

The U.S. Environmental Protection Agency applauds the City of West Lafayette's Waste Water Treatment Plant for its generation and use of on-site biogas.

GREEN POWER—ENERGIZING COMMUNITIES



Food
Energy

Anaerobic Digestion

- ✱ Wastewater solids and other feedstocks
- ✱ Mixed and heated to 95 - 100 degrees Fahrenheit
- ✱ Hydrolysis, fermentation, and methanogenesis.



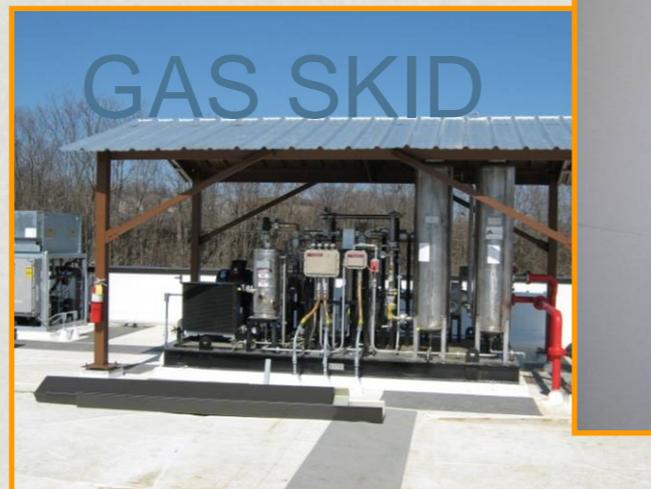
Anaerobic Digestion

- ✱ Upgraded the digester with new fixed lids.
- ✱ Added new external mixing pumps.
- ✱ Added Combined Heat and Power system.
 - ✱ Capture methane to produce electricity.
 - ✱ Use waste heat from microturbines to heat digesters.



Combined Heat and Power

- * Capstone Microturbines
 - * Two 65 kW units installed.
 - * Space and gas conditioning capacity for a total of 4 microturbines.



Fats, Oil, & Grease (FOG)

- * Problems with grease in the collection system.
- * Grease sources are plentiful.
 - * Estimated 3,000 gallons/day available from haulers.
 - * Grease from restaurants, food stores, etc.
 - * Previously taken to Indianapolis or Cincinnati plants.



FOG Receiving Station



Residential Service

- * Keep cooking oil and grease out of sewers.
- * Keep it out of landfills.
- * Free service to residents.

Save your home's pipes, save the earth

Recycle your cooking oil in free containers



It's easy and free to recycle your used cooking oil, fats and grease.

Stop by West Lafayette City Hall, 609 W. Navajo, and pick up a free collection bottle. When it's full, exchange it for an empty bottle at:

**West Lafayette Recycling Center
705 S. River Road, West Lafayette**

The city will feed your used cooking oil and grease to the digesters at the Wastewater Treatment Plant and convert it to electricity.

You'll save your home drains from clogging, reduce landfill waste and help curb city electric costs—all while protecting our environment.


CITY OF
WEST LAFAYETTE

609 W Navajo
West Lafayette, IN 47906
765/775-5100
www.westlafayette.in.gov



Another Fuel Source: Food Waste

- * Additional digester capacity
- * High quality food waste available from Purdue
- * Food waste separated at dining halls.



Food Waste Potential

- ✱ West Lafayette Sanitation Department picks up 25-30 tons of Municipal Solid Waste each day.
- ✱ Based on EPA data, 18% of the MSW may be food waste (4.5 - 5.4 tons each day from WL residences).
- ✱ Our digesters currently receive 1- 2 tons each day from Purdue University Dining Courts.



Pilot Project with Purdue University



Food Waste Receiving Station



COSTS FOR FOOD WASTE STATION

Engineering	\$18,155
Construction	\$17,000
Grinder	\$50,000
Platform and Cart Tipper	\$13,011
Total	\$98,166



Electricity & Natural Gas : Savings

- * Results have been promising so far.
 - * 20% of wastewater plant's electricity needs.
 - * Generate 70,000 kWh/month
 - * 60 % reduction in natural gas usage.



Food Waste is Everywhere...



● Food Waste ● Other MSW

- * Schools
- * Hotels
- * Prisons
- * Stadiums
- * Military Bases
- * Restaurants
- * Stadiums
- * Universities
- * Food Stores

Room for Improvement

- * Better mixing of the receiving tank.
- * Mechanical screening of FOG and Food Waste.
- * Separate receiving tank for Food Waste.



What is Next?

- * Electric Vehicles using Green Energy.
- * Excess biogas produced. Need for a 3rd microturbine is being evaluated.
- * Sources of grease, food waste, and other high strength waste are plentiful. Use extra biogas in CNG vehicles?
- * Separate waste receiving stations for liquids and solids.



Questions ???



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