



Screenfield Retrofit Saves Greenwood Lakes WRF Time and Money

Background

Greenwood Lakes Water Reclamation Facility, located in Seminole County, Florida – just north of Orlando, treats approximately 694 million gallons of wastewater each year. What’s more impressive is that approximately 77% (534 million gallons) of treated wastewater is utilized for reuse annually.

Back in 2005, Headworks® installed two MS® Bar Screens and two Screwfactor™ Shafted Spiral Conveyor/Compactors on the influent side of the master lift station to replace failing screening equipment.

“We toured a facility in Jacksonville where MS Bar Screens were in operation,” explained Jack Cheney, former Chief Wastewater Operator at Greenwood Lakes, when asked why Headworks was selected for the job. “We liked the overall design and construction of the equipment and Jacksonville had some strong data on the screen’s performance,” he continued.

Measuring 27.51 ft in length and 2.34 ft in width, the tall and narrow bar screens were designed to withstand flows up to 10 MGD with 0.25 in bar spacings. Several years of successful operation passed and Headworks received a call from a familiar voice in 2011.

Customer: Greenwood Lakes Water Reclamation Facility
Industry: Municipal

KEY FACTS

Original MS Bar Screen

- **Bar Spacing:** ¼ in (6.35 mm)
- **Q Max. Specified:** 10 MGD
- **Q Max (v-Ch. = 0.9 m/sec or 3's):** 11.99 MGD
- **Q Max (v-Ch. = 0.6 m/sec or 2's):** 7.99 MGD
- **Headloss at 3'/sec channel velocity:** 10.64 in
- **Headloss at 2'/sec channel velocity:** 9.15 in

Retrofitted MS Bar Screen

- **Bar Spacing:** 3/16 in
- **Q Max. Specified:** 10 MGD
- **Q Max (v-Ch. = 0.9 m/sec or 3's):** 11.99 MGD
- **Q Max (v-Ch. = 0.6 m/sec or 2's):** 7.99 MGD
- **Headloss at 3'/sec channel velocity:** 11.86 in
- **Headloss at 2'/sec channel velocity:** 9.68 in

Challenge

Conditions had changed over time and the plant wanted to increase the amount of screenings removed in the pretreatment area of the plant. “Can Headworks reduce the bar spacings from 0.25 in to 3/16 in while maintaining the strength and capacity of both screens?” Jack asked.

Lee Ann Hellums, Special Projects Manager at Headworks, partnered with the Headworks engineering team to run the calculations. “We were able to keep the capacity the same, at 10 MGD, the only change was that the headloss increased slightly,” she explained. “The overall change in headloss was minimal in comparison to the increase in capture rate.”

Solution

To perform the retrofit on site, the rakes would be replaced and field modifications were required with respect to the frame. The areas where the screenfield bars attach to the screen must be cut out and replaced with new sections. “Wharton-Smith installed the original screens in 2005 and was a natural choice to execute the retrofit,” said Lee Ann.

Due to space constraints, both screens were removed from the channel individually to execute the retrofit. “Headworks provided the retrofit kit for each screen and we

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- David Engstrom

Chief Wastewater Operator at Greenwood Lakes

made the modifications with ease while maintaining the strength of the original product,” Sean Stanford, Project Manager at Wharton-Smith explained.

As soon as both retrofits were complete, the screens were back in the channel and back to work. “The retrofit was a success,” David Engstrom, current Chief Wastewater Operator at Greenwood Lakes exclaimed. “We increased our capture rate and maintained capacity without purchasing new equipment. A real win-win for Greenwood Lakes WRF.”

When asked about the financial benefit of retrofitting vs. buying new equipment Lee Ann explained that on average, the final expense of a retrofit is ¼ of the cost of buying a new piece of equipment. “The conditions have to be evaluated, but when possible, a retrofit can save a significant amount of time and money,” she finished.



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