

## Hillsboro, OR sludge screening improves phosphorus recovery system efficiency

### Project Profile

#### Objective

**Improve sludge quality** to allow plant to **recover phosphorus more efficiently** for re-sale as **agricultural fertilizer**.

#### Solution

Hydro-Sludge Screen improved sludge quality and increased the efficiency of their phosphorus recovery facility.

### Benefits from Cleaner Sludge

Nutrient recovery and cogeneration facilities benefit from cleaner sludge, Hydro-Sludge Screen systems helped Rock Creek:

- Reduce sludge loading and handling costs
- Provide additional treatment options
- Increase sludge treatment efficiency
- Maximize recovery of phosphorus to sell as high-value fertilizer

### Situation

The Rock Creek Advanced Wastewater Treatment Facility (AWWTF) in Hillsboro, Oregon serves a rapidly growing community southeast of Portland. This award-winning plant has the **largest municipal wastewater nutrient recovery facility in the world**. The facility recovers more than 20 dry tons of biosolids each day that is then sold to farmers throughout the state as a soil amendment or as commercial grade fertilizer.

The plant also has a significant waste-to-energy cogeneration operation. The methane generated on-site supplies 30% of the plant's total electrical needs through on-site methane generation. Each year, **the plant generates more than 5 million kilowatt-hours** on-site.

### Sludge - A Precious Commodity

With the combined **electrical cost savings** from their methane, and a significant **revenue stream from fertilizer sales** - the plant's **sludge was a very valuable asset**.

The plant was using an Ostara phosphorus recovery system to improve nutrient removal, reduce chemical costs and provide a new revenue stream.

After unsatisfactory experiences with the performance and aftermarket support offered by the prior sludge screen manufacturer, plant staff elected to consider an alternative supplier for the sludge screening technology.



Operating Hydro-Sludge® Screen Systems at Rock Creek



Hydro-Sludge® Screen Arrives On-Site

## Solution

Hillsboro Clean Water Services contracted with the consulting engineer Brown & Caldwell to design a system to help improve sludge quality at the Hillsboro Rock Creek wastewater treatment plant.

Three Hydro-Sludge Screen systems were selected to provide clean sludge to the phosphorus recovery system and increase the capacity of downstream sludge treatment processes. The three unit Hydro-Sludge Screens are used to screen pumped primary sludge with a 2% total solids concentration.

### System Advantages

- Screening removal and dewatering in one operation
- Fully automatic for continuous or intermittent screening of sludges with varying dry solids content
- Enclosed system minimizes odors
- No wash water requirements
- Rugged cast iron feed and discharge ends withstand high torque loads
- Durable stellite tipped screw provides better screen cleaning
- Reinforced dewatering zone screen
- PLC based controls and HMI are easy to use and operator friendly
- Maintenance friendly reverse function, inlet access hatch, extended discharge area

## Outcome

Since installation, the plant has been happy with the output and performance of the systems. When the local regional Water Environment Association (PNCWA) held their annual conference in Vancouver the plant was selected for a site tour which was well attended by conference participants.

### Hydro-Sludge® Screen System Highlights

The Hydro-Sludge Screen removes tramp material from sludge and dewateres the material in a single, enclosed unit. Sludge enters the screening zone, flowing through the perforated screen, and exits via a flanged connection. Non-compressible solids larger than the 5mm perforations are retained within the screen basket and transported to the dewatering zone by the rotating screw.

The separated solids are dewatered in the pressing zone and compacted into a plug under gradually increasing pressure. Liquid sludge from the dewatering and pressing zones drains through the 3mm perforations, combining with the drained sludge from the screening zone. As the screening plug is formed, the drive load increases pushing the screenings against the backpressure cone.

The drive load is monitored and converted to a pneumatic pressure which adjusts the backpressure on the cone to release solids. The dewatered solids fall through the screenings outlet and are collected in a solids receptacle for final disposal.



Rock Creek's Hydro-Sludge® Screen Systems Protect Profitable Nutrient Recovery & Cogeneration Systems

## Learn more

To learn more about how sludge dewatering can improve sludge quality, visit [hydro-int.com](http://hydro-int.com), search **Hydro-Sludge® Screen** online or contact us:

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