



Troy Heimerl (left) of equipment integrator Electric Pump shown with plant operators, mechanics and managers of the Hutchinson Wastewater Treatment Facility.

Monster Solutions

These Minnesota Monsters Cut Costs at Local Treatment Plant

In the beautiful town of Hutchinson, Minnesota operators at the wastewater treatment facility have called upon four Monsters in recent years to tame a rising tide of trash and rags in their plant.

In 2005 plant officials tackled a problem area in the influent pump station where twin, 20-year-old bar screens were in need of constant maintenance.

“Maintenance alone on those bar screens was huge,” said Troy Heimerl of Electric Pump a local systems integrator called in to look for solutions. “It was kind of sloppy and the lift station was next to a baseball park so there were occasional odors from the screenings.”

In 2006 the City and their consulting engineer researched and heard good things about Channel Monster grinders, and based on the recommendations replaced the bar screens with two Channel Monsters from JWC Environmental of Costa Mesa, California. The twin high-flow grinders shred rags, trash, clothing and leaves into small ¼” (6mm) pieces according to Mike Mies, Maintenance Supervisor for the treatment plant.

The small particles flow easily through four, 150-HP (110-kW) influent pumps and with the Channel Monsters the “pumps never clog” according to Mike. Screenings are sent to the treatment plant instead of getting screened out inside the station, so the baseball field is always a pleasant place to play.



The SWM’s grinder and two spray wash zones produce cleaner, drier discharge. Hutchinson slashed discharge volume by 80%.

PROBLEM: Wet, sloppy screenings from static screens and drum screens

SOLUTION: Screenings Washer Monsters®

CONSULTANT: Donohue & Associates

Eric Meester, PE, a consulting engineer on the project based at Donohue and Associates’ Minneapolis office, said he carefully researched grinders and decided they’re a clean, low maintenance way to protect pumps.

“We had some concerns about sending more material into the plant headworks,” said Eric. “But everyone seems extremely happy and it worked out better than expected. I’d absolutely look at grinding at remote pump stations... but you have to have fine screens (in the headworks).”

The Hutchinson treatment facility receives nearly 4-million gallons per day (630 m³/h). The town of 13,000 is surrounded by several lakes and is a mix of residential, commercial and light-manufacturing.

The next problem the city tackled was a room full of static influent screens in the headworks. Pumps lift wastewater to the top of curved, stationary screens covered with slots – wastewater pours through the slots while solids slide to the bottom where an auger conveys them to a dumpster - screenings, soft organics and water plopped into a dewatering dumpster to dry out.

“We had nothing to clean the screenings,” said Mike. “It was just a ton of stuff, about 14-yards per week. We had a drainage area and as screenings built up, they got heavy and it

(photos by Paul Cockrell)



squeezes out lots of water.”

To remedy the screenings problem the City and consulting engineer Donohue and Associates called on the Screenings Washer Monster® – also from JWC. The SWM puts screenings through grinding, washing, dewatering and compacting in order to remove soft organics, thoroughly compact the material and remove more water.

“(The SWM) is doing a good job,” said Mike. “We don’t have any standing water in our screenings bin anymore.”

The City benefits from the SWM’s ability to tightly compact screenings – the number of dumpsters trucked to the landfill dropped 80% from 14-yards per week down to 3. Today two dumpsters last the week instead of filling two dumpsters per day. It adds up to big fiscal savings for the city in trucking and landfill fees.

“When we saw the demo SWM operate it was an instant sell,” said Eric of Donohue and Associates. “It took the screenings, ground them up and cleaned out all the soft organics. (The SWM) made a huge difference inside the headworks room. The managers and operators keep the plant extremely clean and the cleaner headworks is a big success.”

Then in 2008 plant managers called in one final Monster – another Screenings Washer Monster to help with a membrane bioreactor (MBR) expansion. A pair of pump fed drum-screens with tiny openings remove tons of fecal matter, bits of trash and hair and convey the material to the SWM’s hungry jaws – where it separates out liquid organics and compacts the trash.

“It’s going in wet and sloppy,” said Mike. “And coming out dry and in real good shape.”

The patented SWM is the only washer-compactor to incorporate a grinder which helps break open clumps of rags wrapped around soft organics so the internal spray wash system can liquefy organics and return them to the treatment flow. The grinder also shreds trash and rags into smaller particles so they more tightly compact together – allowing for a big reduction in screenings volume and

trips to the landfill.

Originally constructed in 1988 Hutchinson’s wastewater treatment facility went through a major upgrade designed by Donohue and Associates in 2008 to incorporate membrane bioreactor technology. The flow is split after the headworks – most goes into an oxidation ditch, one of the largest in the Midwest, and then to a final clarifier. The rest of the flow is sent to the new MBR.

Before clean effluent is discharged into the South Fork of the Crow River, it is disinfected by a UV system which eliminates any remaining bacteria. Hutchinson also operates an award winning biosolids program which turns class-A biosolids into fertilizer for farms, golf courses and other uses.

Websites:

www.ci.hutchinson.mn.us

www.jwce.com

www.donohue-associates.com

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Hutchinson plant operators stand next to the Screenings Washer Monster which cleans and dries screenings captured by the static screens in the headworks (photo by Paul Cockrell).



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