



Glenbard Wastewater Authority

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High Strength Waste Operating Procedure Frequently Asked Questions

Glenbard Wastewater Authority
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About:

The Glenbard Wastewater Authority located in Glen Ellyn, Illinois is an agency formed in 1977 between the Villages of Lombard and Glen Ellyn via an intergovernmental agreement. Its mission is to operate and maintain municipal wastewater treatment facilities, protect public health, and protect the environment, for approximately 109,000 residents and businesses in the Lombard, Glen Ellyn, Valley View/Butterfield and Glen Ellyn Heights service areas. (www.gbww.org/about-us)

In 2017, the facility began processing High Strength Waste, including fats, oils and greases. The below FAQ contains information about the benefits and procedures involved in the processing these materials.

1. What is High Strength Waste (HSW) and Fats, Oils, Greases (FOG)?

High strength waste (HSW) can be defined as wastewater that has more impurities in it than levels found in domestic wastewater, which is wastewater generated in homes. While this is a general definition, Glenbard Wastewater Authority (GWA) accepts only HSW that is generated during food processing or preparing. This includes waste such as grease laden water generated by restaurant dishwashing, sugar and grease laden water from the recycling of expired soda pop, salad dressing and other food products as well as clean up water from food manufacturing such as candy.

Fats, oils and greases (FOG) are a specific type of high strength waste. It is generated by restaurants during the preparation and clean-up of meals. Restaurants are required to have a grease trap to remove the grease from dishwashing water to keep it out of the sewers. Grease traps then must be pumped out from time to time and the material (food particles, oil and grease) properly disposed of. FOG is a desired high strength waste because it provides lots of energy over a long period versus sugar wastewater that provides high energy for short periods of time. This can be compared to how the human body reacts to sugar versus protein.

2. Why does GWA want to accept HSW, including FOG?

The wastewater treatment process uses large amounts of electricity. It accounts for a significant percent of our operating costs. Just like for homeowners, rising utility costs are a concern. GWA is constantly looking for ways to be energy efficient. A by-product of

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wastewater treatment is methane gas. GWA has upgraded parts of the treatment system to be able to capture this gas and use it to generate energy to run the plant. However, the domestic wastewater coming into the plant from the area businesses and homes is not enough to generate all the energy GWA needs to operate. By accepting HSW and FOG, GWA will be able to generate a larger portion of the energy it needs to run.

The more energy GWA can produce, the less it has to pay for it. In addition to producing energy, the process generates heat. This heat is also captured and used in the process instead of depending on natural gas boilers for heat. This further reduces utility costs for GWA. Additionally, it allows budget money to be shifted to fund much needed upgrades to aging equipment and helps contain sewer rates for all users of the system.

This process is a “green” initiative and helps preserve the environment. It keeps HSW and FOG from ending up in a landfill and turns it into renewable energy. It also reduces the carbon footprint GWA creates since a larger portion of the treatment process would be run by the renewable energy.

3. How is HSW turned into energy?

Wastewater treatment at GWA is hugely dependent on micro-organisms or “bugs”. The bugs are in large covered tanks called digesters. The HSW is pumped into these tanks as food for the bugs. The bugs eat the grease, food particles, and sugars in the HSW and produce methane gas. The methane gas is then captured and processed through engines to generate electricity.

4. Why is the Glenbard Wastewater Authority (GWA) deciding to take in HSW and FOG again?

After the biological upset during late summer/early fall of 2017, a temporary moratorium was placed on the acceptance of these materials, with the anticipation of accepting it again after thorough investigation to ensure proper handling and addition of the material. Accepting HSW/FOG will allow GWA to produce more bio-gas (a natural bi-product of wastewater treatment), which in turn will allow for the generation of more renewable energy to use on site. Since our mission is to both protect public health and preserve the environment, this is a method of saving costs, protect the public health, and being green to help preserve the environment. The cost savings realized will assist GWA in paying for future improvements, which will result in less costs for GWA customers.

5. How did GWA put together the Standard Operating Procedures?

GWA had initially reached out to members of the public to attempt to form an Ad-Hoc committee, but only had one volunteer, and unfortunately could not put together a proper committee. Therefore, GWA performed in depth research on proper methods of receiving and adding the material to our own waste, and formulated it into a document. GWA staff also visited a neighboring wastewater treatment plant who is currently, and successfully, accepting HSW/FOG. Procedures that have worked successfully for this other facility were included in GWA’s policy.

6. What kind of preventative measures do the Standard Operating Procedure include?

GWA will thoroughly vet haulers before allowing them to bring material in, as well as thoroughly analyzing the nature of the material they propose to haul in to ensure it is a

suitable product. Once GWA has deemed a hauler and their material acceptable, the hauler will be issued a permit, along with a copy of the standard operating procedures. The hauler will also be required to provide a “renders license,” or sign an affidavit, which states they will only bring in material that was agreed upon. The volume will be carefully controlled and each delivery will be inspected by GWA staff with a sample taken from each load.

7. What caused the offensive odor in August and what is GWA doing to try and prevent it from happening again?

Plain and simple, the bugs were overfed. This caused a chain reaction and the treatment system got upset; much like when you overeat or eat something that does not agree with you. The treatment process was still working, but since it was upset it produced more hydrogen sulfide than normal. Human noses are extremely sensitive to the smell of hydrogen sulfide, so even though the odors were potent, the levels contained in the air were non-hazardous. GWA took air samples during this time period, and although the odors were detectable by the human nose, the levels of hydrogen sulfide in the air at the plant were too low to even register in the measuring devices.

8. What has GWA done to prevent an upset from occurring again?

The entire process has been thoroughly reviewed by GWA staff and consulting engineers and the following improvements have been made:

- An additional pump was added to be able to continuously feed the digesters with the HSW, where previously a single pump was being shared between two separate steps of the process. This allows GWA to feed the bacteria with more consistency instead of the “feast or famine” method from having only a single pump.
- GWA staff visited a neighboring wastewater treatment plant who is currently, and successfully, accepting HSW/FOG. Procedures that have worked successfully for this other facility were included in GWA’s procedures.
- The calculations regarding how much HSW could be safely added were reviewed and revised. That data collected from the 10 months of successfully accepting this waste were included.
- While GWA had a process in place to accept the HSW, the policy was reviewed, refined and formalized in a standard operating procedure document. Safeguards have been incorporated into this document to ensure limits on accepting HSW are regulated closely. [Click here to review GWA’s full SOP for HSW Receiving.](#)
- Additional laboratory tests will be done on the HSW in order to best determine how much food the bugs are receiving; similar to knowing the calories in your food and staying within a certain number of calories per day to not put on weight.

9. How will GWA know if a biological upset is going to happen again?

Whether or not GWA accepts HSW/FOG, the possibility of an upset always exists, as this is a biological process much like human digestion. Just like every person has different tolerances and is prone to digestive upsets, GWA’s digesters have the potential

of being upset even just from the normal domestic wastewater stream coming from our residents. However, as part of the standard operating procedures, GWA will be monitoring the biological health of the digesters much closer. The procedures define a set of published standards on digester health, and GWA have set those standards to be even more conservative than what is recommended. If it's noticed the health of the digester is approaching the limits of those standards, we can immediately begin taking preventative measures in order to attempt to stop an upset from occurring.

10. Who should we contact for further information regarding this process?

You can always contact Matt Streicher, GWA's Executive Director, with any questions. He can be reached by phone at 630-790-1901x126, or via email at mstreicher@gbww.org. GWA is always open to providing tours as well if you would like to come see the process first hand, and learn more about wastewater treatment. During off hours, you can always call our main number at 630-790-1901, and be connected to an operator on call.