



Credit: Paul Cockrell Photography

## Monster Solutions

# JWC Screenings Washers Make Fine Screening Possible at Ontario Wastewater Treatment Plants

When you screen wastewater with 1/4" (6mm) perforated plate panels you are going to capture a lot of stuff. The result? Tons of trash and debris – big stuff, small stuff and smelly stuff – pulled from the wastewater channel along with tons of fecal matter.

That's where JWC's Screening Washer Monster comes in – it's the industry's most powerful compactor incorporating a grinder, wash zones and a compactor to clean debris, wash off fecal matter and produce a cleaner, drier screenings discharge.

This powerful compacting is why the two massive pollution control plants in Mississauga, Ontario have installed twelve Screenings Washer Monsters (SWM) behind their fine screens. The headworks system screens out all debris and also gets the organics cleaned off so it doesn't cause massive odor problems.

"We picked JWC's screenings washers for a few reasons," said William Fernandez, Manager of Capital Projects for the Region of Peel government agency. "We are considering IFAS treatment for the future and that requires fine screening down to 6mm. Since we were in the process of redesigning the headworks at both plants we decided to go for it and install 6mm perforated plate fine screens."

However in the early 2000s few large treatment plants in North America were using fine screens. England and Europe were home to the largest fine screen installations, North American plants still used old bar screen technology which lets lots of small trash pass right through. So Region of Peel officials traveled to several European treatment plants to see what worked and what didn't with their fine screens.

**PROJECT:** Clarkson WPCP  
Lakeview WPCP

**PRODUCT:** Screenings Washer Monsters®

**OWNER:** Region of Peel

**ENGINEERS:** Black & Veatch; AECOM

**OPERATOR:** Ontario Clean Water Agency

"It was obvious right away the handling of screenings from the fine-screens was critical," said Fernandez. "We saw compacting as a bottleneck or a pinch point in the process – facilities used sluices, pumps, or elaborate systems to get fecal matter out of screenings and some systems created a lot of mess in my opinion."

For the design team the fine screen was the easy part, it was the next step – the washer compactor - that would make or break the headworks. So engineers looked at several configurations and included grinders in order to break up clumps of soft organics wrapped in rags so it can be cleaned and compacted. The team sketched one design where three screens feed a sluice into one grinder. However, if the grinder went down then three screens would go off line.

"We finally concluded we needed one grinder-compactor per screen – a reliable operation," said Fernandez. "The screen takes out all the stuff and a lot of fecal matter. If you don't grind it, you are going to have horrendous odor problems."

The 120-MGD (5,000 l/s) Lakeview and 50-MGD (2,000 l/s) Clarkson treatment plants in Mississauga underwent expansions in the mid 2000s to enhance their treatment processes. Black & Veatch and other firms assisted with the redesign and expansion. The facilities are owned by the Region of Peel and operated by the Ontario Clean Water Agency





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**The SWMs have solved three issues - reduction in odors, better compaction and drier screenings sent to landfill. That means better operations for Region of Peel and OCWA.**

which provides water and wastewater services for 180 municipalities in the province.

#### Plant Benefits

Fine screening removes nearly all inorganic debris at the headworks and the benefits for the facility are tremendous but sometimes hard to see. Fernandez pointed to long term savings – such as not having to muck out the inside of digesters, not having to suck grit and trash out of the aeration basins and not having to constantly unclog pumps full of rags. Using finescreens allows the facility to run longer and more efficiently – the savings aren't obvious but over time they add up big.

"They are working beautifully, this is the future," Fernandez said about the new headworks. "It's a lot better than the old bar screens."

One visible sign of the fine screens success is the increased tonnage of screenings hauled to the landfill – every week the two facilities send three to four times the metric tonnage they did when the bar screens were in use. Interestingly, Fernandez notes tonnage is up – but the cubic volume is down – the grinder cuts up debris so well it more tightly compacts and saves dumpster space.

Plant operators also enjoy the benefits of fine screening.

"I think the fine screens helped the plant a lot. We have fewer blockages in the raw sludge

pumps," said Nevin McKeown of OCWA. "In the aeration basins we were getting rags and stuff building up on top of diffusers – then when activated it would cause pressure to increase on other diffusers and the heads just pop out. Most of the air leaks out."

"We've approximately doubled the removal of screenings. An indicator of how much stuff we were letting by with the old bar screens," he said.

McKeown also reported the facility has gotten rid of a smelly problem caused by the old headworks – leaky dumpsters. Screenings would form a wet pool inside dumpsters that would then leak onto the ground. The Screenings Washer Monster produces drier material that doesn't form a pool of smelly water, so no more leaky dumpsters.

"The output is good, clean. That's good for the amount of material those screens haul out," said Mike Nelson, PE of Envirocan Wastewater Treatment Equipment Company. Envirocan is the machinery integrator on the project. "It is a showcase site - just beautiful. And the customer seems pleased – they just bought two more SWMs!"

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[www.ocwa.com](http://www.ocwa.com)  
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***Each fine screen captures all rags, trash and debris and deposits them into the SWM for grinding, washing, cleaning and compacting.***



**Headquarters**  
 290 Paularino Ave.  
 Costa Mesa, CA 92626 USA  
 Toll Free: (800) 331-2277  
 Phone: (949) 833-3888  
 Fax: (949) 833-8858  
[jwce@jwce.com](mailto:jwce@jwce.com)

**Western Service**  
 2600 S. Garnsey St.  
 Santa Ana, CA 92707, USA  
 Toll Free: (800) 331-2277  
 Phone: (949) 833-3888  
 Fax: (714) 751-1913  
[jwce@jwce.com](mailto:jwce@jwce.com)

**Eastern Service**  
 4485 Commerce Dr, Ste 109  
 Buford, GA 30518, USA  
 Toll Free: (800) 331-8783  
 Phone: (770) 271-2106  
 Fax: (770) 925-9406  
[jwce@jwce.com](mailto:jwce@jwce.com)

