The upgrade has resulted in savings of $1.1 million per year in power, polymer and biosolids disposal costs by improving dewatering operational efficiencies at the WI WWTP. In addition, the upgrade increased the dewatering capacity at Ward’s Island WWTP by 50%, which allows the New York City Department of Environmental Protection to decommission a dewatering facility at one of its other WWTPs.

CDM Smith WEFTEC 2018 Presentation
“How to save $1M per year in operational costs: efficiencies in sludge dewatering”

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Ed St. Peter
Former Kenosha Water Utility General Manager

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Biosolids management today is faced with challenges that are matched by unprecedented opportunities. A key source of these opportunities is the expanded view of wastewater and solids as renewable resources.

Source: EPA

- Less
- Lower cost of ownership
- Reduce landfill & disposal costs
- Reduce operational & maintenance costs
- Reduce chemicals & energy costs
- Simplify the process steps
- Reduce digester capacity
- Smaller footprint
- Simplify downstream processes

+ More
- Improve sludge dewaterability
- Increase nutrient recovery
- Improve plant efficiencies
- Increase energy efficiency
- Improve nutrient quality
- Increase biogas production
- Improve plant safety

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The Centrisys/CNP Portfolio Supports Global Sustainability

1. THK Series®
   - Primary Sludge Thicker
   - Designed specifically to achieve high performance thickening of biosolids. It is not a modified dewatering centrifuge.
   - Enclosed system reducing odors and gases
   - Hygienic operation - safer for operators
   - Digestor volume cut in half by doubling the feed concentration
   - Digestor heating burden greatly reduced
   - Greater G-volume
   - Independent control of liquids and solids weir

2. THK CASE STUDY
   - Steven M. Clouse San Antonio Water System
   - Problem: The plant had four aging GBTs that could not handle the increasing flows. The feed was a blend of WAS and primary sludge from two plants - SM Clouse and Leon Creek. The GBTs used 5.5 tons of polymer. A 50% reduction was a key factor in the plant’s sludge thickening choice.
   - Solution: The plant installed (2) THK600s in 2019, doubling its thickening capacity and reducing polymer consumption by 2.5 lbs/ton, a savings of over $100,000 per year.

3. PONDUS™
   - Thermal Hydrolysis Process (THP)
   - An alkaline process, uses low grade heat (140°F to 160°F) and sodium hydroxide for sludge hydrolysis.
   - No heat exchangers needed to cool sludge
   - No pressure vessel required
   - Saturated steam option for sludge above 7% total solids (TS) or with high viscosity
   - Minimal equipment needed: high-efficiency heat exchanger, progressive cavity pumps, reactor operating under atmospheric pressure
   - Increase biogas production up to 30%
   - Reduce biosolids disposal costs up to 30%
   - Reduce polymer consumption at dewatering up to 20%

4. CS Series®
   - Pre-Digestion Dewatering Centrifuge
   - Designed using what was learned in the field by servicing competitors' equipment in both municipal and industrial applications.
   - The Rotodry® hydraulic scroll drive—our standard backdrive technology from day one
   - Highest G-volume and torque capacity
   - Increase solids handling
   - Reduce polymer consumption
   - Continuous operation
   - Lowest installed horsepower
   - Driest cake
   - Customizable for unique application requirements

5. CalPrex®
   - Pre-Digestion P-Recovery as Brushite
   - CalPrex maintains a 6.5 pH, recovers phosphorus as a brushite crystal with up to 41% P2O5 and can minimize digester and sidestream P-loading by over 50%.
   - Reduce disposal costs up to 30%
   - Divert over 70% of the soluble P from the digester
   - Up to 50% of the total P in biosolids
   - Reduce sludge buildup in the digester
   - No ammonium required
   - Create a valuable fertilizer from brushite

6. MagPrex™
   - Post-Digestion P-Recovery as Struvite
   - MagPrex is the most cost-effective solution, giving all sized plants the affordable option to control struvite and recover phosphorus. It expands the nutrient recovery focus beyond the production of struvite.
   - Reduce and stabilize nutrient loading in the return sidestream to the wastewater treatment line
   - Improve sludge dewaterability
   - Reduce polymer consumption up to 30%
   - Reduce maintenance up to 50%
   - No sodium hydroxide required
   - Reduce struvite precipitation by harvesting, sequestration or centrate recovery

7. CS Series®
   - Post-Digestion Dewatering Centrifuge
   - Can provide an ROI in as little as 1.5 years with a decrease in maintenance and operating costs.
   - Lowest measured energy consumption**
   - Reduce operating and maintenance costs
   - Reduce disposal costs
   - Highest torque to weight ratio* (based on NYC Wards Island performance test in 2017)

8. DLT Series
   - Low-Temperature Belt Dryer
   - A dual belt, low-temperature belt dryer that can reduce biosolids volume by a third and convert biosolids to Class A.
   - Reduce plant operating costs and carbon emissions by reusing waste heat
   - Increase safety with low-temperature and minimal dust within the dryer
   - Dried biosolids in a granular form with a dryness level of 70-90%
   - Optimized air-flow system guarantees uniform drying

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*Also see information in #1.

**Also see information in #3.
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