

Sanitary Sewer Overflows (SSOs)



Impact area streams, residences and businesses.

Nationally, U.S. Environmental Protection Agency estimates that 43% of sewer line blockages are caused by FOG.



Properly operating sewer line segment with No obstruction



FOG Impacts can be moderate, with potential for blockage in near future, or

...



FOG impact may be immediately downstream of FSE or it may be 200+ feet downstream depending on slope of sewer, temperature of wastewater and surfactant content.

...heavy, with blockage and SSO is inevitable



Sewer Line blockages/obstruction



Food Service Establishment Sewer Service Line with Fats, Oils and Grease Obstruction

This Food Service Establishment only had an under-the-sink grease trap, without the proper components



Thus, the FOG Program not only wants to prevent the discharge of FOG to the sewer system, but also by following the City guidelines for proper grease control equipment installation and maintenance, the food service establishment can prevent costly problems.

Prevention of FOG impacts to the Sanitary Sewer not only benefits the community but also it prevents problems for the FSE



Replacement of sewer line outside a food service establishment due to FOG and soap film buildup

City Maintenance



Defining Fats, Oils & Grease (FOG)

FOG: Organic polar compounds derived from vegetable/plant or animal sources that are composed of long chain triglycerides

Triglyceride: 3 fatty acid molecules with one glycerol

Glycerol: also referred to as glycerin; syrupy, trihydroxy alcohol (1,2,3 propanetriol) that exists in natural oils as the base



Food Service Establishment's waste fats, oils & grease - 2 Types...

- **“Yellow” grease:** unadulterated spent FOG removed from FSE. Major source of yellow grease is deep frying. Put this type grease in the grease recycle bins, normally at the back of the FSE.
- **“Brown” grease:** floatable FOG, settled solids and associated kitchen wastewater retained by grease interceptors and grease traps. Grease discharged from the kitchen sinks, dishwasher, floor drains, etc...



“Yellow” Grease (in recycle bin) ultimate uses:



- 61% Animal Feed Additive
 - 22% Fatty Acids/Glycerol to help make surfactants, plastics, resins, textiles and cosmetics
 - 9% Soap Making
 - 4% Lubricants
 - 4% Misc. (biodiesel, fuel for vehicles)
- * If a oil or grease spill occurs (inside or outside), be sure to use "Dry" clean-up methods (oil absorbent granules/sand, rags, etc... contain properly and dispose). Do NOT wash FOG to any drains (indoor or outdoor)

GREASE CONTROL EQUIPMENT

Grease Interceptor
or “Outside,
underground
tank”



Grease Trap or “Inside,
under-the-sink units”,
“floor traps”, and
“outdoor floor traps”



Grease Interceptors

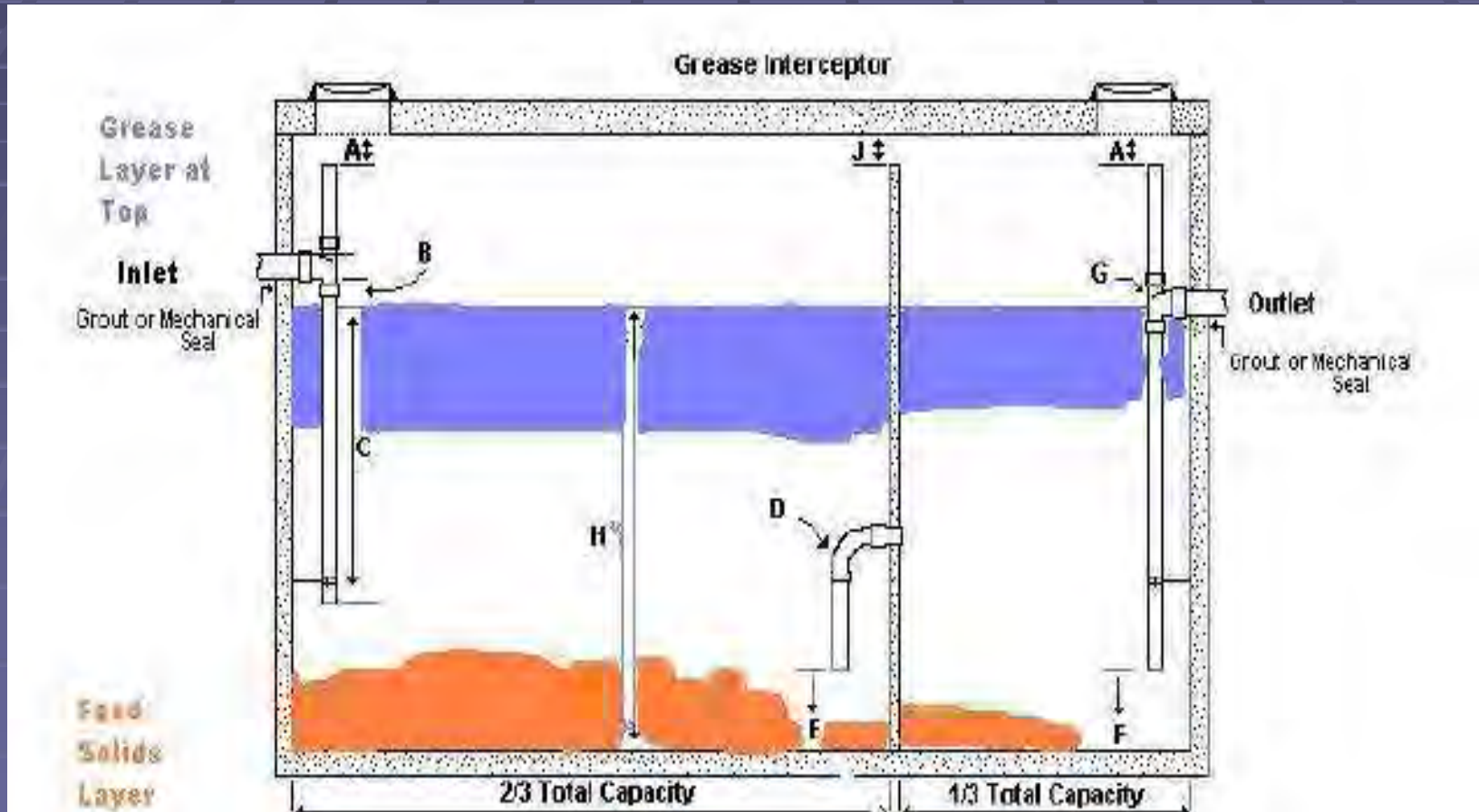


Dimensions for a 1,000 gallon grease interceptor are approximately 8ft long x 4 ft wide x 4 ft deep

Typical sizes of grease interceptors:
1,000 gallons
1,500 gallons
2,000 gallons



Design Standards and How the Grease Interceptor Works



Water and Oil Density

<u>SUBSTANCE</u>	<u>lbs./gallon</u>
Water	8.34
Peanut oil	7.62
Olive oil	7.66
Soybean oil	7.73
Corn oil	7.69
Cocoa butter	8.04
Coconut oil	7.67
Sesame oil	7.66

Water has higher density than oil so the oil will be on top of the water.

BEST MANAGEMENT PRACTICES (BMPs)

- When BMPs are followed...they make a **HUGE** difference in preventing FOG wastewater discharge from the food service establishment.
- BMPs help the Food Service Establishment prevent FOG blockages in their own sewer lines and in the city/utility sewer lines

BEST MANAGEMENT PRACTICES (BMPs)

- Recycle waste cooking oil. Put in approved oil and grease recycle container.
- Make sure you have grease control equipment (interceptor or trap) installed, regularly maintained and operating properly.
- “Dry Wipe” all pots, pans, plates and utensils prior to washing in pot wash sink or dishwasher
 - As much food, fat, oil and grease particles as possible need to be wiped off into solid waste containers

BEST MANAGEMENT PRACTICES (BMPs)

- Use strainers in sink drains to catch food scraps and other solids, and empty strainer contents into the trash.
- Post “NO GREASE” signs above the sinks
- Food grinders are discouraged since these will contribute to oil and grease discharge and also decrease the efficiency of the grease interceptor due to solids build up.

BEST MANAGEMENT PRACTICES (BMPs)

- Train and educate kitchen staff about grease control and its importance. Inform them on how they can have a positive impact on...
 - The Environment
 - Your facility's plumbing system

Stormwater & inflow issues



GMP impact on Storm Water



FOG dumped into storm drain, behind food service establishment.

From storm drain the FOG made its way to nearest tributary



FOG impact on Storm Water



Grease Recycle bin impacts

Grease Recycle Bins



Vent Hood FOG





RESIDENTIAL GREASE CONTROL



Homeowners do effect the environment.
See how you can make a difference...

Home Plumbing Problems

ALSO...The sewer pipes in your home can become clogged if you do not follow proper grease cleaning and disposal practices



RESIDENTIAL GREASE CONTROL



NO GREASE
PLEASE



Apartment complexes, duplexes, mobile home parks, and some residential areas can contribute significant FOG.

Sewer line fats, oils, & grease blockages –what it looks like...



Fats, oils, & grease blockage at a Sewer Manhole



This is not an attractive picture, and you will not think it is attractive if your home sewer lines are clogged due to fats, oils and grease build-up

Types of Products Contributing to Fats, Oils and Grease in the Sewer System



Any product used with vegetable or animal base contents (*corn oil, olive oil, hazelnut oil, butter, shortening, etc..*) can cause sewer line blockages, if you do not “dry wipe” cookware before cleaning. And, of course, pouring oil or fats down the drain is NOT ALLOWED.



Cooking produces fats, oils & grease residues on cookware



Fish, poultry, beef and pork products produce residues, and most other foods cooked have additives or oils added during the cooking process.



The Kitchen Sink and Dishwasher normally take most of the grease waste...



But you can change this to prevent fats, oils & grease from getting to the sewer lines, which ultimately will cause you problems, and the sewer service utility problems. One practice is “dry wiping” pots & pans...

Fats, Oils & Grease Control Practices at your Home

- “DRY-WIPE” all pots, pans, plates and cookware before washing in the sink or dishwasher. Use a paper towel and wipe out grease, oil, and food particle residues into the trash.



NOTE: This will save you money on dishwashing detergent because you can use less if you pre-clean “dry wipe”.

Fats, Oils & Grease Control Practices at your Home



Use Strainers in your kitchen sink to catch fats, food particles and residue. Empty the strainer from time to time, into the trash.

Fats, Oils & Grease Control Practices at your Home

- Recycle your used cooking oil and grease
 - Find a sturdy, re-sealable can and empty used cooking oils and grease into it after cooking.
 - When the can is full, then seal it and take it to your nearest recycle facility, or if a recycle facility is not available then seal it and place in the trash

Remember, No Oils or Grease
down the drain

**NO
GREASE
PLEASE**



**NO
GREASE
PLEASE**

Protect Your Home's Plumbing

Do Not put oils or grease down the drain...use grease control practices



Residential Grease Control Practices Review

- DRY WIPE all pots, pans, plates, and cookware before washing/cleaning
- Put a strainer in the kitchen sink
- Recycle your used oil and grease by putting in a re-sealable container, or if recycle facility not available, seal the container and place in trash.
- Educate your children and neighbors about grease control practices so your home and the neighborhood sewer system will not have grease related blockages