GENTLE HANDLING

Why Wastewater Phosphorus Recovery is Important – and how **UniTrak Powderflight** is helping to do this with Ostara.

Vancouver-based Ostara helps protect precious water resources by changing the way cities around the world manage excess nutrients both in wastewater streams and due to fertilizer runoff. The company's nutrient management solutions recover otherwise polluting nutrients, phosphorus and nitrogen, from municipal and industrial water streams, and transforms those into a continuous-release, eco-friendly fertilizer marketed as Crystal Green.

The process helps wastewater treatment plants reduce nutrient management costs, meet increasingly stringent discharge limits and improve operating reliability, while Crystal Green's innovative Root-Activated mode-of-action improves crop yield and performance, while reducing the risk of nutrient leaching and runoff.

Phosphorus enters the human body as food, and is discharged back into the environment through wastewater.

Ostara's process for phosphorus recovery is based on a closed-loop solution where, instead of viewing wastewater streams as waste, Ostara sees a renewable resource that can generate revenue for treatment plants while helping meet environmental regulations.

When phosphorus is removed from wastewater it concentrates in the solid residue produced. When this is recycled back into the wastewater it creates a nutrient-rich scale called Struvite that clogs pipes, valves and reduces the flow. Having these problems brings along costly maintenance and results in excess production of bio solids.

Ostara have found a way of turning problem causing scale into commercial fertilizer called Crystal Green. The fertilizer is a pearl like material (also known as Prills) and range in sizes from 0.9 – 4.0mm. When it's being handled it is very important the fertilizer prills are handled gently as they are somewhat friable and must retain their size and shape to work effectively as a slow release fertilizer. Ostara needed a way of transferring the Prills from the dryer to the storage silos via the classifying screen.

When Ostara approached Unitrak with the need to convey their product, Ostara had a number of key concerns that must be addressed:

- Product damage/degradation when being handled (as stated above).
- Product Spillage – Ostara wanted to minimize this as most wastewater treatment facilities are often minimally staffed. So regular clean-ups of product spillage would increase the operational costs plus loss of product.
- Small Compact Footprint – Ostara needed a conveyor to work with in a small and compact space. With Ostara process lines are installed within either new or existing wastewater treatment facilities, all aspects of their technology has to perform as required and work around other equipment as necessary.

After taking in to consideration all the key concerns, UniTrak determined that the TT500 PEC TipTrak bucket conveyor would be the best equipment to convey the Struvite Prills to the screener that feeds the product into the silos. The TT500 would have to operate at a very low speed of 8 feet per minute and typically convey 1,100 pounds of product per hour.

Each of UniTraks TipTrak conveyors have an interlocking bucket design. This covered the first two major concerns that Ostara had as each bucket is connected to its neighbour via a rubber joint strip, ensuring gentle product handling and minimise spillage from the infeed to discharge.

Another one of Ostara's key concerns was also dealt with as the footprint of the TipTrak is small and compact so meeting Ostara's process needs. With a minimum lower horizontal length of less than five feet the TT500 was easy to integrate into the confined spaces within the facility layouts.

In addition to the gentle handling and spillage free operation of the TipTrak unit in Ostara's process, UniTrak also provides valuable onsite commissioning and "hands on" training for the facility personnel who will be operating the equipment. The training includes practical guidance and advice to assist in recognising and resolving any issues that might occur during operation and scheduled maintenance of the TipTrak bucket elevator.

With more than ten municipalities in North America adopting the Ostara system and with several more installations on the horizon, UniTrak has demonstrated that its TipTrak line of equipment is an excellent choice for applications where gentle handling conveyors for wastewater phosphorus recovery are required. ■

www.unitrakpowderflight.com