

# *Fats, Oils, and Grease Best Management Practices Manual*



Information, Pollution Prevention and  
Compliance Information  
For  
Food and Beverage Establishments

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*Fats, Oils, and Grease Best Management Practices Manual*

## ***Fats, Oils, and Grease Best Management Practices Manual***

Food and Beverage Establishments generate literally tons of cooking oil, grease and food wastes every year. If this waste is not managed properly, it can cause major environmental problems. Animal and vegetable -based oil and grease often enter the wastewater collection system in the liquid form. An important property of oil and grease is its ability to separate and float on the water, in other words, they are hydrophobic compounds. Once in the wastewater collection system these fats, oils and grease cool and solidify. Grease will cling to sewer pipes and the surface of a grease build-up causing a clog to form from the top of the pipe. These blockages and subsequent spills are unsightly, clean-up is difficult, time consuming and costly. Sewage backups in businesses present a potential health hazard as raw sewage may carry harmful bacteria, viruses, and pathogens. In the Mendocino City Community Services District (MCCSD), there have been sewer backups and blockages that resulted from grease buildup. Nationwide, the major cause of sanitary sewer overflows is from fats, oils, and grease (FOG) blockages. In an effort to resolve this problem, the California Regional Water Quality Control Board mandated that MCCSD create a FOG Program, whereby non-residential facilities would be monitored for grease discharges.

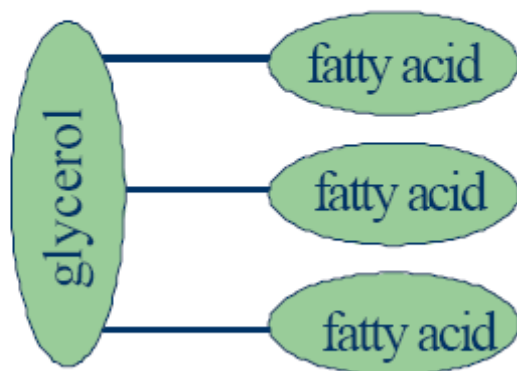
The FOG Program will combat the grease problem through regulation, education, inspections and enforcement. In December 2009, MCCSD adopted a Fats, Oils, and Grease Ordinance, which required grease removal devices in food service facilities as well as grease interceptor/trap cleaning and reporting. Additionally, an inspection program has been implemented to visit each facility and verify compliance with the local ordinance.

This manual is designed to inform facility personnel of the local requirements and to educate management and workers in established practices. Grease waste minimization begins at the source. Every food service facility should have a manager or someone in charge of overseeing proper waste disposal from the beginning to the end of the operation. This person must be able to recognize common practices and modify them so that grease wastes are controlled at the discharge point. By having a sound plan for grease disposal the food and beverage establishment operator may save hundreds of dollars in reduced maintenance and plumbing costs. FOG Program personnel, working with business owners, can effectively prevent oil and grease buildup, and associated problems, for both the wastewater collection systems and the food and beverage establishment owner.

## What is grease?

### BASIC GREASE MOLECULE

### TRIGLYCERIDE MOLECULE



Everyone knows that oils and grease are used for cooking, baking and preparing foods of all variety, some for private consumption such as in residential homes and some for commercial consumption as in restaurants and cafeterias. Few people realize that grease, fat and oil are lipid-based compounds that originate from animal and vegetable matter. Lipids are substances, including fats, greases and waxes, combined with proteins and carbohydrates that make up structural components of living cells.





*Grease clogged sewer*

## **Is grease a problem?**

In the sewage collection and treatment business the answer is an emphatic YES! Problems range from blocked sewer lines, rancid odors, potential health hazards, and pump station failure. Large amounts of oil and grease in the wastewater cause trouble in the collection system pipes. It often decreases pipe capacity and therefore, requires that piping systems be cleaned more often and/or some piping to be replaced sooner than otherwise expected. Oil and grease also hamper effective treatment at the wastewater treatment plant. Concerns caused by wastes generated by food service facilities have served as the basis for ordinances and regulations governing the discharge of grease material to the wastewater collection system. This type of waste has forced the requirements of the installation of preliminary treatment devices, commonly known as grease traps or interceptors.

## **What is a grease trap?**

A grease trap is a device that is installed inside the building or under the sink to separate and retain grease and solid materials from the waste stream while allowing the balance of the liquid waste to discharge to the wastewater collection system by gravity. Baffles in the grease trap retain the wastewater long enough for the grease to congeal and raise to the surface. Traps have a removable lid on the top surface to facilitate inspection and cleaning.

## **What is a grease interceptor?**

A grease interceptor is a device that is installed outside the building to separate and retain grease and solid material from the waste-stream while allowing the balance of the liquid waste to discharge to the

wastewater collection system by gravity. The capacity of the interceptor provides adequate residence time so that the wastewater has time to cool, allowing any grease time to congeal and rise to the surface where it will accumulate until the interceptor is cleaned.

## **Who generates grease?**

Greasy wastewater that ends up in the MCCSD wastewater collection system originates from a variety of sources like residential, commercial, and public and private facilities.



## **What are Best Management Practices?**

Best Management Practices are practices that a food service facility operator or anyone who cooks or prepares food can utilize to minimize that amount of grease being discharged from their business. The following Best Management Practices (BMPs) for Food and Beverage Establishments are provided to the owners/managers of businesses to assist them in developing procedures and/or practices which effectively reduce the discharge of Fats, Oils and Grease from their wastewater discharge.

### **Prevent Grease from Entering Surface Waters through the Storm Drain System**

1. Cover outdoor grease storage containers so that they do not collect rainwater. Since grease floats on water, the rainwater can cause an overflow onto the ground, which will eventually reach the stormwater system.
2. Locate grease storage containers away from storm drain catch basins.
3. Use absorbent pads or other material to clean up spilled material around outdoor equipment and grease storage containers and dispose of through solid waste procedures. Do not use free flowing absorbent material such as kitty litter that can discharge to the storm drain system.
4. Do not clean equipment outdoors in an area where water can flow to the gutter, storm drain or street.

## Prevent Blockages in the Wastewater Collection System

1. Implement a training program to educate kitchen staff and other employees about how they can help ensure kitchen BMP's are followed. People are more willing to support an effort if they understand the basis for it.
2. Post **NO GREASE** signs above sinks and on the front of dishwashers. The signs will serve as a constant reminder for staff working in the kitchens.
3. Always use sink basket strainers to collect food wastes.
4. Dry-wipe pots and pans and dishware prior to dishwashing. This will reduce the amount of material going to the grease traps / interceptors, which will require less frequent cleaning thereby reducing maintenance costs.



*Dry-wipe pots and pans and dishware prior to dishwashing*

5. Capture accumulated oil during the cleaning of wok stoves and ventilation/exhaust hoods and dispose of through solid waste procedures after absorbing all free liquid.
6. Dispose of food waste by recycling and/or solid waste disposal. Recycling food waste will reduce the cost of solid waste disposal. Solid waste disposal of food waste will reduce the frequency and cost of grease trap /interceptor cleaning.
7. Use water temperatures less than 140°F in all the sinks. Temperatures in excess of 140°F will dissolve grease, but the grease can re-congeal or solidify in the wastewater collection system as the water cools. This has an added benefit for the food and beverage establishment of reducing its costs for the energy used in heating the water.



*Use water temperatures less than 140°F*



*Recycle waste cooking oil*

8. The use of garbage disposals and/or food grinders is prohibited. These devices put large quantities of solids into the collection and treatment systems.
9. Recycle waste cooking oil through an established, reputable recycling facility. The food and beverage establishment may be paid for the waste material and will reduce the amount of garbage it must pay to have hauled away.
10. Do not discharge caustics, acids, or solvents to the wastewater collection system. Caustics, acids and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to employees working in the wastewater collection system.
11. Do not use biological or emulsifying agents. The use of these agents is prohibited.

### **Properly Maintain Grease Traps and Interceptors to Prevent Introduction of Grease into the Wastewater Collection System**



*Clean grease interceptors routinely*

1. Clean under-the-sink grease traps a minimum of once per week. If the total volume of captured grease and solid material displaces more than 20% of the total volume of the unit, the cleaning frequency needs to be increased. If the grease trap is not providing adequate protection of the wastewater collection system, the establishment may be required to install a grease interceptor.
2. Clean grease interceptors routinely. Grease interceptors must be cleaned a minimum of once per month or more frequently, if necessary, to ensure that grease accumulation does not cause the interceptor to operate poorly. Grease interceptors not cleaned regularly can produce very unpleasant odors.
3. When contracting with a grease pumper service, it is in your best interest to find out how the contractor will dispose of the waste. Obtain references from other businesses that use their services. Poor disposal practices cause problems, which include odors, creation of rodent habitats and potential threats to groundwater and surface waters.



4. Witness all grease interceptor cleaning and maintenance to ensure the device is properly operating. The food and beverage establishment will ensure it is getting value for the cost of cleaning the grease interceptor. To properly clean the interceptor the entire contents must be removed, which includes the scraping of the walls, floor, baffles and pipework. The return of gray water back into the interceptor is strictly prohibited.



*Keep a maintenance log*

5. Keep a bound maintenance log. The maintenance log serves as a record of the frequency and volume of grease collected during the grease trap/interceptor cleaning. It also serves as a record of all maintenance and repairs pertaining to the grease trap/interceptor. It is required by the FOG Ordinance and the FOG Program to ensure that the grease trap/interceptor maintenance is performed on a regular basis.

## **Grease Trap Maintenance**



*Grease traps must be cleaned frequently*

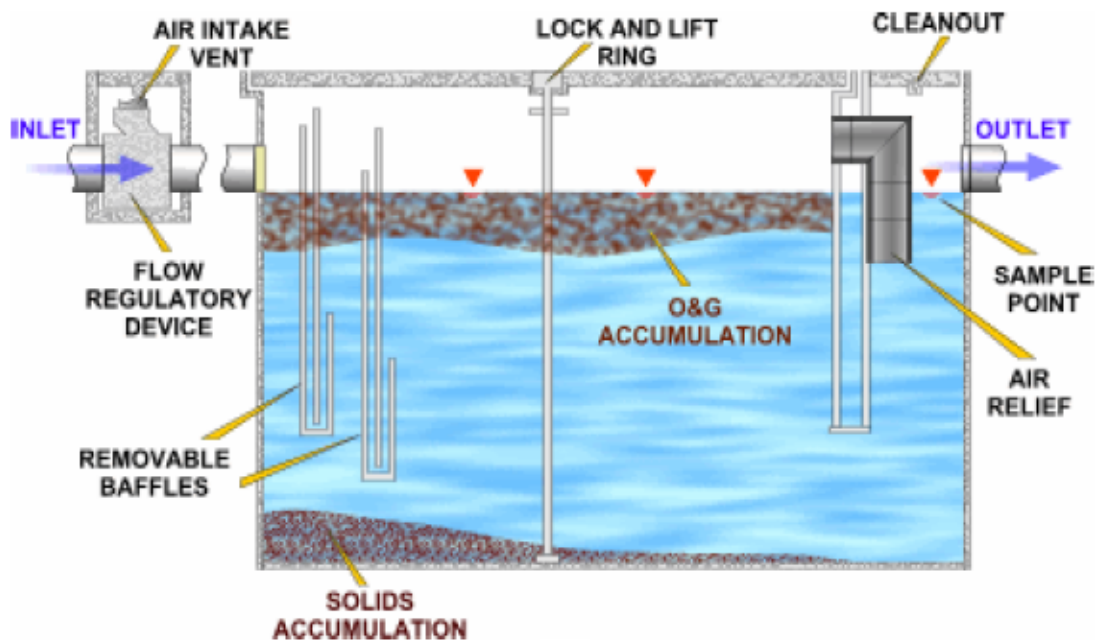
Maintenance staff or other employees of the establishment usually perform grease trap maintenance. Facilities with grease traps must clean their traps weekly at a minimum. When performed properly and at the appropriate frequency, grease trap maintenance can greatly reduce the discharge of fats, oils and grease

to the wastewater collection system. In many cases, establishments that implements BMP's will realize financial benefit through a reduction in their required grease trap maintenance frequency.

### **Maintenance Instructions:**

1. Bail out any water in the trap to facilitate cleaning. The water should be discharged to the wastewater collection system.
2. Remove baffles if possible.
3. Dip the accumulated grease out of the trap and place in a watertight container.
4. Scrape the sides, lid, and the baffles with a putty knife to remove as much of the grease and solids as possible. Deposit the waste material in a watertight container.
5. Contact a hauler or recycler for grease pick-up or dispose of through solid waste procedures.
6. Replace the baffles and lid.
7. Record maintenance in maintenance log and include the following:
  - (a) Date of maintenance
  - (b) Person performing maintenance
  - (c) Estimated volume of grease removed
  - (d) Disposal location
  - (e) Manager's signature or initials for verification

### **Typical Grease Trap Design**



**WARNING!** Do not use hot water, acids, solvents, caustics or emulsifying agents when cleaning a grease trap.

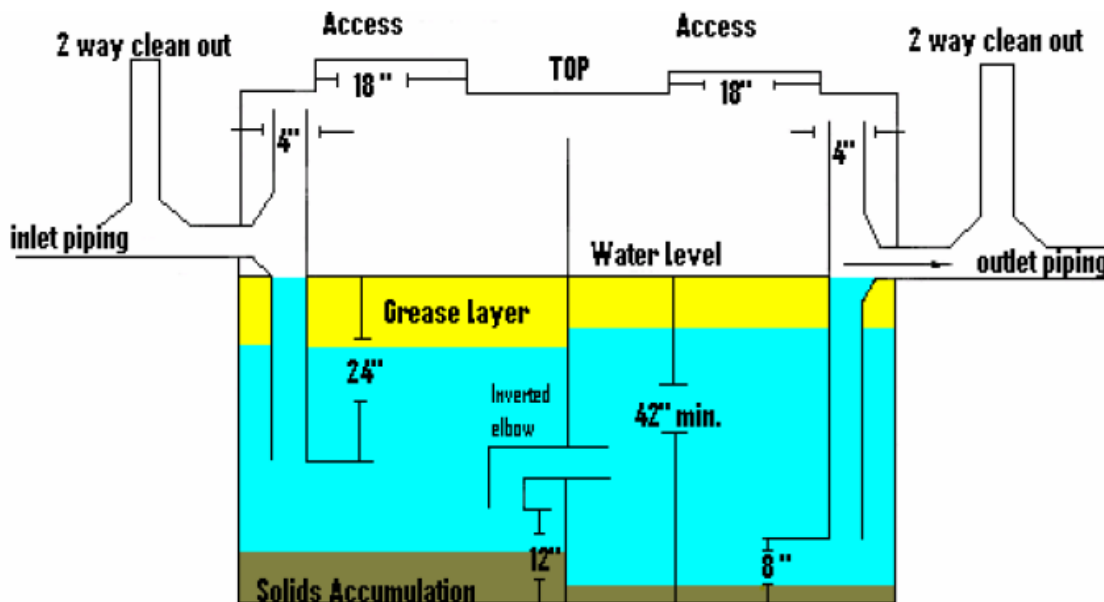
## Grease Interceptor Maintenance

Grease interceptor maintenance is usually performed by a permitted wastehauler/grease pumper. The wastehauler will empty the entire contents of the interceptor with a pumper truck and haul the grease and sludge to an approved disposal facility. The FOG Ordinance requires that grease interceptors be cleaned a minimum of once per month. Facilities with high grease loading may need to clean their interceptors more often. When performed properly and at the appropriate frequency, grease interceptor maintenance can greatly reduce the discharge of fats, oils and grease to the wastewater collection system. In many cases, an establishment that implements BMP's will realize financial benefit through a reduction in their required grease interceptor maintenance frequency.

### Maintenance Instructions:

1. Contact a grease wastehauler or recycler for cleaning.
2. Record maintenance in maintenance log and include the following:
  - (a) Date of maintenance
  - (b) Person performing maintenance
  - (c) Estimated volume of grease removed
  - (d) Disposal location
  - (e) Manager's signature or initials for verification
3. Retain receipt or manifest from wastehauler or recycler.

## Typical Grease Interceptor Design



**WARNING!** Do not use hot water, acids, solvents, caustics or emulsifying agents when cleaning a grease interceptor.

## Frequently Asked Questions

### **How often must I clean my grease trap or interceptor?**

Grease traps must be opened and cleaned out at a minimum frequency of **ONCE A WEEK** and you must document the cleaning process in a bound logbook. Grease interceptors must be pumped-out and cleaned by a permitted wastehauler at least **ONCE PER MONTH**. You are responsible for all costs related to the maintenance of your grease trap or interceptor.

### **How often will my facility be inspected?**

As often as necessary to ensure proper maintenance is being applied to all grease pretreatment systems and their structural integrity is intact. You may or may not be informed ahead of time when an inspection is scheduled. Failure to allow duly authorized inspector access to the premises at reasonable times to conduct an inspection is a violation of the ordinance.

### **What will the inspector look for and do?**

The inspector will look at all equipment and food processing and storage areas paying special attention to the processes that produce wastewater which is discharged from the facility through the grease removal device. The inspector will also open and inspect the grease trap or interceptor and request to see all records pertaining to the maintenance and repair of the device. He will ask questions to ascertain whether procedures outlined in the “Best Management Practices” manual have been implemented. Any deficiencies will be noted by the inspector and you will receive a written Notice of Violation together with a schedule for correcting the deficiencies and a re-inspection date.

### **What records do I need to keep?**

You are required to keep the following records:

1. A bound logbook in which a written record of all trap or interceptor maintenance is entered including dates, details of pump-outs or cleaning, details of repairs and any other pertinent records;
2. A written protocol for cleaning the grease trap;
3. A file containing copies of the plumbing system schematics and all invoices, bills, etc. related to the maintenance of the grease trap or interceptor. An inspector will ask to see these documents during an inspection.

### **Do I have to file any reports?**

No Reports for grease interceptor service or repairs is currently required.