§ Section 51.50 FATS, OILS and GREASES CONTROL ORDINANCE

Adopted by Town of Cleveland on August 8, 2005

Effective Date: October 1, 2005 Revised: February 13, 2017

A. Scope and purpose

To aid in the prevention of sanitary sewer blockages and obstructions from contribution and accumulation of fats, oils and greases into such sewer system from industrial or commercial establishments, particularly food preparation and serving facilities.

B. Definitions

1. Fats, Oils and Greases. Organic polar compounds derived from animal and/or plant sources that contain multiple carbon chain triglyceride molecules. These substances are detectable and measurable using analytical test procedures established in 40 CFR 136, as may be amended from time to time. All are sometimes referred to herein as "Grease" or "Greases".
2. Grease Trap or Inceptor. A device for separating and retaining waterborne greases and grease complexes prior to the wastewater exiting the trap and entering the sanitary sewer collection and treatment system. Grease traps are typically compact and under-the-sink units that are near food preparation areas.
3. Grease Interceptor. A structure or device designed for the purpose of removing and preventing fats, oils, and grease from entering the sanitary sewer system. These devices are often below ground units in outside areas and are built as two or three chamber baffled tanks.
4. Food Service Establishments. Those establishments primarily engaged in activities of preparing, serving, or otherwise making available for consumption by the public such as restaurant, commercial kitchen, caterer, hotel, school, hospital, prison, correctional facility, care institution, and grocery stores. These establishments use one or more of the following preparation activities: cooking by frying (all methods), grilling, sautéing, rotisserie cooking, broiling (all methods), boiling, blanching, roasting, toasting, or poaching. Also included are infrared heating, searing, barbecuing, and any other food preparation activity that produces a hot, non-drinkable food product in or on a receptacle that requires washing.
5. Minimum Design Capability. The design features of a grease interceptor and its ability or volume required to effectively intercept and retain grease from grease-laden wastewaters discharged to the public sanitary sewer.
6. User. Any person, including those located outside the jurisdictional limits of the Town of Cleveland who contributes, causes or permits the contribution or discharge of wastewater into sewers within the Town of Cleveland's boundaries, including persons who contribute such wastewater from mobile sources, such as those who discharge hauled wastewater.

C. Food Service Establishment Permit Requirement

All food service establishments discharging wastewater to the Town of Cleveland's sanitary sewer system are subject to the following requirements:

1. Grease Interceptor Requirements: All food service establishments are required to install, operate, and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of this Ordinance. All grease interceptors/traps must meet the requirements of the Town of Cleveland's Sewer Use Ordinance (SUO).
2. New Food Service Establishment: All new food service establishment facilities are subject to grease interceptor sizing prior to submitting plans for a building permit. All grease interceptors shall be readily and easily accessible for cleaning and inspection. Existing facilities will be required to include plans to comply with the grease interceptor requirements. These facilities must obtain approval from the Town of Cleveland's Sewer Commissioner for grease interceptor sizing and maintenance prior to submitting plans for a building permit.
   All existing food service establishments, determined by the Town of Cleveland's Sewer Commissioner, to have a reasonable potential to adversely impact the Town of Cleveland's sewer system will be notified of their obligation to install a grease interceptor/trap within the specified period set forth in the notification letter. Failure to comply with FOG ordinance 51.50C. could result in termination of water supply.
3. Variance from Grease Interceptor Requirements: Grease interceptor required under this Ordinance shall be installed unless the Sewer Commissioner authorizes the installation of an indoor grease trap or other alternative pretreatment technology and determines that the installation of a grease interceptor would not be feasible. The food service establishment bears the burden of demonstrating that the installation of a grease interceptor is not feasible. The Sewer Commissioner may authorize the installation of an indoor grease trap where the installation of a grease interceptor is not feasible due to space constraints or other considerations. If an establishment believes the installation of a grease interceptor is infeasible, because of documented space constraints, the request for an alternative grease removal device shall contain the following information:

    a. Location of sewer main and easement in relation to available exterior space outside building.
    b. Existing plumbing at or in a site that uses common plumbing for all services at that site.

   Alternative pretreatment technology includes, but is not limited to, devices that are used to trap, separate and hold grease from wastewater and prevent it from being discharged into the sanitary sewer collection system. All alternative pretreatment technology must be appropriately sized and approved by the Sewer Commissioner.

C.3.C <u>Design, Structural and Installation Criteria for Grease Interceptors and Traps</u>

- **<u>Grease Interceptor:</u>** A device utilized to effect the separation of grease and oils in wastewater effluent. Such interceptors may be of the "outdoor" or "underground" type normally of a 500 gallons or more capacity.
- **<u>Grease Trap:</u>** A device utilized to effect the separation of grease and oils in wastewater effluent. Such traps are the "under-the-counter" type normally 100 gallons or less capacity.

Grease Interceptor Sizing Criteria

How to Determine the Size of an Exterior, In-ground Grease Interceptor Using the Manning Formula: The formula for calculating grease interceptor sizing is:

Gallons of interceptor = [[GPM/fixture x total # fixture ratings of grease-laden waste streams] + direct flow from a dishwasher, can wash, mop sink (in GPM)}]] x 24 minute retention time
Or
Gallons of interceptor = [(A x B) + C] x D

Components of equation:
<u>A = GPM/fixture (drain line)</u> – This is derived from the Manning Formula. It takes into account the slope, roughness of the pipe (plastic) used, and pipe diameter size. When applying the Manning Formula, we arrive at the drainage rates of various pipe diameter sizes:

0.5 inch pipe diameter = 0.8 GPM/fixture (drain line)
1.0 inch pipe diameter = 5.0 GPM/fixture (drain line)
1.5 inch pipe diameter = 15 GPM/fixture (drain line)
2.0 inch pipe diameter = 33 GPM/fixture (drain line)
2.5 inch pipe diameter = 59 GPM/fixture (drain line)
3.0 inch pipe diameter = 93 GPM/fixture (drain line)

<u>B = Fixture Ratings of Grease-Laden Waste Streams:</u> Fixtures that have more grease in their waste stream received higher values while less grease corresponds to a lower value. The table is shown below:
Table of Common Commercial Kitchen Fixtures and their Corresponding Rating (each):

2, 3, or 4 compartment pot sink = 1.0
1 or 2 compartment meat prep sink = 0.75
Pre-rinse sink = 0.5
1 or 2 compartment vegetable prep sink = 0.25

<u>C = Direct Flow from Dishwasher, Can wash, and Mop sink (in GPM):</u> Use the following gpm values: 10 GPM, can wash and mop sink = 6 GPM.

D = (24) Twenty-four minute retention time

Example #1: A restaurant has the following fixtures in their kitchen:

- (1) 3-compartment pot sink, 1.5 inch waste drain
- 1 Pre-rinse sink, 1.5 inch waste drain
- (1) 1-compartment meat prep sink, 1.5 inch waste drain
- (1) 1-compartment vegetable prep sink, 1.5 inch waste drain
- (1) can wash (use 6 gpm)

Using the formula to size exterior grease interceptors, we get:
Gallons needed for grease interceptor
=[15GPM x [1 + 0.5 + 0.75 + 0.25] + 6 GPM] x 24
=[[15GPM x 2.50] + 6 GPM] x 24
=[37.5 GPM + 6 GPM] x 24 minutes
=43.5 GPM x 24 minutes
=1,044 gallons Use 1,000 gallon interceptor size

Example #2: A restaurant has the following fixtures:

	GPM x Grease Factor
• (1) 3 compartment Pot Sink, 2.0 inch waste drain	33x1.0=33.00GPM
• (1) 1 Compartment Prep Sink (meat) 1.5 inch waste drain	15x0.75=11.25GPM
• (1) 1 Compartment Prep Sink (vegetable), 1.5 inch waste drain	15x0.25=3.75GPM
• (1) Pre-rinse sink, 2.0 inch waste water	33x0.5=16.50GPM
• (1) Dishwasher (use 10 gpm)	10.00 GPM
• (1) Mop Sink, 3 inch waste drain (use 6 gpm)	6.00GPM

Using the formula to size exterior grease interceptors, we get:

Total GPM x 24 minutes = 1,932 gallons Use 2,000 gallon interceptor size

Interceptor sizes less than 1,000 gallons, round up to the nearest tank size available. Interceptor sizes greater than 1,000 gallons, round to the nearest tank size available, but no more than 10% smaller.

Minimum Design and Structural Criteria for Exterior Grease Interceptors

All Food Service Establishments and other users as required by ordinance shall have grease-handling facilities installed and maintained, at the user's expense. Common grease interceptors, or grease interceptors that receive FOG laden wastewater from more than one establishment, are prohibited.

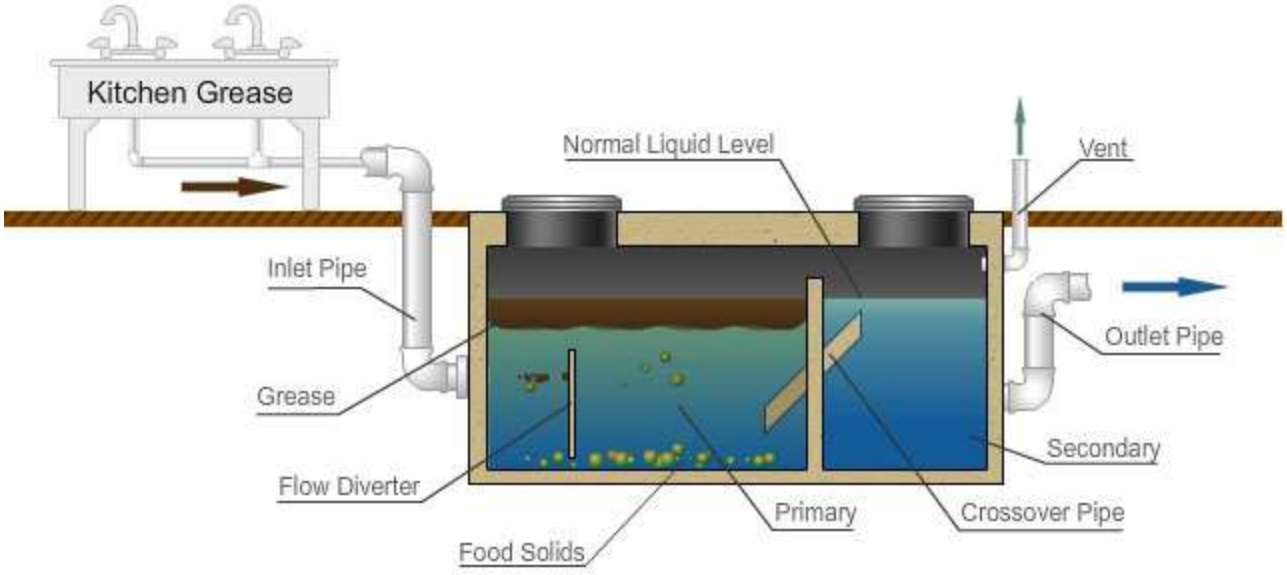
Note: Contact the Rowan County Building Inspections Department at (704) 216-8619 and the Rowans County Health Department at (704) 216-8525 for requirements that this activity may be subject to.

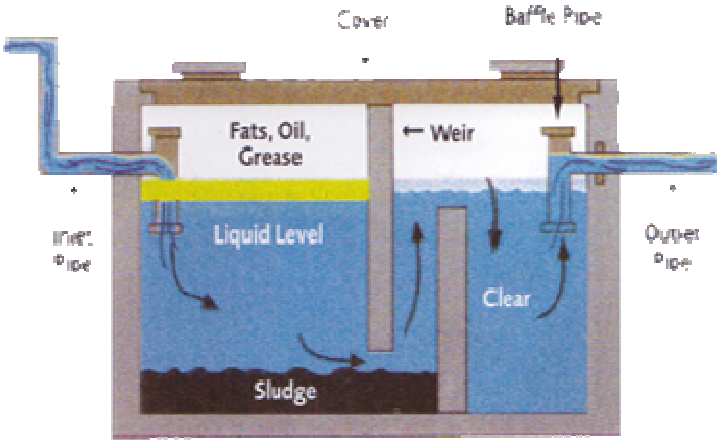
How to Determine the Size of a Point-of-Use(under sink) Interceptor:

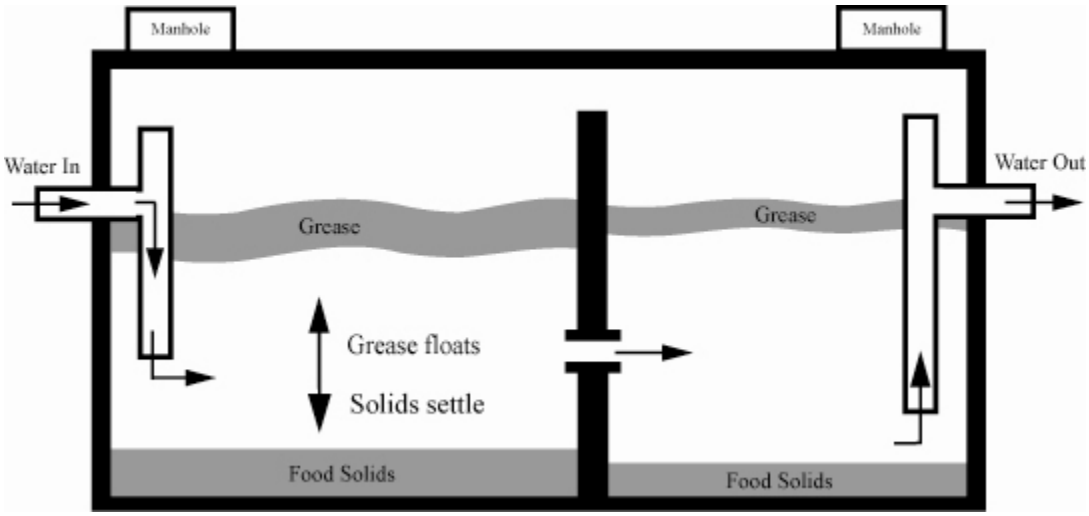
Step 1	**Determine the cubic contents of the fixture by multiplying length x width x depth**	**Number of compartments times 24" long by 24" wide by 14" deep. Cubic contents: 3x24x24x14= 24,192 cubic inches**
Step 2	**Determine the capacity in gallons 1 gallon- 231 cubic inches**	**Contents in gallons: 24,192/231 = 104.7 gallons**
Step 3	**Determine actual drainage load. The fixture is usually filled to about 75 percent of capacity with waste water. The items to be washed displace about 25 percent of the fixture content. Actual drainage load = 75 percent of fixture capacity.**	**Actual Load: .75 x 104.73 gallons = 78.55 gallons**
Step 4	**For design considerations, it is good practice to calculate the flow rate in GPM equal to or greater than 75 percent of the fixture capacity**	**Calculated flow rate for design capacity in GPM on 75 percent of fixture capacity: 75 percent of fixture capacity = 78.55 gallons Flow rate = 78.55GPM**
Step 5	**Select the grease separation device that matches the calculated design flow rate Note: Select next larger size when flow rate falls between two sizes.**	**79 GPM**

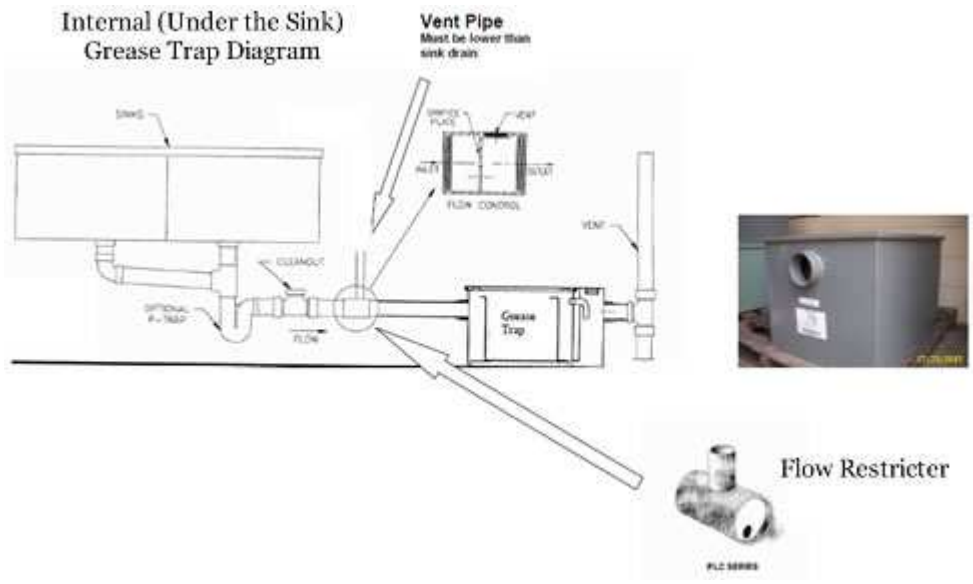
- see following example designs

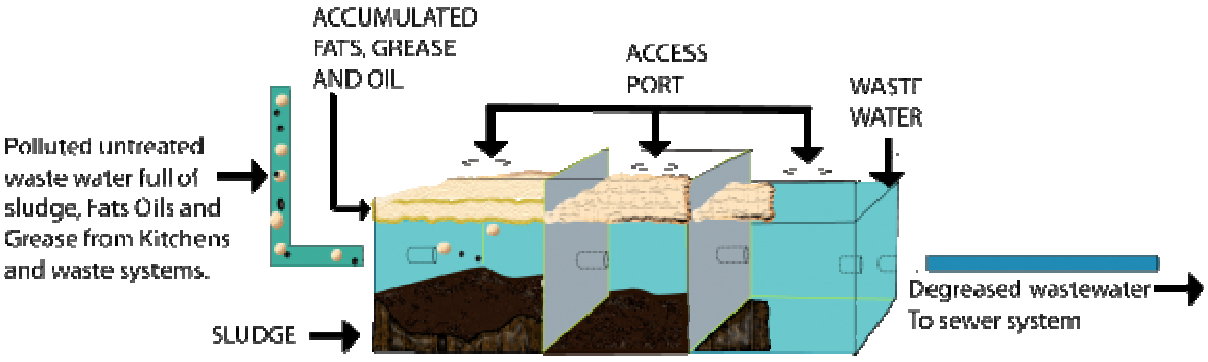
How a grease trap works








Internal (Under the Sink)
Grease Trap Diagram
Vent Pipe
Must be lower than
sink drain
Grease
Trap
Flow Restricter


ACCUMULATED
FAT'S, GREASE
AND OIL
ACCESS
PORT
WASTE
WATER
Polluted untreated
waste water full of
sludge, Fats Oils and
Grease from Kitchens
and waste systems.
SLUDGE
Degreased wastewater
To sewer system

D. Wastewater Discharge Limitations

1. No User shall allow wastewater discharge concentration from subject grease interceptor, grease trap or alternative pretreatment technology to exceed 100 milligrams per liter (mg/L), as defined by method EPA 1664 or 100 milligrams per liter (mg/L), as identified by method EPA 413.

E. Grease Interceptor Requirements

1. Grease interceptor sizing and installation shall conform to the current edition of the Uniform Plumbing Code.
2. Grease interceptors shall be constructed in accordance with design approved by the Sewer Commissioner and shall have a minimum of two compartments with fittings designed for grease retention.
3. Grease interceptors shall be installed at a location where it shall be easily accessible for inspection, cleaning, and removal of intercepted grease. The grease interceptor may not be installed in any part of the building where food is handled. Location of the grease interceptor must meet the approval of the Sewer Commissioner.
4. All such grease interceptors shall be serviced and emptied of accumulated waste content as required in order to maintain minimum design capability of effective volume. All interceptors must maintain a sludge and grease cap level (FOG Pocket) of 25% or less capacity. These devices should be inspected at least weekly and pumped quarterly or as required to maintain 25% or less capacity. Users who are required to maintain a grease interceptor shall:

    a. provide for a minimum hydraulic retention time in accordance with the Uniform Plumbing Code (or other applicable plumbing code used by the local agency).
    b. remove any accumulated grease cap and sludge pocket as required. Grease interceptors shall be kept free of inorganic solid materials such as grit, rocks, gravel, sand, eating utensils, cigarettes, shells, towels, rags, egg shells, etc., which could settle into this pocket and thereby reduce the effective volume of the device.

5. The User shall maintain a required written record of inspection and maintenance for three years. All such records will be made available for on-site inspection by representative of the Town of Cleveland during all operating hours.
6. Sanitary wastes are not allowed to be connected to sewer lines intended for grease interceptor service.
7. Access manholes, with a minimum diameter of 24 inches, shall be provided over each grease interceptor chamber and sanitary tee. The access manholes shall extend at least to finished grade and be designed and maintained to prevent water inflow or infiltration. The manholes shall

also have readily removable covers to facilitate inspection, grease removal, and wastewater sampling activities.

F. Grease Trap Requirements

1. Upon approval by the Town of Cleveland, a grease trap complying with the provisions of this section must be installed in the waste line leading from sinks, drains, and other fixtures or equipment in food service establishments where grease may be introduced into the drainage or sewerage system in quantities that can affect line stoppage or hinder sewage treatment or private sewage disposal.
2. Grease trap sizing and installation shall conform to the Uniform Plumbing Code.
3. No grease trap shall be installed which has a stated rate flow of more than fifty-five (55) gallons per minute, or less than twenty (20) gallons per minute. It requires twenty-four (24) minutes for grease, oil and solids to separate. Permanent signs shall be installed above each sink that read:
    1) Sanitary sink – empty 1st
    2) Rinse sink – empty 2nd
    3) Wash sink – empty last
    4) Wash vegetables only.

    This is required to insure the Wash sink is emptied last.
    Grease traps shall be maintained in efficient operating conditions by periodic removal of accumulated grease and solids.
        A) Under sink- Clean/pump weekly.
        B) Under floor- Inspect weekly; clean/pumped monthly.
        C) Outside trap- Pump/Clean to maintain grease/solids at less than 25% capacity of trap.

    No such collected grease/solids shall be introduced into any drainage piping, or public or private sewer.
4. No food waste disposal unit or dishwasher shall be connected to or discharge into any grease trap.
5. Wastewater in excess of one hundred-forty (140)ºF/(60)ºC shall not be discharged into a grease trap.

G. Section 6-Inspection and Sampling

The Pretreatment Department of the Town of Cleveland Wastewater Treatment Plant will inspect and may sample the food-handling establishment's grease interceptor/trap yearly or at anytime. At the time of inspection, the effluent wastewater that is leaving the grease interceptor/trap and traveling to the Wastewater Treatment Plan may not contain more than 100 mg/L of oil and grease. The Pretreatment Department will send the food-handling establishments a letter stating the results of inspection and of sampling.
If the inspection/sample finds the FOG pocket is greater than 25% capacity and/or a sample result is greater than 100mg/L. The establishment has fifteen (15) days from the date they are notified of the violation by the Pretreatment Department to get the grease interceptor/trap pumped. By the fifteen day, the hauler's pumping ticket must be faxed or postmarked to the Town Clerk of the Town of Cleveland Wastewater Treatment Plant.

If the ticket is postmarked, a representative from the food-handling establishment must call the Town Clerk to inform him/her that the ticket has been mailed.

The resulting FOG effluent inspection data as analyzed and reported by the Pretreatment Staff will be used as a basis for enforcement measures as follows:

- For values less than 25% capacity, no enforcement needed.
- For values greater than 25% capacity a meeting with the manager, or responsible party will be required to inspect pumping records, inform them that they are in non-compliance and set a date to have the FOG interceptor cleaned/pumped dry by an approved pumper/hauler.
- If the responsible Party fails to have the FOG interceptor cleaned/pumped dry by the set date, a **notice of non-compliance** will be issued and he/she will be required to perform an immediate pumping of the FOG interceptor and pumping schedule re-evaluated.
- If the responsible party fails to have the FOG interceptor cleaned/pumped dry after the **notice of non-compliance** is issued, a **notice of violation** will be issued and a fine of **$250.00 (Two hundred fifty dollars)** will be assessed.
- If the responsible party fails to have the FOG interceptor cleaned/pumped dry after the **notice of violation** is issued, a fine of **$500.00 (Five hundred dollars)** will be assessed. These fines will continue to increase until the responsible party complies with the **notice of violation.**
- The Wastewater Treatment Plant Superintendent has the authority to rescind any penalty if the grease contributing facility achieves compliance with the FOG ordinance and/or specifications provided under the SUO.

Article I. H. <u>Record Keeping</u>

The food-handling establishment is required to keep on their premises a log of grease interceptor/trap inspection and pumping. Every time the grease interceptor/trap is cleaned it must be documented on the log sheet. A maintenance report is to be sent/faxed to the Town Clerk no later than 15 days after the end of each month. At every inspection, the food-handling establishment is required to show the Pretreatment Department this log.

Maintenance Schedule: Outside interceptors (1000 gal+) - pumped quarterly or as needed to maintain FOG Pocket at 25% or less capacity.

A) Under sink- Clean/pump weekly.
B) Under floor- Inspect weekly; clean/pumped monthly.
C) Outside trap- Pump/Clean to maintain grease/solids at less than 25% capacity of trap.

All food-handling establishments must notify the Pretreatment Department if a problem occurs with the grease interceptor/trap. This notification must be made within 24 hours of the food-handling establishment realizing that a problem with the grease interceptor/trap has occurred. The Pretreatment Department must then be notified again when the grease interceptor/trap is repaired.

I. Fees

Inspection Fee	$25.00
Lab Processing Fee (includes sampling, analysis & results report)	$40.00

J. Violations and Penalties

The fines provided for in this section are not exclusive and do not prohibit the Director from using any other remedy provided by law.

A. Minor Violation

1st offense	
Failure to submit records:	$50
Inspection hindrance (equipment related)	$50
Failure to maintain on site records	$50
Failure to pump grease & submit records	$150
2nd offense	
Failure to submit records:	$100
Inspection hindrance (equipment related)	$100
Failure to maintain on site records	$100
Failure to pump grease & submit records	$300
3rd offense	
Failure to submit records:	$150
Inspection hindrance (equipment related)	$150
Failure to maintain on site records	$150
Failure to pump grease & submit records	$450
4th offense & UP	
Failure to submit records:	$300
Inspection hindrance (equipment related)	$300
Failure to maintain on site records	$300
Failure to pump grease & submit records	$1000

B) Intermediate Violation

Failure to install and/or maintain necessary equipment
(T's grease trap not watertight, baffles, etc.)

1st offense	$150
2nd offense	$300

3rd offense	$500
4th offense & up	$1000

C) Major Violation

Source of sewer blockage (minimum)	$500
Source of sanitary sewer overflow (minimum)	$1000
Falsification of maintenance records	$1000

This policy may be modified or changed by the Town of Cleveland any time in accordance to the requirements of the City Code, North Carolina General Statute and Federal Regulations.

Section 12- Right of Revision

The Pretreatment Department of the Town of Cleveland Wastewater Treatment reserves the right to revise or modify this ordinance as conditions warrant.

Editors Note: (*amended on 7-14-2014, 9-8-2014, 11-9-2015, 2-1-2016, 2-13-17).*