

PROBLEM: Raw manure and sludge clogging pipeline to digesters

SOLUTION: Muffin Monster

CONSULTANT: Waterford Systems, Inc.

Monster Solutions

Sludge Grinding Monsters Clear Manure Pipelines

Milford, UT – Management at a new waste-to-energy plant now in startup phase here reports that installation of special grinder units has eliminated a significant maintenance burden caused by recurrent blockages in two manure pipelines that connect concentrators with digesters.

Selection of the Muffin Monster® grinder units, manufactured by JWC Environmental in Costa Mesa, CA, was finalized after a side-by-side comparison test against an alternative unit.

“During the startup phase, we want to do everything we can to decrease the amount of maintenance needed to keep the plant running effectively,” said B.J. Moore, general manager for Smithfield Foods’ subsidiary, Smithfield BioEnergy, formerly BEST Biofuels. The plant is designed to convert swine waste from 257,000 animals into 25 tons of methanol per day.

“We were very concerned about blockages taking down our manure delivery system for an hour and a half every other day,” he continued. “Two guys were needed to remove a blending unit from each of two lines, backflush it, and replace it—a very unpleasant task that was going to be an ongoing part of their job, even after the startup phase.”

“In a 60 day, side-by-side, two pipeline test against an alternative unit, the Muffin Monster’s line never had to be taken down. But the other unit’s line went down three times during the trial, so we are going with the Muffin Monster in both lines.”

Moore said each grinder, installed upstream of the concentrator in an 8” (203mm) line, sees 400 gal/min of raw manure – a total of 0.5 MGD (90 m³/h). Concentrated swine manure is now moved by progressive cavity underflow pumps at 200 gal/min. (45 m³/h) from the concentrators through 4” (101mm) lines to the digesters without interruptions for cleaning blockages. He added he was also seeing some benefit in the concentrators.



The Smithfield BioEnergy plant in Utah processes swine manure into biomethanol, which is shipped to the Texas plant and converted into biodiesel fuel.

JWC Environmental says the dual-shafted Muffin Monster Model 30004 installed here offers a wider variety of solids grinding capability than single-shafted machines, while the low-speed operation results in higher torque and less interrupts. Design flow rate is 800 gal/min (182 m³/h), while pressure drop is 1.60 PSI (.11 bar). Flow rates ranging from 400 to 1200 gpm are available for this model.

JWC has various cutter combinations are available for all of its grinders to allow for particle size as fine as ¼” (6mm) for 95% of the ground material. Cutter elements are engineered in to accommodate specific needs, and are provided for in-line and channel configurations.



Muffin Monster grinders are commonly installed in municipal wastewater service, chemical, petrochemical, pulp & paper, food processing, and other industrial applications, and a wide variety of recycling and remediation uses.

These grinders effectively reduce particle size for wood, plastics, rocks, nuts, bolts, wire, sludge, and other foreign material that could otherwise foul and/or damage waste stream and process equipment, and typically reduce handling costs associated with solids removal.

JWC adds that the units adapt to most applications with little or no modification to piping, channel, or power, and offer high-pressure (90 PSI/6.2 bar) capability, with no seal flush required and no packing gland to adjust.

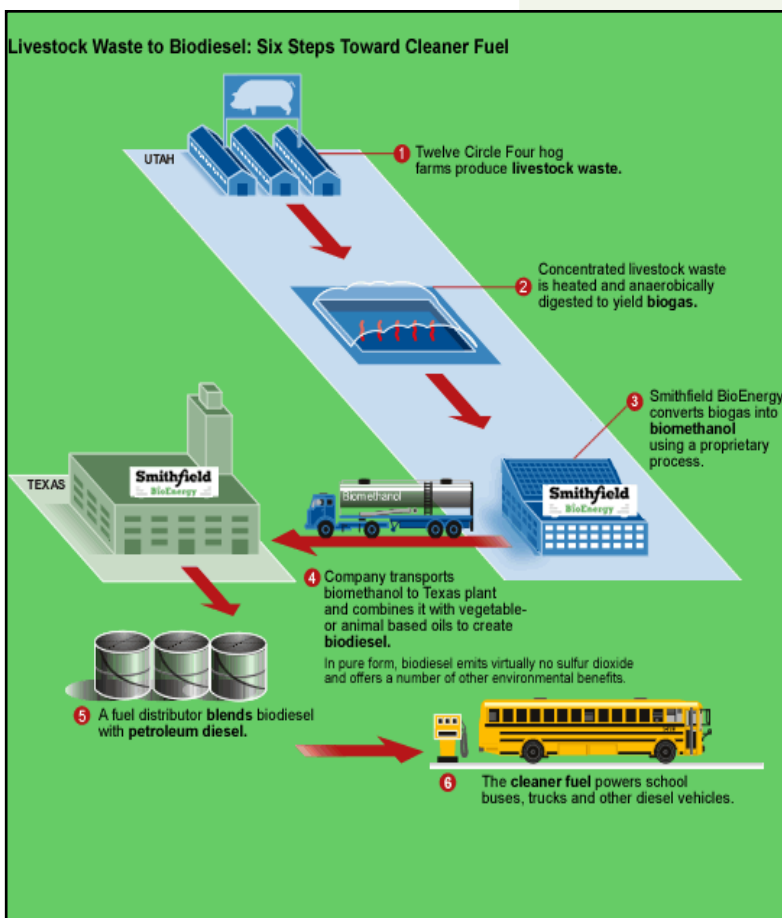
Advanced sewage treatment equipment is of vital and growing importance to the world. JWC is a leading manufacturer of equipment for wastewater treatment, solids reduction, solids removal and processing. The Monster family of

products is legendary for quality and reliability – including the Muffin Monster® and Channel Monster® sewage grinders, Auger Monster® fine screen, and Monster Separation System, incorporating a fine screen or band screen with superior screenings conditioning.

Our superior technology provides solutions for the most demanding applications including sludge grinders, sewage grinders, wastewater fine screens, CSO screens, washer compactors and septage receiving stations.

Founded in 1973, JWC Environmental and its worldwide family of employees are committed to providing customers with leading edge products, services and value. When it comes to the most demanding wastewater treatment challenges - you can trust Monster quality.

Concentrated manure is now moved by progressive cavity underflow pumps from the concentrators through lines to the digesters without interruptions for cleaning blockages.



Ensuring a clear pipeline is a vital function in Smithfield BioEnergy's quest in developing biodiesel and biomethanol.



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