



# **Fats, Oil and Grease (FOG) Policies and Procedures Manual**

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## Executive Summary

Fats, oil and grease, collectively known as FOG, are found in most residential and commercial kitchens. The discharge of FOG to sanitary sewer systems is a problem because the FOG can accumulate in the sewer and cause a backup or overflow resulting in significant hazards to public health, the environment, to the Food Service Establishment, damage to other businesses and residences, or damage to the public sewer system. This manual will serve to define the problems with FOG, what you as a food establishment owner and manager can do within your business to control FOG discharges, and define the legal authority provided to Colorado Springs Utilities to regulate FOG discharges.

## Introduction

FOG: What is it?

FOG refers to fats, oil and grease found in most residential and commercial kitchens. Waste FOG is a semisolid, viscous or liquid material that is generated during the food cooking process or during cleaning, maintenance, and sanitizing processes. Many foods that are processed and served contain FOG, including; meats, sauces, soups, gravies, dressings, deep fried foods, baked goods, cheeses, butter and others. Residential users and many different businesses generate FOG wastes by processing or serving food, including; caterers, hospitals, churches, nursing homes, day care centers, schools, grocery stores, etc.

What's the problem with FOG, and why should I care about it?

Liquid wastes containing FOG that are discharged down the sewer drain can coagulate and congeal into a hardened layer on the inside of building drain pipes (private service lines) and wastewater Collection Lines (Utility owned mainlines) in the Wastewater Treatment System. Over time this causes a reduction in the effectiveness of these wastewater pipes to transport wastewater away from residences and businesses to the wastewater treatment plant. Wastes containing FOG can accumulate on the inside of these wastewater pipes to such an extent, that the wastewater pipes become completely blocked with FOG. When building drain pipes and wastewater Collection Lines become blocked, the normal flow of wastewater is obstructed, which can cause wastewater to back up into residences and businesses within the vicinity of the blockage. If the FOG originates from your business, you may be the first one affected. These blockages can result in significant public health hazards as well as property damages. When building drain pipes or the wastewater Collection Lines become blocked with FOG, untreated wastewater may also overflow out of the Wastewater System into streets, parking lots, storm sewers, and ultimately to the environment.

Numerous factors can contribute to wastewater blockages or sanitary sewer overflows, including residential discharges containing FOG, antiquated infrastructure and root accumulation, as well as the FOG inputs from food service establishments.

According to Health Department regulations, a public health hazard is created in the event a food service establishment has a wastewater backup. It requires the business to shut down until the problem has been corrected and the contaminated area properly sanitized. This creates an obvious disruption to the operation of the food service establishment.

## Definitions

Best Management Practices (BMPs): For purposes of this manual, Best Management Practices are methods carried out within the food service establishment designed to reduce the discharge of Fats, Oil and Grease (FOG) to the building drain and to the Wastewater System. A list of BMP's are available in this manual and on the Colorado Springs Utilities website located at [www.csu.org](http://www.csu.org). All food service establishments are required to develop and follow BMP's suitable for their location.

Chief Executive Officer: The "Utilities Director" appointed pursuant to City Charter section 6-10. The term "Chief Executive Officer " includes the Chief Executive Officer of utilities and the Chief Executive Officer's designees, if any.

City Code: City Code of the City of Colorado Springs (2009).

Collection Line: That portion of the Wastewater Treatment System through a network of pipes which collects and carries Wastewater from Users to the wastewater treatment plant, excluding Service Lines.

Domestic Wastes or Wastewaters: (i) Wastewater from normal residential activities including, but not limited to, Wastewater from kitchen, bath, and laundry facilities; (ii) Wastewater from the personal sanitary conveniences (toilets, showers, bathtubs, fountains, non-commercial sinks and similar structures) of commercial, industrial or institutional buildings, provided that the Wastewater exhibits characteristics that are similar to those of Wastewater from normal residential activities; and (iii) Specifically excluded is Wastewater from commercial, industrial or institutional laundries or food preparation facilities.

Effective Date: The date of adoption of this manual by the Chief Executive Officer of Colorado Springs Utilities, or his/her designee, as provided on the adoption page to this manual.

Emulsifying Additives: Defined as any grease trap or grease interceptor additive that suspends fat, oil and grease in solution. The fat, oil and grease get carried through the trap or interceptor to the wastewater collection system.

Existing Food Service Establishment: Any Food Service Establishment, which is not a New Food Service Establishment.

Fat, Oil and Grease (FOG): A semi-solid, viscous liquid organic polar compound 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 Code of Federal Regulations (CFR) Part 136, as may be amended.

Food Preparation: Preparing food such that any wastewater from the activity has the potential to cause harm or interference in the wastewater collection system.

Food Service Establishment: Commercial facilities partially or fully engaged in preparing and/or serving food for consumption by the public, such as restaurants, caterers, hospitals, churches, nursing homes, day care centers, schools, grocery stores, etc.

Grease Interceptor: For purposes of this manual, a Grease Interceptor is a large outside, underground, multi-compartment tank designed to capture all kitchen wastewater for removal of FOG prior to discharging into the Wastewater Treatment System.

Grease Trap: A device designed to retain grease from one to a maximum of four fixtures per International Plumbing Code. A Grease Trap is not appropriate for use on heated water (e.g.,

dishwasher) or in-line to a waste disposal unit (e.g., garbage disposal and grinders). For purposes of this manual, a Grease Trap is a smaller, indoor device. Colorado Springs Utilities requires that the capacity of the trap be no less than two hundred twenty (220) pounds grease retention. Internal grease traps are not approved by Colorado Springs Utilities for installation in food service establishments that prepare food on-site, serve catered food, and have a dishwasher or a garbage disposal.

Interference: A discharge which, alone or in conjunction with a discharge or discharges from other sources:

- i) Inhibits or disrupts the Publicly-Owned Treatment Works, its treatment processes or operations, or its sludge processes, use or disposal; and
- ii) Therefore is a cause of a violation of any requirement of the Publicly-Owned Treatment Works' CDPS permit.

Liquid Waste Hauler: Any person, firm, corporation or other entity that collects, pumps, transports and/or disposes of liquid wastes.

New Food Service Establishment: (1) Any Food Service Establishment for which a contract for Significant Construction/Reconstruction, or for which tenant finish in a pre-existing building, was entered into after the Effective Date of this standard. (2) Any food service establishment for which a Substantial Change of Use occurs.

Non-emulsifying Biological/Chemical Additives: Defined as a grease trap or grease interceptor additive that has been proven through independent research to break down or digest fat, oil and grease.

Prior to using any non-emulsifying additive, a Material Safety Data Sheet (MSDS) is required to be submitted to Colorado Springs Utilities Industrial Pretreatment Section. The use of this product may or may not be authorized by Colorado Springs Utilities.

Pretreatment: Application of physical, chemical and/or biological processes to reduce the amount of pollutants in or to alter the nature of the pollutant properties in wastewater prior to discharging such wastewater into the wastewater treatment system.

Publicly Owned Treatment Works (POTW): For purposes of this manual means, any devices, facilities, structures, equipment or works owned by the City or used by Utilities for the purpose of the transmission, storage, treatment, recycling and reclamation of Industrial and Domestic Wastes, or necessary to recycle or reuse water at the most economical cost over the estimated life of the system, including intercepting sewers, outfall sewers, Collection Lines, pumping, power and other equipment, and their appurtenances and excluding Service Lines.

Service Line: The wastewater collector line extending from the wastewater disposal facilities of the premises up to and including the connection to the Collection Line.

Significant Construction/Reconstruction: New construction, construction activities or plumbing modifications which have the possibility of causing harm to, or interference with, the wastewater collection or treatment system.

Standards & Specifications: Colorado Springs Utilities Standard Specifications for the Installation of Sanitary Sewer Mains and Services.

Substantial Change in Use: A change in cuisine, food preparation, menu items, seating capacity or similar operation which have the possibility of causing harm to, or interference with, the wastewater collection or treatment system.

User: Any person, firm, corporation, government or other entity that discharges, causes or permits the discharge of Wastewater into the POTW.

Wastewater: The liquid and water-carried Industrial or Domestic Wastes and pollutants from dwellings, commercial buildings, industrial facilities and institutions, including hauled liquid waste, and any groundwater, surface water and stormwater that may be present, whether treated or untreated.

Wastewater Treatment System: See definition of Publicly Owned Treatment Works.

Wastewater System: See definition of Publicly Owned Treatment Works.

## Legal Authority

### Pretreatment Program Authority

The control of discharges of FOG into the Wastewater Treatment System is part of a larger program to regulate discharges of non-domestic wastes, referred to as the “pretreatment program.” The pretreatment program is a national program required by the federal Clean Water Act and developed by the United States Environmental Protection Agency (EPA). The intent of the pretreatment program is to assure that all pollutants discharged to a sanitary sewer system are treated properly before release to the environment. Certain pollutants can “pass-through” a treatment plant without being treated, and other pollutants such as FOG can “interfere” with treatment processes or the collection portion of the Wastewater System. Thus, dischargers may be required to “pre-treat” certain non-domestic wastewaters before they enter the Wastewater Treatment System.

The Colorado Springs pretreatment program is implemented as a partnership between EPA, the State of Colorado (State) and Colorado Springs Utilities. The EPA Headquarters oversees development and enforcement of the national pretreatment program. The EPA Regional Office approves the Colorado Springs Utilities pretreatment program, provides technical assistance and may enforce against Colorado Springs Utilities and the non-domestic users of our Wastewater Treatment System.

The State requires implementation of the national pretreatment program through the discharge permit it issues to Colorado Springs Utilities for discharges from its Wastewater Treatment System. The State can also enforce against Colorado Springs Utilities and non-domestic users for non-compliance with the national and local pretreatment program. Finally, Colorado Springs Utilities administers all aspects of the pretreatment program at the local level.

### FOG Control Authority

The Colorado Springs Utilities pretreatment program is implemented primarily through the City Code, Chapter 12, Article 5 (Colorado Springs Wastewater Treatment Code) which provides the legal authority for the specific provisions of this manual. Such authority is noted below and in the relevant sections of this manual.

#### **Wastewater Service Line Maintenance:**

City Code 12-5-410: A

*“The owner of any premises connected to the wastewater treatment system shall be responsible for the maintenance of the service line and appurtenances thereto, from and including the connection to the collection line to the premises served. The owner shall keep the line in good condition...”*

## **Wastewater Treatment Required:**

### City Code 12-5-701

*"It shall be unlawful for any person to discharge into any natural waterway or any surface drainage within the City, or in any area under the jurisdiction of the City, any wastewater unless suitable treatment of such wastewater has been provided..."*

## **Wastewater Discharge Prohibitions:**

Prohibitions relevant to the discharge of FOG include the following:

City Code 12-5-702: *"It shall be unlawful for any Person to discharge or deposit or cause or allow to be discharged or deposited into the Wastewater Treatment System any wastes or Wastewater which contains the following: . . . "*

City Code 12-5-702.I: *"Solid, viscous or liquid wastes in quantities or in a manner which may cause or contribute to obstruction to the flow in a Collection Line or otherwise interfere with the proper operation of the Wastewater Treatment System."*

City Code 12-5-702.P: *"Any pollutant, including oxygen demanding pollutants (e.g., BOD) released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW."*

## **Control of Prohibited Wastes:**

In the City Code (12-5-802), wastewater is controlled by the Executive Director, or their designee, through actions such as the following:

- Prohibit the discharge of such wastewater
- Require a discharger to demonstrate that in-house modifications will reduce or eliminate the objectionable characteristics or substances
- Require treatment to reduce or eliminate the objectionable characteristics or substance
- Require the person making, causing or allowing the discharge to pay any additional cost or expense incurred by the City or Utilities for surface or subsurface cleanup and any fines or legal expenses associated with alleged or actual violations. This could include liability for damages to Utility or private property, as well as time and material costs associated with non-scheduled maintenance of Utility sewer mains or stoppage cleanup
- Obtain timely and factual reports from the facility responsible for such discharge
- Take such other or further remedial action as may be deemed to be desirable or necessary to achieve such purposes.

## **Admission to Property:**

### City Code 12-5-805: A

*"The Executive Director has the power to carry out all inspection, surveillance and monitoring procedures necessary to determine, independent of information supplied by industrial users, compliance or noncompliance with applicable pretreatment standards and requirements by industrial users. Representatives of the POTW shall be authorized to enter any premises of any industrial user in which a discharge source or treatment system is located or in which records are required to be kept under this article, to assure compliance with pretreatment standards."*

## **BMP Requirements**

### **Description and Applicability**

All food service establishments not having outside grease interceptors are required to follow Best Management Practices as suited to their operation. Food service establishments with outside grease interceptors are highly encouraged to follow Best Management Practices to reduce grease interceptor pumping frequency.

Best Management Practices are procedures and practices that reduce the discharge of FOG to the building drain system and to the Wastewater Treatment System. Best Management Practices can be implemented effectively in Food Service Establishments and private dwellings.

Applying Best Management Practices over the long term can be difficult to accomplish and requires constant reminder of employees.

### **Food Service Establishments**

*See definition of "Food Service Establishment"*

The following Best Management Practices are provided as guidance and recommendations to assist Food Service Establishments with development of procedures and/or practices to reduce the amount of FOG in their Wastewater discharge.

Because of the variety of food service establishments that generate FOG, every Best Management Practice described in this manual may not apply to every establishment. It is recommended that Food Service Establishment operators identify the FOG sources at their establishment and adopt Best Management Practices to fit the establishment's needs. Operators are encouraged to contact the Colorado Springs Utilities Industrial Pretreatment Program if assistance with Best Management Practices selection is desired.

### **General Best Management Practices**

**The following best management practices apply to all food service establishments:**

- **Continually educate kitchen staff to scrape, wipe or sweep off oil/grease and food debris using "dry" methods such as a disposable paper towel before washing any cooking or eating utensil. Wet methods wash the waste materials into drains where it collects on interior walls of drainage pipes.**
- **Use paper towels to wipe down work areas or soak up spills.**
- **Consider the use of paper products rather than dishware to minimize dishwashing.**
- **Dispose of any spilled or waste food material into the trash.**
- **Eliminate the use of emulsifying additives in the grease trap or grease interceptor. Although emulsifying agents may serve to keep your interior drain lines open, they simply transfer the oil and grease problem to the mainline.**
- **Non-emulsifying biological additives for grease traps and grease interceptors are acceptable; however, even with the use of non-emulsifying biological additives, grease traps or grease interceptors are required to be inspected monthly and cleaned as necessary.**



- Pour all liquid oil and grease into a grease waste container where it can be recycled or disposed of properly. It can be a valued commodity.
- Capture oil and grease wastes from cleaning of mats and ventilation/exhaust hoods.
- Post “Protect the Environment” signs in the kitchen as a reminder to employees. See *the signs written in several languages in Attachments 1a, 1b, and 1c.*
- Use screens over drains to capture waste food materials.
- Disconnect or minimize the use of garbage disposals.

### **BMP’s Specific to Industries with Interior Grease Traps**

*See definition of “Grease Trap”*

- Inspect the grease trap monthly or more often as necessary. Grease traps are required to be completely cleaned when floatable particles and solids occupy 25% of the holding capacity of the trap.
- Keep a maintenance log on site of trap cleanings and inspections. On the maintenance log record who cleaned the grease trap, what day, approximate amount of floatable particles and solids removed, and how the floatable particles and solids was disposed. See *“Inside Grease Trap & Used Fryer Oil Maintenance Log” in Attachment 2.*
- A properly sized flow restricter and air relief valve must be permanently installed on the incoming plumbing to the grease trap. The restricter maintains an acceptable flow of wastewater to the trap. The air valve aids in grease and oil removal.
- All baffles must be in place inside the grease trap. The baffles serve to lengthen the flow path of the wastewater to increase the time of separation while providing a non-turbulent environment for separation to take place.
- Do not discharge wastewater to the grease trap above 110 degrees Fahrenheit. Water above 110 degrees melts grease in the trap and puts the grease back into suspension.
- If a dishwasher is present, it is to be used for sanitizing purposes only. The dishwasher bypasses the grease trap and flows directly to the wastewater mainline.
- Garbage disposals are prohibited from connecting to inside grease traps and therefore flow directly to the wastewater service and mainline. Disconnect or minimize the use of garbage disposals.
- If a pre-wash sink is present, eliminate the use of any detergents at this sink. The detergents will carry grease and oil from the trap into the wastewater service and mainlines.
- Most mop sinks do not connect to the grease trap, therefore, upon completion of mopping, allow the used mop water bucket to set for a time, then skim off any fat, oil and grease into the trash.

### **BMP’s Specific to Industries with Exterior Grease Interceptors**

*See definition of “Grease Interceptor”*

- Clean the grease interceptor based on the “25% Rule”. Based on grease interceptor manufacturer standards, a grease interceptor’s performance severely declines once the

accumulation of floatable FOG material and settled solids total 25% of the total liquid depth of the grease interceptor.

- **Keep a maintenance log on site of grease interceptor cleanings and inspections. On the maintenance log record who cleaned the grease interceptor, what day, approximate amount of floatable particles and solids removed and how the floatable particles and solids was disposed. Copies of these maintenance logs must be retained on site. See “Outside Grease Trap/Interceptor & Used Fryer Oil Maintenance Log” in Attachment 3.**
- **In order to insure the pumping contractor properly cleans and pumps your grease interceptor, it is recommended someone familiar with the proper cleaning methods supervises or oversees your contractors pumping activities. See “Proper Pumping Procedure for Grease Interceptors” in Attachment 4.**
- **The grease interceptor shall be left empty upon completion of pumping; no liquids can be reintroduced back into the grease interceptor by the pumping contractor.**
- **Accessibility to the grease interceptor must be maintained. The lids to the interceptor must not be landscaped or paved over.**

## **Pretreatment Requirements for Food Service Establishments**

### **New Food Service Establishments**

*See definition of “New Food Service Establishment”*

Grease interceptors shall be provided when in the judgment of Colorado Springs Utilities, Chief Executive Officer or their designee, they are necessary for the proper handling of liquid wastes containing grease or solids which may be harmful to, cause obstruction of or interference with the operation of the Publicly Owned Treatment Works.

In general a grease interceptor is required for new food service establishments or when there is significant construction/reconstruction or a substantial change in use.

*See definitions of “Significant Construction/Reconstruction” and “Substantial Change in Use”*

### **Existing Food Service Establishments**

*See definition of “Existing Food Service Establishment”*

It is reasonable to expect that existing food service with inside grease traps do not need to upgrade to a grease interceptor assuming that the ownership/management implement Best Management Practices and do not cause harm to, obstruction of or interference with the Public Owned Treatment Works. Facilities that Colorado Springs Utilities determines are having an impact or are causing harm to the wastewater system may be required to provide additional maintenance, treatment or upgrade of existing grease removal facilities and/or devices.

### **Installation Requirements**

#### **General**

Grease interceptors and grease traps shall be installed in accordance with Chapter 9 of Colorado Springs Utilities Standards Wastewater Line Extension and Service Standards, International Plumbing Code and all governing codes, rules and regulations set down by the Pikes Peak

Regional Building Department and the City of Colorado Springs. The size, type and location of each trap, or interceptor shall be approved and inspected by Colorado Springs Utilities in accordance with the Wastewater Line Extension and Service Standards located at:

[https://www.csu.org/extrx/util\\_dev\\_svcs/svc\\_standards/wastewater/chapter/2017\\_Wastewater\\_LE\\_SS.pdf](https://www.csu.org/extrx/util_dev_svcs/svc_standards/wastewater/chapter/2017_Wastewater_LE_SS.pdf)

In the event of unique conditions, Colorado Springs Utilities may exercise its discretion to determine which FOG removal device is required to be installed.

In the event a grease trap or grease interceptor is installed that was not previously approved in new, existing/redeveloped or expanded food service establishment by Colorado Springs Utilities, the user may be required to remove the device and install equipment that conforms to current standards.

## **Grease Interceptors**

*See definition of "Grease Interceptor"*

If a grease interceptor is required, all drains from the kitchen, food preparation, and dishwashing areas shall be connected to the grease interceptor to ensure proper grease handling and/removal. Fixtures to be connected to a grease interceptor include, but are not limited to, scullery sinks, pot and pan sinks, mop sinks, dishwashing and sanitizing machines, soup kettles, hand sinks and floor drains located in areas where grease-containing materials may exist.

Garbage disposals are strongly discouraged because they are not efficient. Food particles carry over to the grease interceptor taking up interceptor capacity and providing a vehicle for grease carry-over into the wastewater service line and wastewater mainline. If installed, garbage disposals are required to be connected to an approved grease interceptor. Garbage disposals cannot discharge to a grease trap or directly to the Public Owned Treatment Works.

## **Grease Traps**

*See definition of "Grease Trap"*

Grease traps are approved for installation by Colorado Springs Utilities only through the variance process and under very limited conditions because of their minimal holding capacities, poor grease and oil separation capability and difficulty of cleaning. Grease traps will only be considered on a case-by-case basis for locations that do no cooking on site, do not serve catered food (pre-packaged food may be acceptable), do not have a dishwasher or garbage disposal, and with the contingency that if conditions change (such as change in menu, the installation of additional kitchen fixtures or improper maintenance to the trap), a grease interceptor may be required.

## **Alternative Technology**

For any other considerations such as alternative grease removal technology, special approval and possible testing by an independent company and/or Colorado Springs Utilities will be required by Water and Wastewater Engineering Standards before the installation can be approved.

## **Location**

All grease traps and interceptors shall be readily accessible for inspection and proper maintenance at all times. Therefore, interceptor manhole covers should not be covered with asphalt, concrete, landscaping, or other materials. Additionally, the use of ladders or the removal of bulky equipment such as dumpsters in order to inspect or maintain grease traps and interceptors shall constitute a

violation of accessibility. Where feasible, all interceptors shall be located outside of the facility served. Interceptors may not be installed in any part of a building where food is handled.

## **Sizing Requirements**

The designer shall size the grease interceptor using the “Grease Interceptor Sizing Form” spreadsheet shown at the end of this section and the restaurant types as described below.

The following descriptions are to be used to determine the recommended size of a grease interceptor for food preparation and/or food service establishments. To determine the grease interceptor size, consideration must be given to the fat content of the food prepared, number of kitchen drainage fixtures, seating capacity, customer turnover rate, previous problems with the service line or main, compliance history of the food establishment, eat-in or carryout, number of employees, hours of operation, frequency of kitchen use, size of the kitchen, number and type of cooking appliances, etc. The food service categories described below function only as a guide. Every food establishment may not fit clearly within one category; therefore, it may be necessary to combine characteristics and expected size ranges from more than one category to determine the grease interceptor size.

The minimum acceptable volume of a grease interceptor shall be not less than three hundred and twenty-five (325) gallons. (With a dishwasher - 1000 gallons minimum size.)

A copy of the kitchen mechanical or plumbing plan, showing the number of fixtures i.e. 3-comp sink, dishwasher, hand sink, floor drains, etc., is required to be submitted to Utilities Development Services along with the Utility Service Plan to confirm the size of Grease Interceptor.

### **High Volume:**

Facilities often preparing three meals per day or having continuous food prep (cooking) throughout much of the day. These facilities may prepare large amounts of food for distribution to other locations. Examples may include full-service dine-in restaurants, buffets, hotels, large senior-living facilities, hospitals, food courts, grocery stores, caterers, etc. They typically have large or multiple kitchens with a wide range in plumbing fixtures. These facilities frequently have at least one large dishwasher with a large pre-wash sink and garbage disposal. Additionally, there will likely be 2- and/or 3-compartment sinks, vegetable preparation sinks, mop sinks, hand sinks, etc. Food items may be served on disposable or washable dishware.

Expected Size Range of Grease Interceptor: 2500 – 3500 gallons

### **Medium Volume – Sit Down:**

Facilities often cooking two meals per day, such as lunch and dinner with washable eating utensils. They usually have a 50 – 150 person seating capacity. Examples may include small senior living facilities, steak houses, gourmet burger establishments, dine-in pizza places, seafood or ethnic restaurants high in fat content. They typically have medium to large kitchens with a medium to large dishwasher, 2 and/or 3-compartment sink, pre-wash sink with garbage disposal, vegetable preparation sink, mop sink, hand sinks, etc.

Expected Size Range of Grease Interceptor: 1500 – 3000 gallons

### **Medium Volume – Fast Food:**

Facilities often opening early and closing late that cook or fry a large variety of food items throughout the day such as burgers, chicken, tacos, fries, etc. high in fat content. These foods are all served on disposable paper products. They typically have medium to small kitchens with a 3-compartment sink, vegetable preparation sink, mop sink and hand sinks. A small countertop dishwasher may be installed, but usually a pre-wash sink or garbage disposal is not present.

Expected Size Range of Grease Interceptor: 1000 – 2250 gallons

### **Low Volume – Sit Down:**

Facilities having few employees and/or limited hours of operation and meals served. To a limited degree, foods may be prepared and cooked from scratch on site, but more often foods are prepared and cooked elsewhere and delivered here to be preheated. Most foods are served with washable eating utensils. These facilities have a seating capacity of between 25 and 50. The kitchens are medium to small with a wide range in plumbing fixtures. Potential plumbing fixtures include a single, 2 or 3-compartment sink, small dishwasher, pre-wash sink with or without garbage disposal, vegetable preparation sink, hand sinks, and mop sink. Food service establishments in this category may be independent, family-owned operations out of the main traffic flow, or some small schools.

Larger coffee houses will likely fall into this category. Although normally there is minimal food preparation, a considerable amount of oil and grease is generated from milk products disposed of down the drain.

Expected Size Range of Grease Interceptor: 800 – 1250 gallons

### **Low Volume – Takeout**

Facilities having few employees and/or limited hours of operation and food served. The foods are pre-packaged and may be heated using limited means prior to consumption. All food is served on disposable paper products. These facilities are prohibited from having garbage disposals. Under-the-counter dishwashers will be considered on a case-by-case basis. Examples such as a convenience store, small coffee shop, hot dog or ice cream stand, may fit this category.

Expected Size Range of Grease Interceptor: 325\* – 1000 gallons

\* Only one chamber is provided in 325 and 500 gallon grease interceptors.

**EXAMPLE**

**GREASE INTERCEPTOR SIZING FORM**

**Project Name: Medium Volume Fast Food Restaurant**

**Address: Colorado Springs**

**Project #: 2009-CXXX**

**A. Determine maximum drainage flow from fixtures:**

Type of Fixture	Flow Rate	No. of Fixtures	Flow Rate x No. of Fixtures
Mop sink	20 gpm		
Single compartment sink	20 gpm	4	80
Single compartment sink with garbage disposal	35 gpm		
Double compartment sink	25 gpm		
Triple compartment sink	35 gpm	1	35
Up to 30 gal. dishwasher	15 gpm		
30 gal. To 50 gal. dishwasher	25 gpm		
Larger than 50 gal. dishwasher	40 gpm		
<b>B. Total flow rate =</b>			<b>115</b>

**C. Loading Factors (Definitions of restaurants as per section 9.07(a)):**

Low Volume – Take Out = 0.02

Low Volume – Sit Down = 0.09

Medium Volume – Fast Food = 0.10

Medium Volume – Sit Down = 0.10

High Volume = 0.11

**D. (B) x (C) = avg. flow per minute**

$$= 115 \text{ gpm} \times 0.10 = 11.5 \text{ gpm}$$

**E. (D) x 60 min. = avg. flow per hour**

$$= 11.5 \text{ gpm} \times 60 \text{ min} = 690 \text{ gph}$$

**F. (E) x 2 hours retention time = volume of interceptor in gallons**

$$= 690 \text{ gph} \times 2 \text{ hrs} = 1380 \text{ gal}$$

## **Additional Grease Interceptor Sizing Considerations**

While the initial capital investment may be less with a smaller capacity grease interceptor, a food service establishment risks paying more in pumping costs should the interceptor be undersized. Consider the possibility of future menu changes, later building expansion, etc. Plan for the worst case scenario and invest in a grease interceptor that is slightly larger than the minimum size calculated. Typically the difference in cost for the larger grease interceptor is not significant.

## **Maintenance and Recordkeeping**

The owner and/or lessee shall be jointly and severally responsible for efficient cleaning and maintenance of the grease trap or grease interceptor. Both the inside grease trap and outside grease interceptor are required to be completely cleaned when oil/grease and solids occupy 25 % of the holding capacity. Grease traps and grease interceptors are required to be inspected monthly.

During each inspection of a grease interceptor, it is recommended that users document measurement of the grease layer in inches in both compartments by pushing a garden hoe through the grease layer, or taking a core sample with a "sludge judge". Confirm that the "Tee" at least on the outlet pipe to the wastewater mainline is intact to assure proper operation.

Maintenance records shall be kept on site for at least three (3) years. Industrial Pretreatment or other authorized personnel may perform unannounced inspections to verify compliance.

## **Cleaning Requirements for Exterior Grease Interceptors**

*See definition of "Grease Interceptor"*

Cleaning must be performed by a liquid waste hauler possessing a permit for liquid waste hauling, issued by Colorado Springs Utilities. Both vaults of a grease interceptor shall be left completely empty upon completion of the pumping operation. The grease mat, liquids, sludge, and scrapings from the interior walls must be removed. Under no circumstances, may the liquid waste hauler reintroduce the removed water or materials back into the grease interceptor. Flushing an interceptor with hot water, or the use of chemicals or other agents to dissolve or emulsify grease and allow it to flow into the wastewater treatment system is a violation of the City Code.

*See "Proper Pumping Procedure for Grease Interceptors" in Attachment 4*

## **Cleaning Requirements for Interior Grease Traps**

*See definition of "Grease Trap"*

Cleaning may be performed by an employee or permitted liquid waste hauler. Use a wet/dry vacuum designated for this purpose to vacuum out the contents of the grease trap. Afterwards, pour the waste into large (5-10 gallon) disposable buckets. Kitty litter, floor dry, or wood chips may be combined with the waste for liquid absorption. Once a bucket is full, securely seal the lid on the bucket and dispose of it in the trash. Grease traps should be cleaned after hours because the smell can permeate the business. Be sure to use rubber gloves and a face shield to avoid direct contact with the waste.

## **Variations**

Variations are given only with the approval of Colorado Springs Utilities Industrial Pretreatment Section.

Variations to the above criteria shall be given only when the discharge from the user is in continuous compliance with the Wastewater Treatment Code, Section 12-5-702: Wastewater Discharge Prohibitions. A variance will be considered on a case-by-case basis for food service establishments that perform no cooking on-site, do not serve catered food, do not have a dishwasher, and do not have a garbage disposal. Only four (4) fixtures may be connected to a grease trap and typically include the 3-compartment sink, veggie prep sink, hand sink and mop sink. Dishwashers cannot connect to grease traps. Such an example may be a coffee shop. A "Request for Variance" form (which is included as an attachment) is required to be submitted to Colorado Springs Utilities Industrial Pretreatment stating what food related activities are planned at this address and identify the type and number of kitchen fixtures present. A menu must be included with this request. Before issuing a variance, Colorado Springs Utilities personnel may perform a site visit. Generally, exceptional physical constraint or economic hardship does not qualify for a variance. Upon issuance of a variance, the food service establishment is required to notify Colorado Springs Utilities Industrial Pretreatment in writing within 30 days of any substantial change in use, changes in food preparation methods, or additions to kitchen equipment that could change the nature of the wastewater discharge.

**See "Request for Variance" form in Attachment 5**

For information visit Colorado Springs Utilities on the web at [www.csu.org](http://www.csu.org) – Environment →  
→ Industrial Pretreatment.

## **Enforcement Procedures**

This section provides a general outline of enforcement procedures that apply to food service establishments that fail to comply with the requirements in City Code, Chapter 12, Article 5 (Colorado Springs Wastewater Treatment Code) which provides the legal authority for the specific provisions of this manual.

### **Wastewater Blockage and Overflow Investigation**

Heavy FOG deposits in the wastewater mainline encountered by SU maintenance crews, or customer complaints of a sewage back-up or overflow most often initiate enforcement activities by Colorado Springs Utilities. Enforcement activities often commence with investigations of blockages and overflows of the Wastewater Treatment System through on-site inspection of food service establishments and closed-circuit television inspection of wastewater mainline. The on-site inspections are performed to identify which food service establishments upstream of the FOG blockage may have contributed to the blockage. During the inspections, observations are made of the employee kitchen practices and an inventory of plumbing fixtures is taken. Additionally, any inside grease trap or outside grease interceptor are inspected for proper maintenance. The closed-circuit television inspections are performed to check the condition of the wastewater mainline to determine if it may have contributed to the blockage or overflow, and to seek visual evidence of FOG waste accumulation between the site of the blockage or overflow and upstream food service establishments. If significant FOG accumulation is observed in the service line of an upstream food service establishment, that establishment may be identified as causing or contributing to the downstream blockage or overflow.



## **Enforcement Responses**

Colorado Springs Utilities has an EPA approved Enforcement Response Plan (ERP) that will be followed in addressing noncompliance with food service establishments. Colorado Springs Utilities usually gets businesses into compliance using informal enforcement actions before having to use formal actions.

The City Code, Chapter 12, Article 5 (Colorado Springs Wastewater Treatment Code) at Sections 12-5-1202 (Informal Remedies) and 12-5-1203 (Formal Remedies) provides a range of enforcement responses that can be applied to food service establishments. The brief descriptions of the responses that are used most frequently are provided below. The enforcement remedies may be used individually, sequentially, concurrently, or in any order (City Code 12-5-1201:B).

### **Informal Administrative Enforcement Remedies**

Informal enforcement remedies include verbal notice, information production/compliance review meeting, demand inspections, field notices of observed violations, and notices of violations. Regarding field notices of observed violation and notices of violation, an informal conference with Colorado Springs Utilities may be requested and an appeal is available after an informal conference. The field notice of violation and notification of violation is more fully explained below.

**Field Notice of Observed Violation.** During an inspection of a food service establishment, if a violation is noted, a field notice of observed violation may be served. This document identifies the specific violation(s), the date(s) for corrective action to be completed, and other compliance actions that may be required.

**Notification of Violation.** Whenever a food service establishment is determined to have committed a violation, a written notice of violation may be served. This document identifies the specific requirements that were violated, the fact alleged to constitute the violations, and it may include any corrective action(s) proposed to be required. Within ten (10) days of the receipt date of this notice, a written explanation of or response to the violation and a plan for the satisfactory correction and prevention thereof must be submitted.

The corrective actions contained in a Field Notice of Observed Violation or a Notification of Violation could include the following:

- Implementing specific Best Management Practices as described by Colorado Springs Utilities to control FOG wastes. Increasing the inspection and/or cleaning frequency of a grease trap or grease interceptor;
- Instituting periodic reporting requirements provide adequate access to the grease trap or grease interceptor; and
- Other items deemed appropriate by the Chief Executive Officer or his designee.

## **Programmatic Materials**

The following Attachments are included with the Fats, Oil and Grease Policies and Procedures Manual:

Attachment 1a. "Protect the Environment" sign in English and Spanish languages

Attachment 1b. "Protect the Environment" sign in English and Chinese languages

Attachment 1c. "Protect the Environment" sign in English and Korean languages

Attachment 2 "Inside Grease Trap & Used Fryer Oil Maintenance Log"

Attachment 3 "Outside Grease Trap/Interceptor & Used Fryer Oil Maintenance Log"

Attachment 4 "Proper Pumping Procedure for Grease Interceptors"

Attachment 5 "Variance Request for Inside Grease Trap"

# Protect the Environment

Proteja el Ambiente

## Dispose of Fat, Oil and Grease Properly Deshágase de aceites, grasas y engrases apropiadamente.

- ▶ **Food waste from cookware and plates goes in the trash, not down the drain.**  
Tire las sobras de las ollas, sartenes y platos en la basura, NO en el desagüe del fregadero.
- ▶ **Disconnect or minimize the use of garbage disposals.**  
Desconecte o haga uso mínimo del triturador de basura.
- ▶ **Use a fine mesh screen (1/8 or 3/16 inch) in sink drains to catch solids.**  
Para que las sobras no se vayan en el desagüe del fregadero, use un filtro de malla fina (1/8 o 3/16 pulgadas).
- ▶ **Dispose of liquid grease and oil into a waste container for recycling.**  
Tire la grasa y aceite en un envase especial para que sea reciclado.
- ▶ **Inspect grease traps at least monthly and clean regularly.**  
Inspeccione las atrapadoras de grasa por lo menos una vez al mes y límpelas con regularidad.

Environmental stewardship has been an integral part of Colorado Springs Utilities business for decades. Protecting and preserving the environment is an expectation of our citizen-owners and a commitment we have made to our community.

Por décadas la administración de las Utilidades de Colorado Springs, han participado con los negocios para la protección y preservación del medio ambiente. Es una promesa hecha a los ciudadanos-proprietarios de nuestra comunidad.

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# Protect the Environment

## Dispose of Fat, Oil and Grease Properly

環保的堅兵  
安全處理各種油脂性的物質

- ▶ **Food waste from cookware and plates goes in the trash, not down the drain.**  
烹調用具和餐盤中的殘餘食物應作為垃圾處理，而不應倒入下水道。
- ▶ **Disconnect or minimize the use of garbage disposals.**  
斷開食物粉碎機的電源或儘量減少使用食物粉碎機的次數。
- ▶ **Use a fine mesh screen (1/8 or 3/16 inch) in sink drains to catch solids.**  
在水池下水道口安放一個孔眼細密的網篩（1/8或3/16英寸），擋住固體食物。
- ▶ **Dispose of liquid grease and oil into a waste container for recycling.**  
將液體油脂和油裝入回收廢物容器。
- ▶ **Inspect grease traps at least monthly and clean regularly.**  
至少每月檢查一次油脂收集器，並定期清理。

Environmental stewardship has been an integral part of Colorado Springs Utilities business for decades. Protecting and preserving the environment is an expectation of our citizen-owners and a commitment we have made to our community.

幾十年來，環境管理一直是科羅拉多斯普林斯公用事業管理局（Colorado Springs Utilities）業務中不可分割的一部份。保護和維護環境是我們作為公民和企業擁有人的願望，也是我們向所在社區作出的一項承諾。



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# Protect the Environment

환경을 보호하시기 바랍니다

Dispose of Fat, Oil and Grease Properly

그리스는 적절히 처리하십시오

- ▶ **Food waste from cookware and plates goes in the trash, not down the drain.**  
요리기구와 접시의 음식물 지꺼기는 싱크대가 아닌 쓰레기통에 버립니다.
- ▶ **Disconnect or minimize the use of garbage disposals.**  
음식물 찌꺼기(분쇄)처리기의 사용은 중지 또는 최소화합니다.
- ▶ **Use a fine mesh screen (1/8 or 3/16 inch) in sink drains to catch solids.**  
싱크대 하수구에는 가는 망사(1/8 또는 3/16 인치)를 사용하여, 고체상태의 쓰레기는 걸러냅니다.
- ▶ **Dispose of liquid grease and oil into a waste container for recycling.**  
액체 그리스 및 기름은 재활용 폐기물처리용기에 담아 처리합니다.
- ▶ **Inspect grease traps at least monthly and clean regularly.**  
하수도 그리스막이장치는 최소한 매월 검사하고, 정기적으로 세척합니다.

Environmental stewardship has been an integral part of Colorado Springs Utilities business for decades. Protecting and preserving the environment is an expectation of our citizen-owners and a commitment we have made to our community.

환경에 대한 책무는 지난 수십년간 콜로라도 스프링스 유틸리티(Colorado Springs Utilities)의 필수불가결한 사업부분이 되어 왔습니다. 환경보호 및 보존은 우리 시민주인들의 기대하시는 바이며, 또한 커뮤니티에 대한 저희의 공약사항이기도 합니다.

천연가스 전기 상수도 하수도 귀하의 커뮤니티소유 유틸리티

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**Attachment 3 "Outside Grease Trap/Interceptor & Used Fryer Oil Maintenance Log"**

**OUTSIDE GREASE TRAP/INTERCEPTOR & USED FRYER OIL MAINTENANCE LOG**

BUSINESS NAME \_\_\_\_\_ ADDRESS \_\_\_\_\_

LOCATION OF TRAP/INTERCEPTOR \_\_\_\_\_  
 (For example: In parking lot on northwest side of building)

DATE OF CLEANING OR INSPECTION?	NAME OF PERSON OR COMPANY WHO INSPECTED OR CLEANED UNIT?	APPROXIMATE GALLONS OF GREASE & OTHER DEBRIS REMOVED? (IF CLEANED)	HOW WAS THE WASTE DISPOSED? (IF CLEANED)

**CERTIFICATION OF INSPECTION:** I certify under penalty of law that the above indicated grease trap/interceptor has been inspected on the above indicated date(s). The grease trap/interceptor contains solids and grease which occupy less than 25% of the holding capacity of the trap/interceptor.

\_\_\_\_\_  
 Signature of Authorized Representative

\_\_\_\_\_/\_\_\_\_\_  
 Title Date

\_\_\_\_\_  
 Date of last cleaning

\_\_\_\_\_  
 Approx. inches of grease and solids occupying trap/interceptor

Does your business use fryer oil? \_\_\_\_\_  
 Does your business recycle used fryer oil? \_\_\_\_\_ If YES, name and telephone number of recycler \_\_\_\_\_  
 Are used fryer oil containers secured to reduce the possibility of spillage or vandalism? \_\_\_\_\_  
 If used fryer oil is not recycled how is it disposed? \_\_\_\_\_

DATE OF USED FRYER OIL PICK-UP?	APPROXIMATE GALLONS OF USED FRYER OIL PICKED-UP?	WHERE IS THE USED FRYER OIL TAKEN AND HOW IS IT USED?

**CERTIFICATION:** I certify under penalty of law that the above information is true and accurate and complete to the best of my knowledge. I am aware that there are significant penalties for submitting false information including the possibility of fine and/or imprisonment for knowing violations.

\_\_\_\_\_  
 Signature of Authorized Representative

\_\_\_\_\_/\_\_\_\_\_  
 Title Date

## **Attachment 4 “Proper Pumping Procedure for Grease Interceptors”**

### Proper Pumping Procedure for Grease Interceptors

Since the food service establishment is the generator of the grease and food waste, is liable for the condition of their pretreatment devices, and is paying for the cleaning service, the food service establishment owner or designee may want to witness all cleaning/maintenance activities to verify that the grease interceptor is being fully cleaned and properly maintained. The following are the pumping practices required of permitted liquid waste haulers, by Springs Utilities.

Step 1: Skim the entire grease cap and debris from the top of the interceptor. The interceptor may need to be agitated slightly to loosen the grease cap.

Step 2: Place vacuum tube all the way into the interceptor to suck remaining solids from the bottom.

Step 3: Vacuum water out of the interceptor.

Step 4: Clean the sides and bottom of the trap. This may be done by “back flowing” the water from the pump truck or by using a hot water source to hose down the trap. Make sure the trap is completely clean.

Step 5: Vacuum remaining water out of the trap.

Step 6: Check that the sanitary “T’s” on the inlet and outlet sides of the interceptor are not clogged or loose.

Step 7: Make sure that the baffle is secure and in place.

Step 8: Inspect the interceptor for any cracks or defects.

Step 9: Check that lids are securely and properly seated after completion of pumping.

The above information was obtained from the Grease Summit Manual presented by Environmental Biotech, Incorporated.



**Attachment 5 “Variance Request for Inside Grease Trap”**

**VARIANCE REQUEST FOR INSIDE GREASE TRAP**

Note: Inside grease traps are approved for installation by Springs Utilities only through the variance process on a case-by-case basis for locations that do no or minimal food preparation on site, typically do not have a dishwasher, and have no garbage grinder.

Name of food service establishment \_\_\_\_\_

Address of food service establishment \_\_\_\_\_

Owner(s) or person(s) in responsible charge \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Mailing address to send the variance (if different from above), phone number(s), and email(s) of owner(s) or responsible individual(s)

\_\_\_\_\_  
\_\_\_\_\_

**Describe in detail** (use back if necessary) what food related activities are planned at this address, and identify the type and number of kitchen fixtures present. A menu and facility layout diagram showing the kitchen with fixtures and indoor seating capacity must be included with this request. Are eating utensils washable or disposable? Colorado Springs Utilities may conduct a site visit to verify the information provided.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_