



PROBLEM: Ineffective bar screens and outrageous odor

SOLUTION: Monster Separation System
Finescreen Monster

Monster Solutions

Facility Uses 'Monsters' to Manage Screening, Odor & Trash Problems

Cobourg, Ontario - As wastewater pours into the Cobourg Water Pollution Control Facility, on the outskirts of this Canadian town, it comes loaded with organics, trash, debris and chemicals. A large perforated plate screen system, called a Monster Separation System™, is the plant's first line of defense in protecting downstream processes.

Managers at the facility report significant operational, maintenance, and disposal benefits through the replacement of an old 1"(25mm) bar screen with a new, multi-faceted Monster Separation System (MSS). Funding for a similar installation at Cobourg's second treatment plant is being proposed.

The MSS integrates a Finescreen Monster™, featuring a continuous band of specially shaped, perforated stainless steel panels, that direct screened solids into a Screenings Washer Monster®, a self-contained, hopper-fed system that grinds, washes, compacts, and dewateres discharged solids. The units, and their integrated operation, are designed and built by JWC Environmental® in Costa Mesa, California.

"It's unbelievable the difference it has made in cleaning up our facility," said Bill Peeples, manager of the two facilities. "We were burdened for

years by plastic, rubber, and other solids collecting in various structures throughout our process. Since the installation of the new system in February 2005, the MSS saved the facility resources in several ways:

1. Trash, plastic and latex are removed before they can damage the facility or reach the natural environment
2. 50% reduction in trash disposal costs
3. Improved grit tank operation and prolonged pump life
4. Fewer trips to the landfill

The MSS provides screenings of unparalleled dryness and cleanliness, ready for disposal. Removed solids typically contain up to 50% dry solids; are 80% compacted; and are significantly lighter than typical screened solids.

In the Finescreen Monster, wastewater in the channel flows to a screening zone – a continuous band of perforated panels with 6mm openings. During the operation cycle, the panels move from the screening zone to a cleaning mechanism at the discharge point. Debris is removed from the panels by a 2-stage brush/wash water system, then screenings are conveyed to the second part of the system for further processing.

"There were other screening options with the same 6mm size, but those were bar screens. Bar screens, regardless of how narrow, cannot properly handle slender objects. For example, a Q-Tip can pass through length-wise, without much difficulty," said Peeples.



Bill Peeples, manager of Cobourg Water Pollution Control Facility, oversees the Finescreen Monster as it directs screened solids to the Screenings Washer Monster.



In the Screenings Washer Monster (SWM), solids from the Finescreen are flushed through a grinder for size reduction, and washed and conveyed by an auger. Soft organics and wash water pass through the auger's perforated trough and return to the plant's waste stream. Captured solids are compacted, dewatered, and discharged, as a cake, into a receptacle for disposal.

"With a much finer screen in place; washing organics through instead of raking; and with the new compacting operation that squeezes the water out, we save about 50% on costs for hauling the waste to a landfill," Peeples noted. "Now we empty our 2 cu.yd.(1.5 m³) dumpster monthly, instead of weekly."

The MSS installation eliminated several trouble spots and burdens for Peeples and his crew. The grit chamber experienced a tremendous improvement in operation, removing more sand from the wastewater and producing bone dry discharge. Peeples estimates a 20-30% increase in pump service life due to this improvement.

In planning for the installation, Peeples increased his trash disposal budget, expecting an increase as the fine screen captured and removed more solids. Instead, the plant discharges only 25% of the volume it had before. "We capture more but send less to the landfill – it was all the water we were paying for," he said.

Peeples discovered another benefit of the SWM – it eliminates odors inside the headworks building.

"The smell in the headworks became overpowering at times, especially during the summer months," he recalled. "We had health concerns and were looking at an air filtration system or exhaust fan. Once the new MSS was installed, odor problems disappeared, saving us the \$10,000 it would have cost for the air system."

The benefits of the MSS extend to the plant's discharge point. Prior to installation debris collected on the chlorine contact tanks, requiring an operator to skim off rags, trash and latex every week. It was an inefficient use of a trained, licensed operator and an

embarrassing problem to have when tour groups and city officials passed through.

"Since spreading biosolids on land has become a very political issue lately, plastic and latex lying on a crop field, even though biologically inert, is not viewed favorably," said Peeples. "If we can install a piece of equipment that removes these items, it will help our efforts in making the product more widely accepted."

In just over a year Peeples and his crew have seen labor and resource savings in dozens of different treatment plant processes, and the only change was a new screening system at the front. The Monster Separation System provides better screening and more efficient washing and compaction. It is a new system that proves to be very beneficial to the operation of wastewater treatment plants.

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"Once the new screening system was installed, odor problems disappeared..."



Clean, dry product exiting the Screenings Washer Monster, having the appearance of compacted shredded newspaper.



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