

# Sludge Screening

## Hydro-Sludge® Screen case study summaries

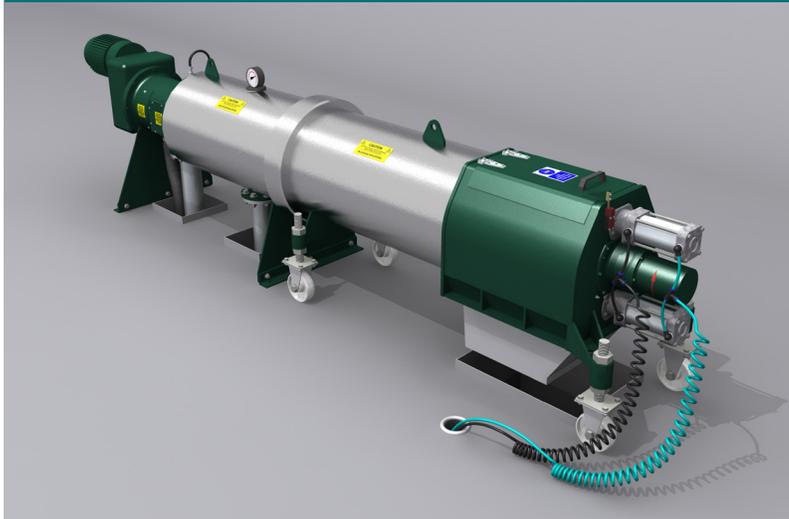
### Central Valley WRF Salt Lake City, UT

**Hydro-Sludge® Screen significantly increases sludge quality and improves electrical output from anaerobic digestion & co-generation.**

The Central Valley Water Reclamation Facility was built in 1988 and serves a total population of over 550,000 in Salt Lake County. Central Valley's entire property covers 168 acres (680,000 m<sup>2</sup>) with the treatment facility using 85 acres. The facility has over 80 dedicated employees and treats a peak daily flow of 85 Mgal/d (3724 L/s). Treated effluent from the plant is used to irrigate an adjacent golf course as well as other public areas. Excess effluent is discharged to the Jordan River.

After several years of operation their old sludge screening system began experiencing significant wear issues and the plants was frustrated by a lack of available replacement parts. Initially, just one of the old screens was replaced with a Hydro-Sludge® Screen. The ease of use of the new screen's PLC controls with VFD and an easy to read HMI was such a benefit that they replaced the other old screen shortly thereafter. According to the plant manager, "The Hydro-Sludge® Screen is much easier to operate, making operational changes and troubleshooting much easier."

**Hydro-Sludge® Screen allowed the plant to generate 70% of their operational electrical needs.**



Hydro-Sludge® Screen

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### How Sludge Screening Works

Flow enters into a cylindrical, perforated screening zone. Sludge passes through the perforations and exits via the sludge outlet, while the coarse material (screenings) are trapped inside.

The coarse screenings are retained on the stainless steel inner screen surface and then transported to the stainless steel pressing zone and onward to the outlet by an archimedean screw. In the pressing zone the screenings are pressed against a retention cone which is balanced against the drive load of the screw.

Dewatered and compacted screenings are finally discharged by the action of a regulating cone, controlled by detection of increased torque on the drive motor, into a suitable container.

### Benefits

#### Hydro-Sludge® Screen

- » 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
- » Standard rugged cast iron feed and discharge ends withstand high torque loads, optionally available in stainless steel
- » 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



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## Hillsboro, OR Rock Creek AWWTF

### Hydro-Sludge® Screen protects profitable processes at world's largest municipal nutrient recovery wastewater treatment facility

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 co-generation operation. Their captured methane supplies 30% of the plant's total electrical needs through on-site electrical generation. Each year, the plant generates more than 5 million kilowatt-hours on-site.

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 uses 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 and installed three Hydro-Sludge® Screen systems to enhance the quality of their sludge and increase their profits from phosphorous recovery and biosolids operations.

**Nutrient recovery and co-generation facilities realized significant benefits from cleaner sludge**



Rock Creek's Advanced Sludge Screening Systems

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## Conway, AR Tupelo Bayou WWTP

### Hydro-Sludge® Screen system helps to protect a threatened world class fishery

An aging wastewater treatment plant had the potential to impact the water quality of a 6,700 acre man-made fishing lake near Conway, Arkansas. The city needed a new treatment facility that was consistent with pending permit limits.

The city had an aging wastewater treatment plant, the Stone Dam Creek WWTP, which discharged into Lake Conway. The 30-year old WWTP was a contributor to solids loading, directly impacting water quality of the lake.

The new plant also had an activated sludge treatment process with UV disinfection and an anaerobic sludge digestion complex that allowed them to use digester biogas for energy production. This required very high quality sludge with little inorganic content. Working with their consulting engineer, it was determined that the ideal sludge screening solution was a Hydro-Sludge® Screen from Hydro International.

According to the plant superintendent "The new Hydro-Sludge® Screen system has provided significant cost savings. It reduces maintenance on the digester, pumps, and heat exchangers. The system also prevents trash from being land applied making it a more desirable product."

**Hydro-Sludge® Screen reduced maintenance and increased their co-generation capacity.**



Tupelo Bayou's In-Line Hydro-Sludge® Screen System

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