2011 Technology Pioneer by the World Economic Forum, and in 2009, the Company was named one of the Top 100 Global CleanTech Companies by The Guardian, a London-based media group. Ostara is backed by VantagePoint Venture Partners in the U.S. and Frog Capital in the UK. For more information: visit <a href="www.ostara.com">www.ostara.com</a> and <a href="www.crystalgreen.com">www.crystalgreen.com</a>.

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