

Hampton Roads Sanitary District – Virginia
Williamsburg VA Plant

FOG (Fats, Oils and Grease) Receiving
Pilot Test

Problem

Treatment plants have a love/hate relationship with FOG. If a plant is recovering energy and wants to increase gas production in the digester, they love all the solids-free FOG they can get. However, if a plant is flaring their digester gas or the FOG is going directly to the treatment process, those plants tend to hate it.

The one thing all FOG receiving plants have in common is the desire to remove as much solid material as possible from the FOG. The variable nature of FOG and the tendency of grease to agglomerate, makes removing solids from commercial grease difficult and the results unreliable. That was true until the Enviro-Care Beast arrived at the HRSD Williamsburg VA plant for a FOG pilot test.

The Pilot Test

The Beast is an in-tank screen specifically designed to remove heavy, highly concentrated solids from septage, FOG and sludge. The focus at the HRSD Williamsburg, VA WWTP was FOG and a four (4) week long FOG receiving trial was conducted. This trial was dedicated 100% to the intake via tanker truck of every kind of commercial grease. No exclusions or special considerations were made. The trial was conducted with the cooperation of Hazen and Sawyer Engineering Consultants in Richmond, VA.



During the four-week test, the Beast processed 350,000 gallons of pure FOG. The majority of the FOG processed consisted of red cooking oil, humus, wet well lard and rags. No hot water, high pressure water or solvents were used and there was no rock trap or grinder. All trucks discharged directly into the Beast influent tank.

Two (2) basic criteria had to be met in order to declare the Beast test a success:

- Quality and quantity of the screened material and,
- Maintenance and reliability of the unit.

The Beast proved to be both mechanically sound and able to produce excellent screening results. The Beast was handling between 400 and 450 GPM consistently and removing 4 to 5 times more solids than the previous screening equipment. The Williamsburg Plant Manager, stated that the Beast had very few wear parts and during the four weeks of piloting was “drama-free” and actually “boring” from a maintenance standpoint.

During the test, a skeptical plant manager from Maryland came to observe the Beast pilot test. He was particularly interested in the Beast's ability to handle rocks. He came armed with a bucket of rocks which he proceeded to throw into the influent tank of the Beast. After returning from a lunch break, it was discovered that all the rocks had been collected by the screen, removed by the auger and were now in the discharge dumpster. The "Rock Test" video is available on the Enviro-Care Company YouTube channel.



Conclusion

The Enviro-Care Beast is the B.A.T. (Best Available Technology) on the market today for the full scale receiving of FOG (fats, oils and greases). It is believed that this is the only successful trial of its kind that has been conducted by any manufacturer, as of this writing.



What makes the Beast design different?

- The difference starts with proven perf screen technology and a rotating drum design.
- Add a dual speed drive – slow the drum for better capture and speed up the auger for faster solids removal.
- And position the screen at a 25° angle.
- Then eliminate the drum support arms by mounting the screen on a heavy-duty industrial bearing at the drive end.
- Give the screen cylinder a dual seal to prevent bypass.
- Extend the auger trough beyond the screen to prevent recycle.

