

CASE STUDY

Hydro-Dyne Helps Romeoville Increase Efficiency and Reduce Maintenance Costs with Great White Center Flow Screen



SITUATION

The city of Romeoville, Illinois, was struggling with outdated wastewater treatment equipment that was inefficient at removing solids, as well as difficult and time consuming to maintain. The existing 6mm catenary style screen system, installed in 2006, (Figure 1) required daily maintenance and cleaning, which took time and attention away from other responsibilities within the plant. In addition, too many solids were getting through the influent screens, putting a strain on other equipment and forcing operators to use pool nets to remove those solids from the primary clarifier every day.

Rags were also a constant problem for downstream processes, clogging pumps and settling in holding tanks. Again, operators were forced to pick the rags out by hand - another time consuming process. The costs of maintenance, repair and replacement were adding up, in money and time, requiring the city to look for a new solution.

SOLUTION

In 2019, Romeoville replaced the existing screening equipment with Hydro-Dyne's Great White Center Flow Screen with 6mm UHMWPE Perforated Plates and a Whitetip Shark Washing Compactor (Figure 2). The Great White Center Flow design promised a higher screening capture ratio with much lower operating and maintenance requirements. The Hydro-Dyne perforated panels were drilled and custom engineered to allow for higher throughput capable of passing Romeoville's peak wet weather flows and meeting their required head-loss and bypass water levels with no civil modifications.

Secondary access panels were also added at the lower deck for operators to evaluate the grid to ensure the wash water headers were offloading properly.

RESULTS

Hydro-Dyne's Great White has exceeded the city's expectations:

- The amount of compacted solids being removed is twice the amount of the previous system - one cubic yard dumpster every six days instead of every two weeks.
- Solids that are removed are dryer and much more compact (Figure 3).
- The new screen has greatly reduced the costs associated with rags collecting in downstream equipment; operators are no longer required to do the messy job of removing solids and rags by hand from their clarifiers, pumps, and slide gates, allowing them to focus on optimizing their plant.
- Maintenance hours have been cut in half to only three hours per week.
- Since screen installation, unplanned shutdowns of the four RAS pumps due to rags seizing the pump impeller have dropped from one unplanned event per month to zero unplanned events.
- The plant is expecting to significantly reduce the costs associated with cleaning rags and debris out of the various process tanks; prior to screen replacement, they were spending about \$125,000 every five years and now are planning to extend this maintenance cycle to ten years.

"The Center Flow screen overall is performing nicely - it is easy to work with and maintain," said the plant engineer for the city of Romeoville. "Everyone is happy and agrees it was the best decision."

Equipment: Great White Center Flow Screen
Whitetip Shark Washing Compactor

Location: Romeoville, IL

Date: 2019



Figure 1



Figure 2



Figure 3

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