



By Julie Turnbaugh

# taking out the trash

*Fine-screen system helps a New Jersey treatment plant stop clogs before they can stop operations*

**T**he Hammonton Wastewater Treatment Plant, located in the lush countryside of southern New Jersey, recently faced continuous problems with rags, trash and plastics passing through a rusty old bar screen and into the oxidation ditch and final clarifier.

After years spent unclogging pumps, clearing out trash and untangling the UV system, plant managers decided to find a better screening system. After evaluating several screens, the team selected the Monster Separation System from JWC Environmental, Costa Mesa, Calif. The perforated-plate fine screen offers the best possible capture efficiency and fit into the current channel configuration. Mark Wolff of Watermark Environmental Systems provided technical assistance for the upgrade.

The new system consists of a Finescreen Monster, which features a moving band of perforated, stainless steel panels with ¼-in. round holes. Screened solids are lifted into the integrated Screenings Washer Monster, a self-contained, hopper-fed system that grinds, washes, compacts and dewateres the screenings.

Anthony DeCicco, superintendent of the 1-million-gal-per-day (mgd) facility, has reported significant operational and maintenance benefits through replacement of the 12-year-old bar screen with the new, multifaceted separation system. Incorporating the screenings washer also eliminated an aging and messy screw conveyor, helping to clean up and clear out odor problems in the headworks area.

“Our operation was experiencing clogging from floatables, hair and rags passing through the old bar screen,” DeCicco said. “We had been burdened for years by paper, plastic and latex materials, especially grease from saturated fats. Since the installation of the new system in September 2006, more solids are being captured and we have had to do little to no maintenance.”

### The Culprits

The facility can handle a peak flow of 7 mgd and serves a population of more than 12,000, with a large number of high-grease-producing restaurants. These fats, oil and grease (FOG) used to arrive at the treatment plant in large, partially solidified globs that passed right through the old bar screen and eventually clogged pumps. Now, many grease balls are removed by the separation system and put through the screenings washer.

The fine-screen system eliminated several trouble spots for DeCicco and his crew. They were able to remove a manual screen located at the plant’s final discharge point used to capture trash the old bar screen missed. Grease, rags and hair were significant culprits in clogging machinery and leading to hours of messy, back-breaking labor—all of which was eliminated by the new fine screen. DeCicco and his crew are now free to focus on more important parts of the facility.

Originally built in 1994, the treatment plant was never upgraded until the new screen was installed. Hammonton, known as the “Blueberry Capital of the World,” has more than 4,000 domestic connections and growth continues to be steady, especially in blueberry farming and in

the restaurant business, creating a noticeable increase in the amount of FOG entering the sewage system.

### System Solutions

In addition to the Monster Separation System, Hammonton has been a long-time user of Muffin Monster pump station grinders; seven are located at stations throughout the city. The powerful dual-shafted grinders take rags, latex, clothing, branches and other debris and shred them into small particles that flow easily through pumps and pipes. With the help of the grinders, the pump stations have remained free-flowing and clear.

“Hammonton has an amazingly simple and cost-effective way of dealing with trash in their sewer system,” said Fritz Egger, JWC’s director of marketing. “Instead of screening at pump stations, they grind and pump. By eliminating screens inside the stations, they save on hauling costs, maintenance, odor problems and vector control issues.”

The grinders shred trash and send it on to the plant’s preliminary treatment, where the fine screen takes it all out and the screenings washer cleans it up, getting it clean and dry for the landfill. “It’s the most efficient way of getting trash out of the sewers so the entire system runs smoothly,” Egger said. Removed solids typically contain up to 50% dry solids, are reduced in volume by 80% or more and have significantly less water than typical compactor discharge.

In the Finescreen Monster part of the system, wastewater is pumped into the channel and flows through the screening zone—a continuous band of perforated panels with ¼-in. circular openings. During the operation cycle, a drive moves the panels from the screening zone to a cleaning mechanism at the top of the screen. Debris is removed from the panels by a two-stage brush and wash water system, and screenings are conveyed to the screenings washer. The entire system is started and stopped automatically by a controller that reads flow data from several ultrasonic level detectors.

In the Screenings Washer Monster portion, solids are flushed through a grinder for size reduction, helping to expose surface area for more efficient washing and removal of fecal matter. An auger then moves the trash into the compaction zone, while soft organics are liquefied and pass through the perforated trough and return to the plant’s waste stream. The captured and cleaned solids are compacted, dewatered and discharged as a cake into a dumpster, ready for the landfill. **www**

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## ARTICLE SUMMARY

**Challenge:** After years spent unclogging pumps, clearing out trash and untangling the UV system, Hammonton plant managers decided to find a better screening system.

**Solution:** The Finescreen Monster was chosen because it could capture more solids and had a built-in system to grind, wash, compact and dewater the screenings.

**Conclusion:** The new fine-screen system provided multiple operational and maintenance benefits for the plant staff by easing their labor and saving time.

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