

CLINTON UTILITIES BOARD FATS, OILS and GREASE PROGRAM

Scope & Purpose:

To prevent sanitary and combined sewer system blockages, obstructions and overflows due to the contribution and accumulation of fats, oils, and grease from wastewater discharges.

Definitions:

- 1. <u>Act or the Act:</u> The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended (33 U.S.C. 1251 <u>et seq</u>.).
- 2. <u>Bypass:</u> The intentional diversion of waste streams from any portion of the publicly owned treatment works (POTW).
- 3. <u>CUB:</u> Clinton Utilities Board.
- 4. <u>Director</u>: The person designated by Clinton Utilities Board's (CUB's) General Manager to supervise the operation of the publicly owned treatment works (POTW). This person is charged with certain duties and responsibilities in order to implement and enforce Clinton Utilities Board's Water and Wastewater Rules which include CUB's Pretreatment Program and this Fats, Oils & Grease Program.
- 5. <u>Fats, Oils and Grease (FOG)</u>: Organic polar compounds derived from animal and/or plant sources. Fats, oils, and grease may be referred to as "grease" or "greases".
- 6. <u>Fats, Oils and Grease (FOG) Plan:</u> A plan submitted to CUB that shall include identification of all cooking and food preparation equipment (i.e. fryers, grills, woks, etc.); the number and size of dishwashers, sinks, floor drains, and other plumbing fixtures; the food service establishment's classification (see FSE definition); the FSE's NAICS classification; the type of food to be served and the plans for any grease control equipment to be used with its dimensions and location(s). Blank FOG plans may be obtained by contacting CUB's Water and Sewer Department.
- 7. <u>Food Service Establishment (FSE):</u> Any establishment, business or facility engaged in preparing, serving or making food available for consumption. Single family residences are not a FSE, however, "multi-family" residences/facilities and residences used for businesses may be considered a FSE at the discretion of the Director or Pretreatment Coordinator.

Food Service Establishments are classified by CUB as follows:

Class 1: "Deli-type" – engaged in the sale or preparation of cold-cut and/or microwave sandwiches, subs or hoagies, and possibly other foods but with no frying or grilling on site.
Ice Cream shops and beverage bars as defined by NAICS 722213.
Mobile Food Vendors as defined by NAICS 722330.
Class 2: Limited-Service or Delicatessen Restaurants having any amount of frying or grilling (a.k.a. Fast Food Facilities or Convenient Stores) as defined by NAICS 722211.

Caterers as defined by NAICS 722320.

Full Service Restaurants as defined by NAICS 722110.

- *Class 3*: Buffet and Cafeteria Facilities as defined by NAICS 72212.
- *Class 4*: Institutions (Schools, Hospitals, Prisons, etc) as defined by NAICS 722310 but not to exclude self-run operations.

NOTE: If a food service establishment does not fit into one of the NAICS classifications listed above, the Director or Pretreatment Coordinator shall classify the FSE. The NAICS classifications listed above are detailed at the end of this FOG program. All other NAICS classifications can be found at <u>http://www.census.gov/epcd/www/naics.html</u>.

- 8. <u>Grease (Brown):</u> Fats, oils and grease that have been discharged into the grease control equipment.
- 9. <u>Grease (Yellow)</u>: Fats, oils and grease that have not been in contact with or contaminated from other sources (i.e., from water, wastewater, solid waste, etc.) and can be recycled. The major source of yellow grease is deep frying.
- 10. <u>Grease Control Equipment (GCE)</u>: A device or devices that separate and retain the fats, oils and grease in the wastewater stream leaving the food service establishment but prior to the wastewater entering the POTW. Devices include CUB-approved grease interceptors, grease traps or other devices.
- 11. <u>Grease Interceptor:</u> Grease control equipment identified as a large underground tank with an influent tee, an effluent tee and a baffle wall designed to separate grease from other wastewater discharges. These tanks usually range in capacities from 750 gallons to 2,000 gallons and are located outside the building unless a variance request has been granted from CUB in writing.
- 12. <u>Grease Trap:</u> Grease control equipment identified as an "under the sink" container with baffles, a small "under the counter" container with baffles or a container with baffles in a floor trap. A grease trap is only approved for use in a Class 1 food service establishment. The minimum size trap required to be installed must be able to handle a throughput of 20 gallons per minute (gpm) with a 40-pound grease storage capacity. All grease traps shall have a vent and a flow control device to regulate velocity.
- 13. <u>Grease Recycle Container:</u> A container used for the storage of yellow grease. These are typically located outside of the building and have a cover to keep odors in and rainwater out.
- 14. <u>Grease Waste Pumping and Hauling Manifests:</u> A document that shall be obtained by the FSE from the company or person that removes fats, oils or grease from any grease control equipment or grease recycling container used by the FSE. A separate document shall be obtained each occasion that fats, oils, and grease are removed. This document includes, at a minimum: date of cleaning, maintenance, pumping or hauling; company and/or person conducting the cleaning, maintenance, pumping or hauling (printed and with a signature); the amount of FOG removed; the location of the State-approved facility where the FOG wastewater was ultimately discharged to, and all inspection results discovered while performing these tasks. Each pumping and hauling manifest shall be faxed to CUB's Water and Sewer Department at 865-457-0234 no later than the end of the next business day after each pumping occurrence.
- 15. <u>Inflow:</u> Water other than wastewater that enters the POTW from sources such as, but not limited to, roof leaders, defective cleanouts, manhole covers, surface runoff or drainage. Inflow does not include, and is distinguished from, infiltration.
- 16. <u>Infiltration</u>: Water other than wastewater that enters the POTW from the ground through such means as defective pipes, defective pipe joints or defective manholes. Infiltration does not include, and is distinguished from, inflow.

- 17. <u>Inspection Results:</u> A list or report of any items that need to be addressed with further maintenance, cleaning or pumping by the owner of the building or the FSE (i.e., damaged grease control equipment, damaged or missing vents, tees, piping, or flow control devices to regulate velocity, etc.). Inspection of the GCE shall be performed by the FSE or its representative each time the GCE is cleaned or pumped.
- 18. <u>Interference:</u> The inhibition or disruption of CUB in its operation, maintenance, supervision and/or control of the POTW which may contribute to a violation of any requirement of CUB's NPDES permit.
- 19. <u>NAICS</u>: North American Industry Classification System is used for classifying business establishments. The NAICS replaced the Standard Industrial Classification (SIC) system. All NAICS classifications can be found at <u>http://www.census.gov/epcd/www/naics.html</u>. NAICS classifications that are listed in the FSE definition above are detailed at the end of this FOG program.
- 20. <u>National Pollutant Discharge Elimination System (NPDES)</u>: The program for issuing, conditioning and denying permits for the discharge of pollutants from point sources into navigable waters, the contiguous zone and the oceans pursuant to Section 402 of the Federal Water Pollution Control Act, as amended.
- 21. <u>Pretreatment Coordinator</u>: The person designated to supervise the operation of CUB's Pretreatment Program, which includes this Fats, Oils and Grease Program.
- 22. <u>Publicly Owned Treatment Works (POTW)</u>: A treatment works as defined by Section 212 of the Act, which is owned by a State or in this instance by the municipality (as defined by Section 502(4) of the Act), the City of Clinton, and is operated, supervised and controlled by CUB. This definition includes any devices or systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes or other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.
- 23. <u>Pretreatment Program</u>: A program mandated by the State of Tennessee and implemented by Clinton Utilities Board in an effort to reduce the quantity of pollutants, eliminate pollutants or to alter the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants in a POTW.
- 24. <u>Sanitary Sewer Overflow:</u> The intentional or unintentional diversion of wastewater to land or water from the POTW other than through CUB's permitted outfall(s).
- 25. <u>Tee (Influent & Effluent)</u>: A "T-shaped" pipe connected to both the influent and effluent pipes that extends from 6" below the top of the grease interceptor down into the grease interceptor in order to allow for the discharge of the wastewater located under the layer of fats, oils and grease while leaving the fats, oils, and grease inside the grease interceptor. Influent and effluent tees are to be made of PVC or an equivalent material. The influent tee shall extend 24" below the invert of the outlet piping. The effluent tee shall extend to 12" above the interceptor floor. All tees shall be constructed to where they will not separate during normal operations, including maintenance, cleaning, and pumping.
- 26. <u>Water (Black)</u>: Wastewater containing human waste from sanitary fixtures such as toilets and urinals.
- 27. <u>Water (Gray)</u>: Refers to all wastewater other than black water as defined in this section.

General Requirements:

- 1. All food service establishments (FSEs) shall have properly sized grease control equipment installed, maintained, and properly operating at all times. Proper sizing is to be determined by using CUB's FOG Program sizing requirements.
- 2. All food service establishments (FSEs) shall submit a FOG plan to Clinton Utilities Board for approval to discharge to the POTW. This FOG plan must be updated and resubmitted to CUB every three years. Clinton Utilities Board will review the FOG plan and either approve it or require the FSE to make changes as necessary to ensure the POTW is protected from any FOG discharges originating from the food service establishment. Blank FOG plans may be obtained by contacting CUB's Water and Sewer Department.
- 3. Only CUB-approved grease control equipment will be allowed for any FSE desiring to discharge to the POTW.
- 4. CUB shall inspect the construction and installation of grease control equipment during normal CUB business hours prior to any backfilling operations.
- 5. Grease interceptors shall be pumped-in-full at a minimum once every three months or when the total accumulations of surface FOG (including floating solids) and the settled solids reaches twenty-five percent (25%) of the grease interceptors overall liquid depth capacity. At no time shall the pumping frequency exceed three months unless prior written approval has been obtained from CUB. Some food service establishments (FSEs) will need to perform more frequent pumping to meet this requirement.
- 6. All food service establishments (FSEs) will be required to maintain cleaning and maintenance records for their grease control equipment, as well as records of grease waste pumping and hauling manifests. These records shall include, at a minimum: the date of cleaning, maintenance, pumping or hauling; the company and/or person conducting the cleaning, maintenance, pumping or hauling (printed and with a signature); the amount of fats, oils and grease removed; the location of the state-approved facility where the FOG wastewater was ultimately discharged to and all inspection results discovered while performing these tasks.
- 7. A CUB-approved Grease Waste Pumping and Hauling Manifest shall be filled out by the FSE's owner, site manager or contract hauler and faxed to CUB's Water and Sewer Department at 865-457-0234 no later than the end of the next business day after each pumping occurrence. All pumped material shall ultimately be disposed of in a State-approved facility.
- 8. Grease control equipment cleaning and maintenance records, as well as grease waste pumping and hauling manifests, must be kept on file at the FSE's premises so they can be reviewed by Clinton Utilities Board, their representative and/or the Anderson County Health Department. The food service establishment shall maintain records and manifests for a period of three (3) years.
- 9. Grease control equipment must consistently remove fats, oils, and grease from its wastewater discharges to a level at or below 100 mg/L (Water and Wastewater Rules §1-105 (3) Table A).
- 10. All FSEs are required to dispose of yellow grease in an approved container. No grease shall be discharged to any storm water grate, drain or conveyance. Yellow grease, or any fats, oils, or grease, poured or dumped into the FSE's sewer service lines or into the POTW shall

be considered a violation of the Clinton Utilities Board's Water and Wastewater Rules and this Fats, Oils and Grease Program.

11. The Property Owner(s) will be held responsible for wastewater discharges from a leaseholder occupying any of their properties.

Variance to Grease Interceptor Installation:

In some special circumstances, and only with the written permission of the Director or Pretreatment Coordinator, some food service establishments (FSEs) may qualify for a temporary variance from the required installation of grease control equipment. These variances will be evaluated on a case-by-case basis upon receipt of a written variance request from the food service establishment (FSE).

Sizing of Grease Control Equipment:

If a food service establishment (FSE) is required to install a grease interceptor, the "Grease Interceptor Sizing Formula Sheet" on the next page shall be used to determine the appropriate size.

Regardless of the size calculated using the sizing formula sheet, the <u>minimum</u> acceptable size of grease control equipment for each FSE Classification will be as follows:

- *Class 1*: "Deli-type", Ice Cream shops, Beverage Bars, Mobil Food Vendors 20 gpm flow rate with a 40-pound grease storage capacity Grease Trap
- Class 2: Limited-Service or Delicatessen Restaurants having any amount of frying or grilling (a.k.a. Fast Food Facilities or Convenient Stores), Caterers and Full Service Restaurants 1,000 gallon Grease Interceptor
- *Class 3*: Buffet and Cafeteria Facilities 2,000 gallon Grease Interceptor
- Class 4: Institutions (Schools, Hospitals, Prisons, etc.) 3,000 gallon Grease Interceptor

The <u>maximum</u> acceptable size of any individual grease control equipment is 3,500 gallon capacity. If the food service establishment (FSE) needs additional grease control equipment capacity, then grease interceptors shall be installed in series.

GREASE INTERCEPTOR SIZING FORMULA SHEET							
Based on EPA-2 Model							
Type of Fixture	Average Flow Rate per unit (gpm)	x	Quantity of each Fixtures	=	Flow Rate per uni	t	
Hand Sink	15	X		=		gpm	
Restaurant Kitchen Sink	15	X		=		gpm	
Single Compartment Sink	20	X		=		gpm	
Double Compartment Sink	25	X		=		gpm	
Two, single compartment sinks	25	X		=		gpm	
Two, double compartment sinks	35	X		=		gpm	
Triple Sink	35	X		=		gpm	
Trash Can Washing Station / Mop Sink	35	X		=		gpm	
Floor Drain	15	X		=		gpm	
Dishwasher - 30 gallon	15	X		=		gpm	
Dishwasher – 50 gallon	25	X		=		gpm	
Dishwasher - 51-100 gallon	40	X		=		gpm	
Garbage Disposal	40	X		=		gpm	
Total # of Fixtures & Flow Rate			(A)		(B)	gpm	
Average Facility Flow Rate = Total Flow Rate (B) divided by # of fixtures (A) =					(C)	gpm	

Restaurant Type and Sizing Factors								
Fast Food (no dishes)	0.50		Cafeteria-Buffet	0.75				
Dine-in (0-100 seats)	0.50		Food Production	0.85				
Dine-in (>100 seats)	0.60							

Gallons per Minute	Avg. Facility Flow Rate (C)	X	Sizing Factor	=	Sized Avg. Facility Flow Rate
	gpm	Х		=	(D) gpm
Gallons per Hour	Sized Avg. Facility Flow Rate (D)	x	60 min / hr	=	Sized Avg. Facility Flow Rate
	gpm	Х	60 min / hr	=	(E) GPH
Interceptor Minimum Volume	Sized Avg. Facility Flow Rate (E)	x	2 hours retention	=	Interceptor Size Required
	GPH	Χ	2 hours		Gallons

Grease Interceptors

Piping Design – see GREASE INTERCEPTOR DETAIL

- 1. All piping shall be made of a rigid, non-collapsible material.
- 2. The inlet piping shall enter the receiving chamber at least 2 ¹/₂" above the invert of the outlet piping.
- 3. On the inlet and outlet pipes, inside the receiving chamber, a tee of the same size pipe in the vertical position shall be provided as a turndown. To provide air circulation and to prevent "air lock", a pipe shall be installed in the top of both the inlet and outlet tees. Each of these pipes shall extend upward to within 6" of the interceptor ceiling and its top shall be open. A pipe installed in the bottom of the outlet tee shall extend to 12" above the interceptor floor. A pipe installed in the bottom of the inlet tee shall extend to 24" below the invert of the outlet piping.
- 4. The vertical piping of the inlet and outlet tees shall be easily viewable directly under their respective access manhole.
- 5. Both the inlet and outlet pipes shall have a cleanout plug with a cleanout installed outside the receiving chamber at finished grade level, no more than 10 feet from the outside wall of the grease interceptor. A JOSAM Company Series 58580 cleanout access housing and cover (or an equivalent) shall be installed and supported with a 12" x 12" x 4" concrete pad (*see GREASE INTERCEPTOR DETAIL*).
- 6. The outlet piping shall be no smaller than the inlet piping, but in no case smaller than 4" ID.

Baffles- see GREASE INTERCEPTOR DETAIL

- 1. The grease interceptor shall have a non-flexing (i.e. concrete, steel, etc.) baffle(s) spanning the full width of the interceptor, sealed to the walls and the floor and extending from the floor to within 6" from the interceptor ceiling with an 8" to 12" rectangular through port. The bottom of the through port must be 8" to 16" off the floor.
- 2. The top section of the baffle(s) shall extend down to a point no less than 16" off the interceptor floor and no more than 28" off the interceptor floor.
- 3. The inlet compartment shall be 2/3 of the total liquid capacity and the outlet compartment 1/3 of the total liquid capacity of the interceptor.

Access Openings (Manholes) – see GREASE INTERCEPTOR DETAIL

- 1. An access manhole must be provided and be accessible for each grease interceptor compartment to allow for complete maintenance, cleaning, pumping and inspection at all times (i.e., interceptor with two main baffles and three compartments will have an access manhole into each compartment for a total of three). Access manholes shall be located directly over the influent tee and effluent tee. The manhole entrance must be at least 24-inches in diameter, terminate no more than one (1) inch above finished grade and be constructed with a cast iron frame and cover. An 8" thick concrete pad extending a minimum of 12" beyond the outside dimension of the manhole frame shall be provided. A clear opening above each manhole access shall be maintained to facilitate maintenance, cleaning, pumping and inspections.
- 2. Access openings shall be mechanically sealed and gas tight to contain odors and bacteria and to exclude vermin and ground water, in a manner that allows regular use.



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Additional Requirements

Water Tight – Once installed, the pre-cast concrete grease interceptors shall be watertight. Either a water-pressure test or a vacuum test shall be conducted by the installer while being observed by CUB or its authorized agent to insure water tightness. Section 9 of the ASTM C1227 standard shall be followed while performing either of these test methods.

The water-pressure test shall consist of plugging both the inlet and outlet and then filling the interceptor with water to the top a minimum of 24 hours. The interceptor shall not lose water during this test period.

The vacuum test is performed by sealing the empty interceptor and applying a vacuum (negative pressure) level of 4 inches of mercury for two minutes. The interceptor shall hold 90% of this level for two minutes.

Written certification that the grease interceptor is watertight shall be supplied to the Director or Pretreatment Coordinator by the owner or plumbing contractor prior to final approval of the grease control equipment.

Location – Grease control equipment (GCE) shall be located to be readily accessible for cleaning, maintenance, pumping and inspections. GCE should be located close to the fixture(s) discharging FOG wastewater.

Responsibility – Removal of fats, oils, and grease (FOG) from the wastewater discharged to the POTW is the responsibility of the food service establishment (FSE) which is creating the waste stream.

Construction Material – Grease interceptors shall be constructed of sound, durable materials, not subject to excessive corrosion or decay, and shall be water and gas tight. Each interceptor shall be structurally designed to withstand any anticipated load to be placed on the interceptor (i.e., vehicular traffic in parking or driving areas).

Grease Interceptor Cleaning/Maintenance Requirements

- 1. A partial pumping of grease interceptor contents or on-site pumping & treatment of grease interceptor contents will not be allowed due to the possible reintroduction of fats, oils, and grease into the interceptor from the pumper/treatment truck pursuant to the Code Federal Regulation (CFR) § 403.5 (b) (8).
- 2. Grease interceptors shall be pumped-in-full at a minimum once every three months or when the total accumulations of surface FOG (including floating solids) and the settled solids reaches twenty-five percent (25%) of the grease interceptors overall liquid depth capacity. This criterion is referred to as the "25 Percent Rule". At no time shall the pumping frequency exceed three months, unless prior written approval has been obtained from CUB. Some food service establishments (FSEs) will need to perform more frequent pumping to meet this requirement.
- 3. The condition of the GCE, including the grease interceptor's influent and effluent tees, shall be inspected each and every time cleaning and/or maintenance is performed. Their condition must be documented on either the grease waste hauling manifest or the grease interceptor's maintenance log. Tees that are loose, defective or not attached must be repaired or replaced immediately.

Grease Traps ("Under The Counter")

- 1. Grease traps shall be installed per manufacturer specifications.
- 2. *All* grease traps shall be a minimum size to handle a throughput of 20 gpm with a 40-pound storage capacity. This is the minimum size allowed.
- 3. *All* grease traps must have a vent and a flow control device to regulate velocity. Failure to have a vent and/or flow control device will be considered a violation.
- 4. Grease traps must have the Plumbing Drainage Institute certification.

Grease Trap Cleaning/Maintenance Requirements

- 1. Unless FOG monitoring by CUB requires otherwise, grease traps shall be cleaned completely of fats, oils, grease, and food solids at least once every two (2) weeks. If the FOG and food solids content of the grease trap are greater than 50% of the trap's capacity, then the grease trap shall be cleaned weekly, or as frequently as needed to prevent 50% of the grease trap's capacity being taken by FOG and food solids. At no time, should the cleaning frequency of grease traps exceed two weeks unless approved in writing by CUB.
- 2. Grease trap waste should be sealed and placed in a container to prevent leachate from leaking and then properly disposed of.
- 3. Grease trap waste should not be mixed with yellow grease in the grease recycle container.

"Additives" Prohibition for use as Grease Management and Control

- 1. Food service establishments must submit to the Director or Pretreatment Coordinator a <u>full</u> <u>disclosure</u> material safety data sheet (MSDS) from the manufacturer for any additive-type product proposed to be discharged to the POTW.
- 2. Any additive including, but not limited to, products that contain solvents, emulsifiers, surfactants, caustics, acids, enzymes, and bacteria that a FSE desires to discharge to the POTW shall first have written approval by the Director or Pretreatment Coordinator.
- 3. Additives including, but not limited to, products that contain solvents, emulsifiers, surfactants, caustics, acids, enzymes, and bacteria are prohibited from being added to any drain line or any grease control equipment except for the following:
 - a. Additives may be used to clean the food service establishment's drain lines but only in such quantities that will not cause fats, oils, or grease to be discharged from the grease control equipment into the POTW, or cause the temporary breakdown of fats, oils or grease that will later re-congeal downstream in the POTW. The determination of whether appropriate quantities of additives are being administered will be made by CUB or its representative by visually monitoring and inspecting the grease control equipment and the POTW for proper operation. If in the opinion of CUB an excessive amount of additives are being administered by the FSE, the FSE will be directed to either reduce the quantity or to cease the administration of the additive(s). This decision shall be made at the sole discretion of the Director or Pretreatment Coordinator.
- 4. The use of approved additives will in no way be considered as a substitution to the maintenance procedures required herein.
- 5. The Director and Pretreatment Coordinator reserve the right to prohibit any substance that is proposed to be discharged to the POTW that they believe may have a negative impact on the POTW.

