Headworks® INTERNATIONAL

CASE STUDY: Edmonds WWTP WASHINGTON, USA

Headworks Engineers Develop Quick Fix to Unique Challenge

Background

The City of Edmonds in Washington and Brown & Caldwell performed an evaluation to determine the best method for screenings disposal. It was determined that burning them on-site in a sewage sludge incinerator was preferable to disposing of them in a landfill.

Calculations performed showed that if the screenings could be dewatered successfully, there was a net BTU benefit to mixing them into the sludge for incineration. The innovative solution proposed by Headworks allowed the screenings moisture content to meet the City of Edmonds' specifications for incineration, thereby reducing auxiliary fuel for the incinerator and eliminating landfilling of screenings.

Challenges

The challenge presented to Headworks at this installation was extremely interesting to our engineers. After the screenings are dumped from the Bar Screens, they are conveyed to the hopper where they are combined with the carrier water for transport to the portion of the plant site where the incineration occurs.

Not only is the content of the transported screenings at that point

Customer: City of Edmonds
Industry: Municipal

KEY FACTS

Three Headworks Bar Screens

- **Maximum Flow:** 79,485 m^3/day (21 MGD)
- **Bar Spacing:** 6.35 m (0.25 ft)
- **Screen Size:** 5.70 m long (18.71 ft)
  1.17 m wide (3.84 ft)
- **Channel:** 3.35 m deep (11 ft)
  1.22 m (4 ft)
- **WD Water Depth:** 1.07 m (3.50 ft)

90 % water, but the X-Tractor, a solids compactor device, is faced with the screenings going from zero flow and zero loading to 300 GPM all in one moment when the pump is periodically turned on. This immediate slug of screenings created a unique challenge.

The Edmonds WWTP Screenings System Improvement Project C161 consists of three Headworks© Bar Screens© with one Static Screen and an X-Tractor©.

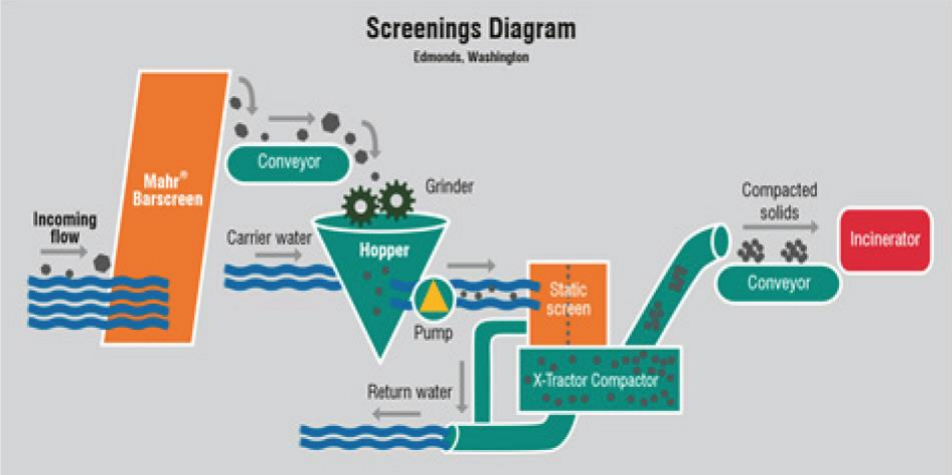
Interview

We interviewed Stephen Koho, Plant Manager of the Edmonds WWTP, about the project.

"The unique setup of our plant created an unusual solids handling problem for this equipment. The majority of solid compactors on the market are designed to deal with a minimum amount of water at a steady state of flow. Frankly, the static screen above the compacting device wasn't my first choice. I was a bit skeptical. During the design process, though, I truly appreciated being able to speak directly with the engineer who developed the solution rather than just dealing solely through the company's project manager. Everyone at Headworks worked as a team.

Headworks' engineers were able to devise a solution that solved our problem without increasing our maintenance. Their lead R&D engineer suggested the use of a static screen to remove approximately 50 % of the carrier water before the screenings ever arrived at the solids compactor. This solution allowed the equipment to meet our specifications without adding a bigger footprint. Much to my delight, and despite my initial skepticism, there have been no problems with this installation once it was completed. We've been happy with the performance ever since. Let me just add, that the Headworks Bar Screens are great, too. Even if a bomb hits the place I know that the screens will remain standing. They're simply bullet proof! Headworks' Bar Screens were the highlight of the project."

Fifty percent of the heat generated in the incinerator is converted to energy. This energy is used to super heat the air by sending it through a heat exchanger. The air goes into the exchanger at 80 degrees and is superheated to 1200 degrees and returned to the incinerator. Landfill usage is eliminated together with the fuel usage and pollution created by trucks which would have been required to transport the screenings to a distant landfill. Interestingly, twenty percent of waste sludge is now incinerated in the United States.



Screening Diagram – Wastewater Treatment Plant Edmonds, WA

Unique slug challenge at the Edmonds Site