

# Case Study

## FSM Filterscreen

Perforated Plate Filterscreen

FRSIII



## It's All About Maximum Debris Capture

The Kenosha Water Utility in Kenosha Wisconsin could not agree more. The Utility embarked on an ambitious, two-part, cost reduction project. The first part of the project was a plan to increase the generation of methane gas to produce electricity to lower the energy costs of the plant. The second part of the plan focused on disposal costs by turning their unusable sludge into a reusable Class A biosolid product. KWU named this program "Energy-Optimized Resource Recovery Project" and is a model for midsized facilities to become leaders in wastewater innovation.

From the beginning, KWU realized that to achieve its goals, it was critical to capture and remove as much debris as possible at the headworks of the plant. The plant's maximum average daily flow is 28.6 MGD but can increase by a factor of five during large rain events. Although the collection system has separate storm and sanitary sewers, the amount of inflow/infiltration from various sources create problems similar to a combined system especially during the initial rain event surge.

### Specifications

- Verified >85% Capture.
- Auto-adjusting Brush Guarantees Consistent 85% Capture for Life of Brush.
- Two FRSIII Model 1500 x 70/6.
- 6 mm Perforated Plate.
- Peak Flow: 50 MGD per screen.
- Channel Width: 6 feet.
- Channel Depth: 13.67 feet.



Two FRSIII Model 1500 x 70/6 - Kenosh, WI.

To increase debris capture and handle those debris laden "Sewernamis", the Utility replaced their old half inch coarse bar screens with two Enviro-Care FSM® perforated plate Filterscreens Model FRSIII 1500 x 70/6 with a verified debris capture of >85%. Each screen has 6 mm holes and is rated for a peak flow of 50 MGD. The Filterscreens are equipped with FSM's proprietary auto adjusting cleaning brushes which require no manual adjustments and guarantee maximum capture efficiency for the life of the brush.

Despite two significant storm events while the screens were still being installed, the FSM screens met and exceeded all expectations. There were no system backups even as 93 MGD was being pumped through the plant during one of the storm events. The screens captured and quickly removed from the channel all the rags that once would have caused the clarifiers to fail.

Kenosha is seeing the benefits of the increased debris capture. Since the screens were installed, there have been no primary clarifier failures, no floatables on the clarifiers or the wet wells or the aeration tanks and no rags in the centrifuge tanks. To reduce the volume of the captured debris going to landfill, Kenosha also installed two FSM washer compactors, each with a capacity of 176 ft<sup>3</sup>/hr. These units wash the organics out of the captured debris and compact the clean inorganic debris to achieve >40% dryness and a 60 – 85% volume/weight reduction.

The washer compactor photo is the Kenosha FSM unit discharging the washed and compacted inorganic debris into a dumpster. This material has no problem passing the paint filter test.

It is not necessary to be engaged in a special project to benefit from high capture. FSM high capture screens significantly decrease maintenance and improve downstream processes including digester performance by removing rags and debris before they ever get into the plant.



FSM Washer Compactor Discharge

