



Metropolitan Sewerage District of Buncombe County
Industrial Waste Program
Wastewater Best Management Practices - 2020

Fats, Oil and Grease (FOG) for Food Service Establishments Best Management Practices (BMPs)

Information, Pollution Prevention, and Compliance Information

Fats, oil and grease (FOG) can have negative impacts on wastewater collection and treatment systems. Most wastewater collection system blockages can be traced to FOG. Blockages in the wastewater collection system are serious, causing sewage spills, manhole overflows, or sewage backups in homes and businesses. This manual is written to provide restaurant and fast food business managers and owners with information about FOG pollution prevention techniques focused on their businesses, effective in both reducing maintenance costs for business owners, and preventing oil and grease discharges to the sewer system. **The discharge of FOG to the sewer system is illegal.** Ensuring that grease trap and grease interceptors are properly installed and most importantly, properly maintained, is the key to avoiding enforcement action against your business. This manual focuses on proper maintenance of grease traps and interceptors and includes inspection checklists for the business owner/manager as a guide to how and what District Pretreatment Inspectors will be checking during an on-site inspection.

Knowledgeable business managers can effectively prevent fats, oil and grease buildup and associated problems for both the Metropolitan Sewerage District and the restaurant owner.

Frequently Asked Questions About FOG:

Why are Fats, Oil and Grease a problem?

Large amounts of fats, oil and grease in the wastewater cause trouble in the collection system pipes. It decreases pipe capacity and, therefore, requires that piping systems be cleaned more often raising costs for all ratepayers. Fats, oil and grease also hamper effective treatment at the Wastewater Reclamation Facility. Grease may not appear harmful, but it congeals and causes nauseous mats on the surface of settling tanks, digesters, and the interior of pipes and other surfaces which may cause a shutdown of wastewater treatment units. Problems caused by wastes from restaurants and other FOG-producing establishments are the reason the District requires the installation of pretreatment equipment, commonly known as grease traps or interceptors.

Do I need a grease interceptor or trap?

Any establishment that introduces wastewater containing fats, grease or oil into the sewage system is required to install an interceptor or in limited cases, an interior grease trap (point source). Interceptors are required for high volume fast food or full menu establishments and large commercial establishments such as hotels, hospitals, factories, or school kitchens. In some instances, interior grease traps may be allowed for small volume fast food or take-out restaurants with limited menus, paper plate service, minimum dishwashing, and/or minimal seating capacity.. All specified devices must meet local plumbing code regulations.

Who determines if I need a grease trap or interceptor?

When waste pretreatment is required by the District, an approved grease trap or interceptor shall be installed according to the Sewer Use Ordinance. District Pretreatment staff will assist the establishment in determining if a grease trap or interceptor is required and the appropriate sizing. District Pretreatment Inspectors make routine, periodic inspections to verify that mandatory maintenance BMP's are being implemented. These BMP's are fully enforceable under the District Sewer Use Ordinance.

[Do I have a grease interceptor or trap?](#)

If the establishment is uncertain whether it has a grease interceptor or trap, the owner should contact the District Pretreatment Office for their service area for assistance. You may request a "voluntary compliance" visit by a District Pretreatment Inspector without risk of an enforcement action. You will be required to comply with any requests for cleaning or other maintenance.

[What is a grease trap and how does it work?](#)

A grease trap is typically located under the sink or other kitchen fixture to which it is connected. Baffles in the trap interior slow the wastewater down long enough for the grease to separate and rise to the surface. The grease can then be removed and disposed properly. Passive traps must be cleaned manually, which is a dirty and smelly job! Electro-mechanical devices require less manual maintenance and are more efficient because accumulated FOG is automatically removed daily.

[What is a grease interceptor?](#)

An interceptor is a buried vault with a minimum capacity of 1000 gallons located on the exterior of the building. The vault includes a minimum of two compartments, and flow between each compartment is through a configuration of pipe fittings designed to allow for solids settling and grease retention. The capacity of the interceptor provides adequate detention time so that the wastewater has time to cool, allowing grease to separate and rise to the surface where it accumulates until the interceptor is cleaned.

[How do I clean my grease trap or interceptor?](#)

Grease interceptors and grease traps must be cleaned by a North Carolina certified agency licensed to remove and transport grease waste. Self-cleaning (grease trap only) is only allowed if issued a permit by NCDEQ.

[Can you recommend a grease interceptor maintenance schedule?](#)

Based on historical inspection observations and established best management practices, most grease interceptors need to be cleaned every 30. Some establishments will find it necessary to clean their interceptors more often. In some instances, light menu, low volume facilities may be able to clean less frequently. Demonstrating through accurate recordkeeping that a less frequent cleaning schedule is fully adequate is the responsibility of the business owner/manager. It is **not** the District's responsibility. Securing a service contract with a qualified pumping contractor for routine inspection and cleaning as needed is the best way to avoid enforcement action by the District. **Waiting until a District inspector arrives on site and requires you to clean your interceptor is not an acceptable best management practice and will result in an enforcement action.**

[What if I don't take care of my grease trap or interceptor?](#)

Failure to implement the required FOG BMP's is a violation of the District Sewer Use Ordinance. Additionally, if the establishment fails to adequately maintain its trap or interceptor, it will eventually encounter a maintenance problem with a plugged building sewer line. The blockage can create a sewer backup situation and ultimately a potential health problem in the establishment. If the problem is in the building sewer line, then the establishment has direct responsibility for paying for the maintenance. If the blockage or restriction occurs in the District sewer main then the establishment could have to pay for the District's line cleaning maintenance costs. The discharge of grease to a sanitary sewer line in amounts "which will or may cause obstruction" is a violation of the District Sewer Use Ordinance and will result in enforcement action including cost recovery, fines and/or penalties.

[What are the criteria for inspecting grease traps/interceptors ?](#)

All food service establishments are inspected for compliance with BMP's. The following general criteria are used by Pretreatment inspectors during trap or interceptor evaluation and are offered here for informational purposes only. **The judgment of the on-site inspector is final.**

Percent of hydraulic capacity	Condition	Inspector Action
<25%	Good	Check records for last date cleaned. Maintain normal schedule.
25 – 100%	Non-Compliance	Check next scheduled date for cleaning. Advise facility to schedule soon. Order revision of cleaning schedule as necessary. Order immediate cleaning. Order prescribed cleaning schedule. Facility to call for re-inspection.

If the trap or interceptor is in Non-Compliance condition, the facility should be advised to schedule a cleaning event as soon as possible. The cleaning frequency schedule may be increased at the Pretreatment Unit's discretion.

If the trap or interceptor is in Non-Compliance, the facility is issued a compliance order to have it cleaned immediately. The facility is required to call for re-inspection within 7 days to verify that the trap or grease interceptor has been properly cleaned. An enforcement action including fines and/or penalties will be taken against facilities found in Non-Compliance a second time.

Best Management Practices (BMPs)

Required FOG BMPs - Maintaining Grease Traps and Interceptors

BMP	Reason For	Benefits to Food Service Establishment	Pretreatment Inspection Checks
<p>Clean grease interceptors routinely. 30 to 90-day cleaning schedules are standard unless facility can demonstrate a less frequent schedule is adequate. Securing a service contract with a state permitted service provider for routine inspection and cleaning as needed is strongly advised.</p>	<p>Grease interceptors must be cleaned routinely to ensure that grease accumulation does not limit retention time and separation efficiency resulting in pass through of grease to the sewer. Waiting until a District inspector arrives on site and requires cleaning of the interceptor is not an acceptable BMP and may result in an enforcement action.</p>	<p>The cleaning frequency is a function of the type of establishment, the size of the interceptor, and the volume of flow discharged by the establishment. <u>Routine cleaning is a required BMP.</u> Avoid District enforcement action.</p>	<p><u>25% of the interceptor capacity as a combination of grease (top) and sediment (bottom) requires immediate cleaning.</u></p>
<p>Clean under-sink type grease traps every 30 days unless facility can demonstrate a less frequent schedule is adequate. Accurate cleaning records or logs are required to be kept on site. Baffles must be put back into place after each cleaning.</p>	<p>If passive grease traps are more than 25% full when cleaned monthly, the cleaning frequency needs to be increased.</p>	<p>Weekly cleaning of under-sink grease traps serves to limit risk of enforcement action by the District. <u>If the grease trap is not providing adequate protection, the District will require installation of additional grease abatement equipment.</u></p>	<p>Visually inspect the under-sink grease trap for flow restrictor.</p> <p>Inspect cleaning records.</p>
<p>Keep a copy of the maintenance cleaning records on site for three years.</p>	<p>The maintenance log serves as a record of the frequency and volume of cleaning the interceptor. It is required by the pretreatment program to ensure that grease trap/interceptor maintenance is performed on a regular basis.</p>	<p>The maintenance log serves as a record of cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce cost.</p>	<p>Inspect maintenance log. Provide the establishment with a sample maintenance log if it does not have one. Confirm the maintenance log with the grease hauler identified.</p>

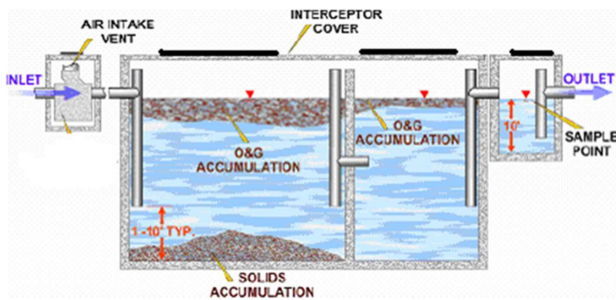
Recommended FOG BMPs for your Kitchen Operations

BMP	Reason For	Benefits to Food Service Establishment	Pretreatment Inspector Checks
When possible, witness all grease trap or interceptor cleaning and maintenance activities to ensure the device is properly operating.	The facility manager inspects the cleaning operation and ensures it is consistent with the procedures in the section on	The establishment will ensure it is receiving appropriate service for the cost of cleaning the grease trap or interceptor.	Check condition of grease interceptor. Check for submerged inlet and outlet. Check for evidence of grease in outlet pipe. Check for evidence of overflow or blockage.
Train kitchen staff and other employees about how they can help ensure BMPs are implemented.	People are more willing to support an effort if they understand the basis for it.	All of the subsequent benefits of BMPs will have a better chance of being implemented and you can avoid enforcement actions.	Talk to the establishment manager about the training program that he/she has implemented.
Post "No Grease" signs above sinks and on the front of dishwashers.	Signs serve as a constant reminder for staff working in kitchens.	These reminders will help minimize grease discharge to the traps and interceptors and reduce the cost of cleaning and disposal.	Check appropriate locations of "No Grease" signs.
Use a low temp chemical sanitization type dishwasher. Follow Local Health regulations for sanitizing.	Temperatures can be set at 120° F or less depending on type of chemical sanitizer used. The Uniform Plumbing Code (UPC) prohibits discharging any type dishwasher to grease traps.	The food service establishment will reduce its costs for the energy – gas or electric – for heating the water.	Check boiler or hot water heater discharge temperature. Measure the temperature of the hot water being discharged from the closest sink.
Use a three-sink dishwashing system, which includes sinks for washing, rinsing, and chemical sanitizing. Follow Local Health regulations for sanitizing.	Hot water sanitization type dishwasher requires a minimum temperature of 165° F for stationary rack, single temperature machines. 180°F for all other type systems.	The food service establishment will reduce its costs for the energy - gas or electric - for heating the water for the mechanical dishwasher and for operating the dishwasher.	Measure temperature of the hot water at the three-sink system. Note: The Uniform Plumbing Code (UPC) prohibits the discharge of dishwasher water to grease traps.
Recycle waste cooking oil.	This is a good recycling opportunity. There are several waste oil recyclers serving Buncombe and Henderson county..	Liquid wastes cannot go into dumpsters. Low cost for proper handling of the waste material.	Obtain name of recycler used. Review recycling records. Confirm records with recycler.
"Dry wipe" pots, pans, and dishware prior to dishwashing.	By "dry wiping" and disposing in garbage receptacles, the material will not be sent to the grease traps and interceptors.	This helps keep grease from going to grease traps and interceptors, which will require less frequent cleaning, reducing maintenance costs.	Observe dishwashing practices.
Scrape plates to dry trash. Use screens in your sinks to catch food waste. Dispose of food waste by recycling and/or to dumpster as solid waste.	Some recyclers will take food waste for animal feed. The food waste can be disposed to the dumpster.	Recycling of food wastes will reduce the cost of solid waste disposal. Solid waste disposal of food waste will reduce the frequency and cost of grease trap and interceptor cleaning.	Inspect dumpster corral for cleanliness. Check bottom of grease interceptor for solids accumulation.

Prohibitions Relating to Discharge of Fats, Oil, and Grease

Prohibitions	Basis
Discharge of fats, oils, and grease in amounts that "can or may" cause an obstruction to the flow in a sewer is prohibited.	Grease can solidify and trap other solid particles to completely plug the wastewater collection system.
Commercial garbage disposers and grinders where installed shall discharge into the grease interceptor.	These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
Do not discharge wastewater with temperatures in excess of 140° F to any grease interceptor. Add cold water to manual washing triple sink sanitizing water before discharge through a grease trap. Mechanical dishwashers are required to be plumbed to outside grease interceptor. It cannot be plumbed to grease traps. The grease interceptor must be sized for a dishwasher according to the Uniform Plumbing Code.	Temperatures in excess of 140° F will dissolve and flush grease out of the trap. Grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools. Grease interceptors not properly sized for dishwasher discharge can be over-whelmed and not function properly.
Direct introduction of enzymes, bio-additives, emulsifying agents or similar chemicals is prohibited.	These agents can cause interference and pass through resulting in FOG being discharged to the sewer system.
Do not clean kitchen equipment outdoors.	Grease and dirt will be washed off the equipment and enter the storm drain system.

How it Works - Grease Interceptor



- Flow from under-sink grease traps or directly from plumbing fixtures enters the grease interceptor. The UPC requires that all flow entering the interceptor must enter through the inlet pipe
- An air intake valve allows air into the open space of the grease interceptor to prevent siphonage and backpressure.
- Oil and grease floats on the water surface and accumulates behind the grease retaining fittings and the wall separating the compartments. The oil and grease will be removed during routine grease interceptor cleaning.
- Solids in the wastewater that do not float will be deposited on the bottom of the grease interceptor and will need to be removed during routine grease interceptor cleaning.
- Grease retaining fittings (Tee's) extend down into the water 2/3 of the depth of the interceptor from the static water line on the Influent side. Effluent Tee must extend down 12 inches from the static water line to the bottom of the interceptor.

Because grease floats, it generally does not enter the fitting and is not carried into the next compartment. The fittings also extend above the water surface to provide air relief and must not be capped. Inspectors use these for inspection purposes.

- Some interceptors have a sample box so that inspectors or employees of the establishment can periodically take effluent samples. Having a sample box is recommended but not required by the District.
- Flow exits the interceptor through the Effluent pipe and continues to the sanitary sewer system.

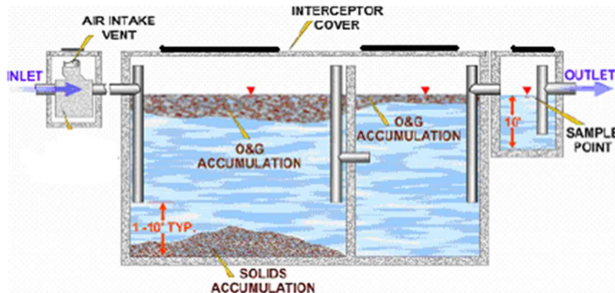
Grease Trap and Interceptor Maintenance

Grease trap maintenance is performed by state permitted maintenance staff, or a state permitted service provider. Grease interceptor (GI) maintenance, **consists of removing the entire volume (liquids and solids)** from the GI and properly disposing of the material in accordance with all Federal, State, and/or local laws. When performed properly and at the appropriate frequency, grease interceptor and trap maintenance can greatly reduce the discharge of FOG into the wastewater collection system. The required maintenance frequency for grease interceptors and traps depends greatly on the amount of FOG a facility generates as well as any best management practices (BMPs) that the establishment implements to reduce the FOG discharged into its sanitary sewer system. In many cases, an establishment that implements BMPs will realize financial benefit through a reduction in their required grease interceptor and trap maintenance frequency. Tables in this document for examples of BMPs that FOG generating establishments should implement.

WARNING! Do not use hot water, enzymes, bio-additives, emulsifying agents or similar chemical agents in lieu of physical cleaning of grease traps and interceptors.

Grease Interceptor Maintenance

Grease interceptors, due to their size, must be cleaned by state permitted service providers or recyclers and disposed at a permitted treatment/disposal facility. A proper maintenance procedure for a grease interceptor is outlined below

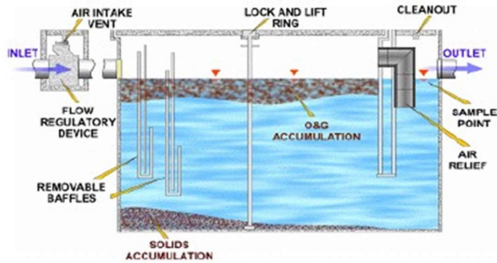


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Step	Action
1.	Review records of last cleaning. Most units require cleaning every 30 to 60 days.
2.	Contact a state permitted service provider for cleaning.

Passive Grease Trap Maintenance

A proper maintenance procedure for a grease trap is outlined below if a state permit to self-clean has been issued.



Step	Action
1.	Obtain a state permit for cleaning from NCDEQ.
2.	Dip the accumulated grease out of the interceptor and deposit in a watertight container. Mix grease and solid materials with "kitty litter" and dispose to dumpster.
3.	Remove baffles if possible.
4.	Bail out any water in the trap to facilitate cleaning.
5.	Remove all solids from the bottom of the trap. Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible.
6.	Replace the baffle and the lid.
7.	Record the date, name of attendant and volume of grease removed on the maintenance log form.

Inspection Checklist

Item	Item Description	Field Data	Compliance Status
1.	The establishment has implemented a training program to ensure that the BMPs are followed.		
2.	"No Grease" signs are posted in appropriate locations.		
3.	The establishment recycles waste cooking oil and can provide records of this.		
4.	Water temperatures at all sinks, especially the pre-rinse sink before the mechanical dishwasher or the sinks in the three-sink system are less than 140° F. Measure and record temperature		
5.	The establishment "dry wipes" pots, pans, and dishware prior to rinsing and washing.		
6.	Food waste is disposed of by recycling or solid waste removal and is not discharged to the grease traps or interceptors.		
7.	Grease trap(s) is cleaned regularly. Note and record the frequency of cleaning.		
8.	Grease trap cleaning frequency is documented on cleaning records provided by your grease removal company. These must be retained for 3 years on site.		
9.	Grease interceptor is cleaned and maintained regularly. Note and record frequency of cleaning.		
10.	Grease interceptor cleaning and maintenance frequency is documented on a cleaning record provided by a waste hauler.		

