



PROBLEM: Screenings with biological matter not allowed at landfill

SOLUTION: Auger Monster

CONSULTANT: Jelcon Equipment Ltd.

The Auger Monster removes ground solids from the wastewater stream

Monster Solutions

Equipment Upgrade Cuts Maintenance Over 75%

Merritt, BC – Operations managers at a conventional activated sludge wastewater treatment plant (WWTP) report a 75% reduction in routine maintenance time for screening equipment through installation of an upgraded system.

The upgrade, an Auger Monster® fine screen, removes unwanted plastics and trash and aided in the restoration of optimal BOD levels. With key components made from stainless steel, plant managers expect to significantly extend the service life of the system.

The Auger Monster, manufactured by JWC Environmental in Costa Mesa California, incorporates a spiral lifting screw with patented Muffin Monster® grinding technology. The system combines the benefits of a fine screen with the high-flow capability of a bar screen so it's easier to remove unwanted solids from the wastewater channel. As solids are removed, dual spray wash zones liquefy the soft organics so they pass through the perforated screen and return to the treatment process. The remaining trash is dewatered and compacted before it is dropped in a dumpster.

Shawn Boven, Merritt's Public Works Manager, explained the thinking behind the equipment change.

"Once it was confirmed that we were upgrading the existing facility instead of building on an alternate site, the Auger upgrade was first on the list," he said. "Any time there is an opportunity to free up operator time and improve the overall operational process, it should be taken. This was one of those times."



Less Maintenance

Joe Matias, the Plant's Senior Operator, elaborated about the time savings and process improvements.

"Our routine maintenance of the screening equipment is much easier," he reported. "It now takes only a half-hour to an hour, while before, it required at least half a day. We've also returned to the 150-250 mg/l BOD levels we need to optimize plant operation."

"With the new screen featuring stainless steel in place of standard steel and plastic components, we are expecting a much longer service life at a high performance level. We're also pursuing the installation of a separate grit removal system to further extend the life of the screen and other equipment in the plant. We're now back to filling a bag of processed screenings about the size of a 45 gallon (170 l) drum within two weeks, with easy disposal."

The 1.5 million gallon per day (240 m³/h) facility was commissioned in 1963 as a secondary treatment plant with tertiary treatment via ferrous chloride-induced phosphorous extraction. The plant has been through six expansions – the latest completed in 2000. It currently serves about 3,500 connections, with 95% residential and the remainder made up of saw mills, planer mills and light industrial sites.

Simplified Screening

The plant's former senior operator, Ed Morris, who retired in 2003, recalled the original installation of the JWC screening equipment, and the benefits it provided.

“We had a 6 in. (150mm) microscreen process to remove biosolids during the primary treatment stage which we trucked to the city’s permitted landfill,” he said. “We joined the regional district landfill when the city decommissioned their site in 1996. Then they shut down their septage lagoon in 1998 and no longer took screenings with biological (fecal) content. So we had to put something in the plant to remove the screenings.”

The Public Works department decided to purchase the Auger Monster.

“We also considered a cutter pump, but had limitations in considering that alternative, because we really couldn’t house additional equipment with our piped-in process laid out on a 60’ x 200’ (18 x 60m) footprint,” said Morris.

“Once installed, we saw immediate results through improved biomass and we undertook a six-month optimization of our entire process. With BOD now ranging from 150-250 mg/l, typically at 200 mg/l, we started running more smoothly and less subject to stress or upset to the biological process.”

“Input surges from rain or melt are also less of a problem, and we experienced less clogging of pumps and other equipment by textile, plastic, and rubber solid waste, now being taken out by the Auger Monster. It also enabled us to get rid of the microscreen and a compactor we had for dewatering screenings.”

Matias noted additional aspects of the manufacturer’s customer service.

“Later, we found JWC was receptive to our request for design changes, with our local rep facilitating contact with JWC’s engineering staff. This was a contrast to other vendors we had known, who tended to regard their equipment as perfect and didn’t want to be bothered, and offshore vendors you couldn’t get through to at all.”

The unique process of grinding prior to solids separation removes nearly all soft organics (fecal) from discharged screenings, thus reducing odors and landfill costs. Auger Monsters are available with 2, 3 or 6mm perforated openings and with flow rates up to 10 mgd (1600 m³/h).

For information on the Auger Monster visit JWC’s website: www.jwce.com

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Processed screenings are conveyed up the Auger to a trash receptacle.



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