

MONSTER INDUSTRIAL™



PROBLEM: Improved grease treatment and disposal solution needed

SOLUTION: 3-HYDRO-IX

Monster Solutions

Monsters Help Facilitate Valuable Grease Reuse Operation for County

Pinellas County, FL - Disposal of fats, oils and grease (FOG) has been an ongoing problem for municipalities and utility companies for years. When these thick, gooey substances are allowed to discharge through drains, they congeal on the inside of the sewer pipes, restricting flow and ultimately contributing to an overflow. Sewage overflows can not only cause health hazards, but also property and environmental damage as well as costly clean-ups.

After identifying that a primary cause of sewage overflows was due to excessive grease build-up in the wastewater system, many federal and state ordinances were imposed to prevent this. As a result, municipalities across the county have implemented FOG programs to comply with these regulations. These programs contain methods to reduce the amount of grease getting into the wastewater system and also methods for treating and disposing of the grease that is collected.

Though battling the FOG problem has been going on for some time, the recent green movement and emphasis on sustainability has brought renewed awareness to the problem. Additionally, more attention is now being given not only to pipe clogging pre-

vention methods, but also to ways of reuse. Many treatment facilities are finding Monster grinder units, manufactured by JWC Environmental in Costa Mesa, CA, to be an important part of the solution in the war against grease. Such was the case for one Florida municipality - after seeing the effectiveness of the Monster when installed at their new grease receiving station, the County installed another unit at a second newly constructed grease receiving station.

Pinellas County Utilities in Florida was one such entity struggling with the on-going grease problem. As a pro-active measure, the county passed its own 'Grease Ordinance', which established among other issues the mandatory use and cleaning of grease traps at food preparation establishments. In addition, the County recognized the need for an environmentally sound method for treating and disposing of this collected grease along with the need for a separate location.

Because this was a new area of concern, little data existed to draw from. The County already operated one wastewater facility that accepted loads from grease haulers. Receiving records indicated that on the average, there were 3,000 to 5,000 gallons/day being off-loaded. However, that plant was slated to be removed from service and the flows diverted to a newer facility several miles away.

"Upon demolition of that plant, it became painfully obvious that the receiving and treatment method that had been employed there was not ideal for grease and the County sought a bet-



The raw trap grease is chewed up by the 3-HYDRO-IX before entering the storage tank.



ter solution for the new facility,” explains Mike Engelmann, PE, Senior Engineer for Pinellas County Engineering & Environmental Services.

At the same time, the topic of biodiesel fuel was coming into the public eye and many independent entrepreneurs were touting their ability to make this type of fuel from grease. The County decided that a separate, centrally located grease collection facility could provide feedstock for biodiesel producers and was planned for construction approximately 10 miles from the treatment plant.

The new facility (the FOG Plant) was designed to handle and dewater up to 40,000 gallons/day of raw trap grease. This was based on the number of food preparation establishments, capacity of the traps and frequency of pump outs. It also depended upon the FOG compliance inspection team. Haulers would pump several different grease traps and then offload at this new facility. An integral part of the new system solution would be grinding/processing equipment and the JWCE grinder unit was the best choice. The new system is set-up so that the raw trap grease passes through the Monster grinder before it enters a suction pump and then the storage tank.

“It’s amazing what gets pumped out of a trap, but the Monster just chews right through silverware, bones, and even bricks from the trap itself,” says Engelmann.

The Monster also helps protect the rest of the processing equipment, which is set-up to dewater the raw trap grease by removing about 85% of the original volume in the form of water and returning it to the sanitary sewer. The thickened grease then gets loaded into a liquid-tight container for shipment offsite. Due to various political and financial considerations this thickened product, known as ‘brown grease’, did not make a feasible biodiesel feedstock so a new plan was needed.

Fortunately, ‘brown grease’ does make for a good source of methane if anaerobic digesters are available. The County decided to try injecting this grease into

its egg-shaped anaerobic digestion system. The injected grease proved to significantly increase the digester gas production, which is used to supplement the natural gas requirement in the County’s sludge pelletizing system.

A receiving station was then added at the new treatment plant, where the thickened grease is offloaded into a day tank and metered into the digesters. Similar to the FOG plant set-up, a Monster grinder was installed in the offloading line to protect the circulation and rotary lobe metering pumps. Here the thickened grease is continuously circulated through the Monster as the metering system feeds it into the digester. The grinder ensures a good homogeneous mixture and positively protects the equipment from any foreign material.

Overall, this approach has proven effective in not only providing an environmentally friendly grease disposal location for the community, but also in reducing the County’s consumption of natural gas for its pelletizing process.

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Thickened grease continuously circulates through the 3-HYDRO-IX ensuring the downstream equipment is protected from any foreign material.



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

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

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

