Headworks® INTERNATIONAL

CASE STUDY: Everett WWTP EVERETT, WASHINGTON, USA

Award-Winning Everett, Washington Chooses Headworks to Protect Its CSO Wastewater Facility and the Puget Sound

Customer : City of Everett, Washington
Industry : Municipal

Introduction

In the northwestern corner of Washington state lies the town of Everett. Located north of Seattle on Possession Sound, it is much more than just a bedroom community for Seattle. The original European settlers in the area came in the 1860's. The town was incorporated in the 1890's as the first railroad came to the location. It was a hub for the mining industry and then logging through the early 1900's. Now, it is still an industrial city. Boeing is the largest employer; they manufacture widebody aircraft including the 747 and 787 in the world's largest building by volume at over 13 million cubic meters (over 459 million cubic feet). In addition, the US Navy has a significant presence in Everett, the Naval Station is the homeport of the USS Nimitz Aircraft Carrier as well as several Destroyer class vessels.

Everett continues to grow and as it has grown, so have the demands on its utilities. The wastewater treatment plant discharges to Possession Sound which is part of the Puget Sound system. Ensuring that this treasure remains clean and environmentally sound is a critical aspect of the work done by the Everett Washington Water Pollution Control Facility, and they are rightly proud of the many awards they have won over the years. This centralized treatment plant is a combined sewer overflow ("CSO") facility which has seen flows of over 200 MGD.

KEY FACTS

- **Installed:** 1999-2009
- **Six MS Bar Screens**
- **Flow Range:** 52 MGD - 106 MGD
- **Bar Spacing:** 6 mm (1/4 in)
- **Channel Depth:** 4.17 ft, 10ft.

QUALITY THAT NEVER QUITS™

Everett's Problem

The first step in the treatment process is screening out the physical debris, especially when storm water flow is part of the equation. This portion of a plant is referred to as the "headworks" of the plant. Many years ago, the plant installed climber type screens to protect the headworks. By the late 1990s, it was clear that the screens were failing. This type of screen has only one rake which acts like a giant scoop going to the bottom of the channel, then dragging the debris up the screen to be removed at the top. As it has no lower bearings to keep it centered, its greatest inherent failing is its frequent disengaging at the bottom of the channel which causes it to not capture the debris, resulting in the screen being blinded by trash and often overflowing the sewage into nearby neighborhoods and waterways. Further, cycle time for cleaning the screens is too long with only the one rake which also contributes to it blinding of the screen. And the wide spacing between each screen bar allows too much material to come through and congest the plant's downstream equipment.

""It is such a simple design that just keeps going and going. It is nice to have equipment that we don't have to babysit to keep things up and running."

- Mark Hatzenbuehler, Control Operator II

Everett WPCF, November 2017

Headworks Solution

After extensive research and evaluation of technologies, the plant installed its first Headworks MS Bar Screen in 1999. Over a span of ten years, they purchased five more to replace the remaining climber screens. All of the screens are manufactured of 304 stainless steel and have ¼" bar spacing. They chose this bar spacing because they wanted to ensure proper operation of downstream equipment without allowing large solids to come through. Using a robust Headworks MS Bar Screen with multiple rakes guided by upper and lower sprockets ensuring proper engagement of the rakes into even this tight a screen bar spacing allowed them to do single stage screening, eliminating any need to purchase an additional coarse screen upstream.

The data for each Headworks MS Bar Screen is as follows:

Screen	Rated Flow	Channel Width	Channel Depth
1	52 MGD	10 ft	12 ft
2	52 MGD	10 ft	12 ft
3	129 MGD	10 ft	12 ft
4	106 MGD	10 ft	12 ft
5	106 MGD	10 ft	12 ft
6	46 MGD	4.17 ft	16 ft

The oldest screens on site have now been running worry-free for over sixteen years and the "youngest" ones are approaching eight years of life. Mark Hatzenbuehler, Control Operator II and a veteran employee of the Water Pollution Control Facility for over fifteen years, says of the Headworks Screens, "it is such a simple design that just keeps going and going. It is nice to have equipment that we don't have to babysit to keep things up and running." This is the message we get from all of our customers. Once you install a Headworks Bar Screen, you, like our friends at Everett, will never look back. Installing Headworks MS Bar Screens allowed Everett to save in many ways: 1) not having to buy two screens for each channel since our tank-like screens can handle whatever hits them no matter how fine the screen field spacing; 2) the cost of cleanup of flooding due to screen blinding; 3) significant reduction in lifecycle costs as operators now can spend their time on other equipment and spare purchases are seldom required; and 4) long life expectancy of the equipment means solid operations of the facility without additional screen replacement capital costs for decades. Just consider how much money that saves a facility and the reduction in the need for tax dollars to maintain the headworks portion of a plant. Headworks is known for providing equipment that operators truly love because it is essentially maintenance free and is robust enough to take the worst conditions. Do you want to be sure that the headworks of your plant runs smoothly and doesn't cause you problems downstream? Want to save time and money for your operations? There is no one else to contact other than Headworks International for your screening needs. Learn for yourself why major cities of the USA sole source our equipment by talking to our team.

If your team is considering upgrading the screens at your wastewater treatment facility or adding on a new headworks facility, truly upgrade it by starting your research with the market leader in the business. Our sales engineers at +1-713-647-6667 or HW@headworksintl.com and our local manufacturers' representatives have tackled some of the most challenging applications in the world and are sure to have a solution for you!

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