Sewer Pipe Blockage Control Program (FOG) Manual

Public Works Department
Operations Services Department
Environmental Services Division
3333 Busch Road
Pleasanton, CA

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Acronyms

SPBCP..... Sewer Pipe Blockage Control Plan

BMPs..... Best Management Practices

CPU..... California Plumbing Code

DFU..... Drainage Fixture Unit

FOG..... Fats, Oils, and Grease

FSE.....Food Service Establishment

GCD.....Grease Control Device

GGI..... Gravity Grease Interceptor

HGI..... Hydromechanical Grease Interceptor

HGT..... Hydromechanical Grease Trap

SSO..... Sanitary Sewer Overflow

SEWER PIPE BLOCKAGE CONTROL MANUAL

Introduction

Fats, Oils and Grease (FOG) are waste generated from Food Service Establishments (FSEs) as byproducts from food preparation and cooking activities. FOG is not only generated from frying food, but also from cooking oil, lard, shortening, meat fats, sauces, gravy, mayonnaise, butter, margarine, ice cream and soups as well as baking goods and food scraps (solids). Wastewater from sinks, hoods and floor cleaning are also sources of FOG and are generated in restaurants, hotels, catering, nursing homes, school kitchens, churches, grocery stores, other FSEs, as well as residential kitchens.

When FOG is discharged to the sanitary sewer in liquid form (emulsified), it cools and accumulates on the interior of the sewer laterals and city sewer pipes. Over time, this accumulation of FOG restricts the flow and causes blockages which can result in sewage back-ups in kitchens and private property sewer laterals resulting in a Sanitary Sewer Overflow (SSO) from private cleanouts or city sewer manholes located in the street.

The purpose of the Sewer Pipe Blockage Control Program (SPBCP) is to minimize FOG laden wastewater that is discharged to the City of Pleasanton's wastewater collection system by food service establishments, commercial kitchens and residential users who generate FOG.

Authority

The City of Pleasanton Sewer Pipe Blockage Control Program (SPBCP) Manual is incorporated with reference to applicable City ordinance (Pleasanton Municipal Code Chapter 15.44 Protection of Sanitary Sewer System from FOG) to evaluate compliance under State Water Resources Control Board WQ 2022-0103-DWQ Statewide Waste Discharge Requirement, General Order for Sanitary Sewer Systems (WDR).

The City of Pleasanton Public Works Department is required to implement and enforce a SPBCP under the Statewide General Wastewater Discharge Requirements for Sanitary Sewer Systems and Chapter 15.44.070 of the City of Pleasanton Municipal Code. These requirements are designed to reduce the number of Sanitary Sewer Overflows (SSOs) caused by grease blockages and prevent direct discharges to watercourses.

Definitions

25% Rule – When the level of floatable and bottom solids in a GCD exceeds 25% of the usable volume (water level) in GCD, the GCD must be pumped out, cleaned, and new pumping frequency must be established to prevent pass-through and potential overflows.

Best Management Practices (BMPs) - Activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or minimize pollution.

Drainage Fixture Unit (DFU) – DFUs are used to determine the load-producing effects on a plumbing system from different kinds of plumbing fixtures.

Fats, Oils, and Grease (FOG) - Any substance such as vegetable or animal product used in, or a byproduct of, the cooking or food preparation process, that can cause or lead to corrosion, blockages, reduced flow, or interference with the sanitary sewer system when discharged alone or combined with other materials or waste. Oil and grease can also be generated by car washes, repair shops, and manufacturing.

FOG Generator - Any food or meat processing, or commercial kitchen, including, but not limited to, restaurants (FSE), bakery, catering, grocery stores, hotels, cafeterias, churches, hospitals, nursing homes, daycares, assisted living facilities and other healthcare facilities, and residential kitchens with a home business. A FOG generator also includes any of the above businesses that produce used cooking oil or can introduce food waste or FOG into the sanitary sewer system.

Food Grinder - or garbage disposal shall mean any device installed in the plumbing or sanitary sewer system for the purpose of grinding food waste or food preparation byproducts for the purpose of disposing into the sanitary sewer system.

Food Service Establishment (FSE) –A place where food or drink is prepared for sale or service on the premises or elsewhere, including bakeries, cafeterias, churches, grocery stores, residential kitchens used for commercial purposes, convenience stores, farmer's markets, barbeques and mobile food units.

Gravity Grease Interceptors (GGI) – used to treat kitchen wastewater from food service establishments (FSEs) using gravity separation. They are at least 500 gallons to over 2500 gallons and require outside installation, upstream of the sanitary sewer.

Grease Control Device (GCD) - Equipment designed to remove, hold, and prevent the passage of FOG to the sanitary sewer systems. Either a Grease Interceptor (GI) or Hydromechanical Grease Interceptor (HGI).

Grease Interceptor – A generic term used to refer to any of the common types of interceptors or devices including Hydromechanical and Gravity Grease Interceptors used specifically for FOG capture.

Hydromechanical Grease Interceptor (HGI) - Hydromechanical grease interceptors (HGIs) treat kitchen wastewater from food service establishments (FSEs) using gravity separation aided by vented flow control. They can be installed indoors (grease traps) or outdoors. These devices must be third-party tested, validated, and certified.

Grease Trap – Hydromechanical GCD designed for smaller FSEs and or limited footprints. These GCDs are light duty and have a maximum range from 4-50 GPM.

Plumbing Fixture – a part (such as a sink, drain, faucet, etc.) that is attached to a system of pipes that carry water through a building.

Sanitary Sewer Overflows (SSOs) - a release of untreated or partially treated sewage from a municipal sanitary sewer.

Third Party Certified - A certification for device tested and meets or exceeds standards established by the certifying entity and shall be recognized by the Director or Director's designee and can include, but is not limited to, International Association of Plumbers and Mechanical Officials (IAPMO), American Society of Mechanical Engineers (ASME), Plumbing and Drainage Institute (PDI) or combination of these and other entities detailing requirements.

Used Cooking Oil - means FOG originating from commercial or industrial food processing operations, including restaurants (FSE), that have been used for cooking or frying.

Used Cooking Oil Storage Bin – A device used to store and contain FOG prior to being hauled off by a licensed grease hauler. These devices have storage parameters that include not being stored outside exposed to rain and stormwater system without adequate BMPS and cannot be stored in close proximity to food preparation areas per local Health Code Standards.

Sewer Pipe Blockage Control Program Requirements

FSEs are required to submit a wastewater discharge permit application to obtain a Food Service Wastewater Discharge Permit under the Control Program if required by Ordinance and or City. Permits are issued to individual FSEs and are not transferable. The program also requires on-site restaurant inspections by city staff or contracted staff to ensure FOG is being properly stored and managed. In order to obtain a permit, an application must be completed and submitted to the City of Pleasanton Environmental Services Department. The different elements of the SPBCP are:

1. *Food Service Application: required to be completed and submitted to the City's Environmental Services Division*:
    a. When opening a new Food Service Establishment (FSE)
    b. When ownership changes (new business)
    c. When significant changes to the kitchen or service such as a remodel or adding grease bearing fixtures, and restaurant expansion involving more seating. The FSE must apply for building permits and subsequent plan check.
    d. Upon reissuance of the Food Service Wastewater Discharge Permit.

2. *Inspections will be conducted for*:
    a. New FSE when the facility is ready to open.
    b. When significant changes to kitchen operations such adding grease bearing fixtures, and expansion involving more seating. The FSE must apply for building permits and plan check approval.
    c. Routine annual inspection
    d. Follow up inspections for corrections or violations

3. *Food Service Wastewater Discharge Permits issued to an FSE and owner will include:*
    a. Best Management Practices (BMPs)
    b. Discharge prohibitions per Pleasanton Municipal Code and permit parameters
    c. Required Pumping Frequency (RPF)
    d. Operations and Maintenance requirements of GI/HGI (O&M Logs)
    e. Proper storage and removal of used cooking oil documentation
    f. Current Record keeping

<u>When an FSE closes or changes ownership, the GCD must be pumped and properly cleaned, left dry and empty.</u>

Discharge Prohibitions for Grease Control Devices (GCD)

Any substance discharged into the City's sewer system that will accumulate and/or cause or contribute to blockages in the City's sewer system or sewer lateral that connects the FSE to the City's main sewer system. Additionally, the following is **prohibited** from being connected or added to a GCD:

- Food Grinders (garbage disposal)
- Dishwashers
- Additives – Introduction of additives such as bacteria, enzymes, emulsifiers, or similar chemicals designed for the purpose of emulsifying or controlling FOG discharge into GCD.

Grease Control Device (GCD) Requirements

All FSEs that prepare food on site are required to install a GCD to prevent FOG from reaching the city sewer resulting in potential blockages. An FSE that serves food not prepared on site may be exempt from these requirements and receive an exemption status. Written approval from the Public Works Director shall be obtained for approval.

GCD are installed to separate and retain FOG and food particulate (solids) while allowing the treated water to be discharged to the sewer system via gravity. These devices must be properly sized, installed, and maintained to keep FOG out of the sanitary sewer system. All drainage fixtures units (DFUs) that generate FOG through food preparation, cooking and cleanup must flow through an GCD. A list of DFUs required to be connected to the GCD is discussed below and must be included in permit application plans with the Building Department for approval.

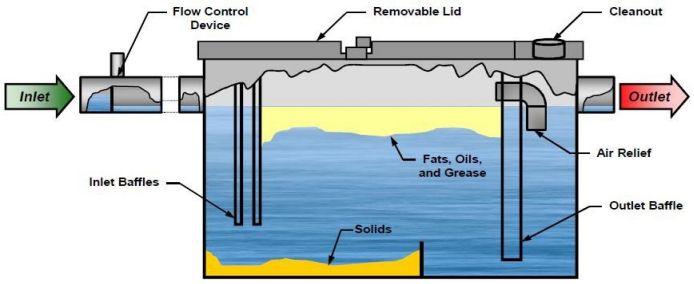
Types of GPDs

Two (2) primary types: Hydromechanical and Gravity.

1. Hydromechanical grease interceptors (HGIs) are a design typically used with grease traps (<50 gallon) or above-ground type GCDs that should be sized on flow rate as well as the facility's potential grease production. This can be based on the number of drainage fixture units (DFU) and calculations based on seats in the restaurant. This ensures the GCD has sufficient capacity to meet the required maintenance frequency. HGIs are typically referred to as grease traps and do not exceed 50 gallons and maximum influent flow rate of 75 gpm. HGI grease traps must have a flow control orifice (FCO) device installed upstream of the device to regulate influent gpm and prevent exceeding hydraulic capacity of device into the grease trap resulting in pass-through.

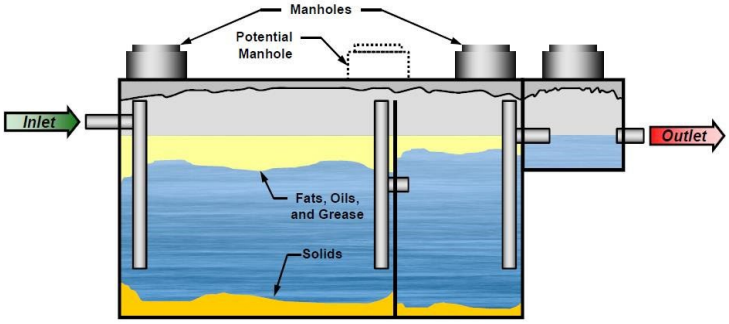
   Large type HGIs (>500 gallons) can be installed in-ground (outside) much like traditional gravity grease interceptors, but HGIs are engineered differently with improved efficiency standards and specs.

   For the purpose of this guide, a traditional HGI grease trap is illustrated as an under-sink kitchen GCD.



Hydromechanical Grease Interceptor
Indoor, Above Ground (Typical)
15-60 Gallons, 20-50 GPM (Typical)
40-100 Pounds of FOG Storage (Typical)

2. Gravity Grease Interceptors *(GGIs)* must be 500 gallons or larger in capacity and must be sized by peak flow rate to have a 30-minute retention time. GGIs shall be designed, tested, and installed in accordance with the International Association of Plumbers and Mechanical Officials.



Gravity Grease Interceptor
Outdoor, In-ground
500 – 1,500 Gallons (Typical)

Sizing

The sizing and type of GCD installed can be determined using several factors including flow rates, number of DFUs, if DFUs unknown, use max number of DFUs allowed for the diameter of drainpipe, and volume of grease generated is determined by number of meals served or number of seats calculation. Ultimately, a device must be approved by the local municipality in conjunction with a licensed contractor and or consultant, to determine the appropriate sizing and type of GCD to be installed. The sizing, design, and approval process requires a permit application submittal, review, and approval by City/County Building Department. Once approved, the GCD can be verified by the Public Works Department for final review and comments if necessary. The new GI will be inspected during the annual FSE (FOG) inspection. This inspection will consist of verifying the required components of the device including influent and effluent tees are installed and baffle walls/chambers are present.

GCDs shall be sized and installed in accordance with the manufacturer's installation instructions. Sizing and installation shall be performed by a licensed plumbing contractor in accordance with the California Plumbing Code 2016 (or most recent), Section 1014.0 Grease Interceptors and PMC 15.44.040 Grease interceptor requirements.

Fixtures Required to be Connected to Grease Control Device

All plumbing DFUs with potential to discharge grease-laden wastewater located in food and beverage preparation areas must be routed through a GCD. These fixtures include, but are not limited to:

- Preparation (Prep) sinks
- Pre-rinse sinks
- Pot sinks
- Hand Sinks
- Three-compartment sinks
- Mop sinks
- Floor sinks
- Drains from washdown ventilation hoods
- Any other fixtures that can contribute FOG via floor and trench drains (e.g., wok stations, pasta stations, etc.)

When determining which fixtures should be connected to a GCD, the best rule of thumb is that any fixture that could receive grease waste from the food service process should be connected to a GCD.

Grease Control Device Maintenance Requirements

GCDs are effective at FOG separation if adequately maintained. Separation rates and efficiency of these devices can be expected to decrease if maintenance is ignored. Devices can even fail, plug lateral discharge lines resulting in an overflow. If maintenance is completely disregarded for extended periods of time, extensive downstream City sewer line impacts can result in additional maintenance costs and cost recovery for FSE.

The cleaning frequency of the GCD will depend upon the amount of grease laden material that is discharged to the GCD and PMC Grease interceptor Standards. Implementing effective kitchen BMPs will help reduce the frequency.

Unless otherwise specified by the City and or in Pleasanton Municipal Code, gravity grease interceptors (GIs) should be pumped out at least once every 60 days or when the 25% rule is reached, whichever is achieved first determined through sampling of GCD.

If at any time the City finds the grease interceptor to be more than 25% full of grease and solids before 60 day required pumping frequency, immediate steps shall be taken by the FSE to pump out and clean the GCD as soon as reasonably possible by scheduling a licensed grease hauler. The FSE must notify the Environmental Services or contractors when the pumping is scheduled.

The 25% rule states the combination in inches of the floating grease layer plus the settleable solids layer cannot exceed 25%. This is achieved through a physical inspection by the City or contracted third-party inspector using a sludge judge or approved sampling type device.

HGIs shall be inspected weekly and cleaned at a minimum of bi-monthly (every 2 weeks) per PMC Ch.15.44.060 to prevent FOG pass-through.

Gravity Grease Interceptors (GGIs) - The pumping and cleaning of GGIs is performed by licensed grease haulers by means of a vacuum truck. Haulers can clean interceptors on a pre-set schedule or when you reach the 25% rule which could generate enforcement if over 25% or exceed pumping frequency established in discharge permit.

Clogged lateral sanitary sewer lines requiring a licensed plumber to restore flow are often an indicator that the interceptor should be cleaned more often. When the interceptor is cleaned, it must be recorded in the O&M log.

Hydromechanical Grease Interceptors (HGIs) require frequent maintenance by FSE staff or a licensed grease hauler. HGIs should be pumped/cleaned bi-monthly per PMC requirements and or before suspended FOG and settled solids accumulation reaches 25% of the HGI's overall capacity. In order to prevent this, routine inspection and or cleaning is required to ensure proper operation and to prevent FOG pass-through from the GCD. If performed by FSE staff, solids and FOG should be dewatered (e.g., mixed with kitty litter) and discarded in the trash. It is good practice for FSEs to include trap cleaning as part of an end-of-week overall cleaning procedure. Minimum requirement for pumping grease traps is bi-weekly (every 2-weeks).

Cleaning Procedure for Hydromechanical Grease Traps

Kitchen Best Management Practices (BMPs)

All FSEs are required to implement proactive BMPs to reduce grease laden wastewater from their discharge to mitigate the discharge of FOG to the sanitary sewer system. When FOG is discharged to the sewer, it can accumulate in the private sewer laterals causing blockages and wastewater backups in the kitchen. It can also accumulate in the City's sewer system, pump stations leading to expensive maintenance costs and potential cost recovery resulting from SSOs. Implementing preventative BMPs can reduce potential problems with the plumbing system and extend the interval between cleanings of the GCD reducing the amount of FOG going down the drain.

BMPs should include the following:

Develop an Education Program on Implementing BMPs

- New employee training program for food and FOG management
- Frequent refresher training program
- Kitchen BMP signage (O&M training log)

Grease Interceptor Maintenance

- Clean GCDs at a frequency required by discharge permit and or Pleasanton Municipal Code. This will prevent the accumulation of FOG or pass through to the sanitary sewer system.
- Complete the GCD cleaning (O&M) log to document cleaning intervals.
- Use water temperatures shall not exceed 140 F in all sinks, especially in the pre-rinse sink to prevent emulsification and plumbing fixture failure.
- Have a manager present during GCD cleaning to ensure the unit is properly serviced and invoice of work is received.
- Do not store anything on or around the GCD.

Drain Screens should be

- Install screens on all drains including floor and mop sinks.
- Have openings between 1/8” and 3/16”
- Removable for ease of cleaning.
- Frequently cleaned (dispose of the screened solids to the trash)

Grease Container Usage

- Pour all liquid oil and grease from pots, pans, and fryers into a used cooking oil container/bin.
- Prior to washing, scrape solidified fats and grease from pots, pans, fryers, utensils, screens, and mats into the trash.
- Use recycling barrels or bins with covers for onsite collection of FOG.
- Empty grill top scrap baskets or boxes into the trash.

Dishwashing

- Use rubber scrapers, squeegees, or towels to remove food and all visible fats, oils and grease from cook and serving ware prior to dishwashing.
- Dry wipe the remaining food and fats, oils and grease into trash prior to dishwashing.
- Pre-dishwasher dish preparation is essential for mitigating additional FOG and solids reaching sanitary sewer post GCD. Dishwashers typically are connected downstream of the GCD due to excessive heat potentially emulsifying FOG in the HGI resulting in passthrough. Must ensure dishwasher screens are cleaned daily.

Spill Prevention and Clean-up

- Develop and or post signs provided by the city of spill prevention and clean-up procedures.
- Develop a schedule for training employees on BMP procedures and documents in training log.
- Designate a key employee who monitors and oversees clean-ups.

Spill Prevention

- Empty waste containers before they are full to avoid accidental spills.
- Provide proper portable containers to transport waste without spilling.
- Use a covered container to transport grease materials to a recycling barrel.

Spill Clean-up

- Block off sink and floor drains near the spill.
- Clean up spills with towels and absorbent material. Do not wash spills down the floor drains.
- Use wet cleanup methods only to remove trace residues.

Absorbent Materials and Towel Usage

- Use disposable absorbent materials to clean areas where grease may be spilled or dripped.
- Use towels to wipe down work areas.

Food Waste Disposal/Recycling

- Recycle used cooking oil and grease generated from fryers and other cooking equipment through a rendering or recycling company.

Used Cooking Oil

- All used cooking oil must be collected and stored properly in sealed receptacles such as holding tanks, oil bins, or drums.
- The container must be stored on an impervious surface such as concrete or pavement with no exposure to stormwater runoff or potential to spill to stormwater system.
- Containers must be capable of being sealed to prevent entry of precipitation or debris.
- The area where the used cooking oil container is stored must always be maintained in a clean and sanitary condition.

- The disposal of used cooking oils into stormwater system or sanitary sewer is strictly prohibited.

Washing

- Clean floor/kitchen mats, hood filters, and garbage cans in a sink or near a drain connected to the GCD. Do not wash these items in a parking lot, alley, sidewalk, street, or gutter. Also do not wash in any drain, not plumbed to a GCD.

Hood Cleaning

- If the hoods and filters are cleaned by the FSE, the wastewater should be collected and discharged to a floor drain or drain connected to a GCD.
- The disposal of the wastewater from cleaning the hoods and filters cannot be discharged to a parking lot, alley, sidewalk, street, landscaping or gutter.

- If professional services are used, FSE must ensure the wastewater is properly disposed of or flows through GCD.

Outdoor Surface Cleaning and Washing

- Sweep up food debris, cigarette butts, and trash from outside areas. Wastewater shall not be generated outdoors, but if necessary for cleaning of exterior surface, all excess water must be contained in either shop-vac or into a wringer bucket.
- The disposal of the wastewater from outdoor surface cleaning shall not be discharged to a parking lot, alley, sidewalk, street, landscaping or gutter. All wastewater generated must be properly disposed of in a floor sink or drain that flows through GCD.

Recordkeeping

All FSEs are required to maintain records (operations and maintenance logs) of cleaning and maintenance of the GCD. Maintenance record entries must include; the date of pumping, company conducting the cleaning/maintenance, amount of FOG removed in gallons, and the waste haulers completed manifest, which must also include this information.

Operations and Maintenance (O&M) log sheet – The City provides an O&M log sheet to document staff training on kitchen Good BMP practices. This log sheet must be filled out anytime the GCD is cleaned or repaired.

O&M records shall be kept on site verifying training and cleaning of GCD for a minimum of two (2) years and should be available for review upon request.

Questions

If you have any questions about this manual or the City's Sewer Pipe Blockage Control Program, please call the Environmental Services Supervisor at 925-931-5527.

Approved Waste Haulers

For information on approved licensed waste haulers, please contact the Environmental Services Supervisor at 925-931-5527 to request a list of haulers.