oregon association of CLEAN WATER agencies

Fats, Oil, and Grease Best Management Practices Manual

Pollution Prevention and Compliance Information for Publicly-Owned Treatment Plants

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The information in this manual can also be found at the Oregon Association of Clean Water Agencies website at:
http://www.oracwa.org

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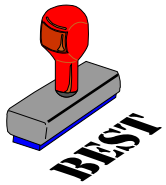
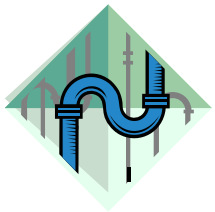




Chapter 1
Introduction

Fats, oil, and grease, also called FOG in the wastewater business, can have negative impacts on wastewater collection and treatment systems. Most wastewater collection system blockages can be traced to FOG. Blockages in the wastewater collection system are serious, causing sewage spills, manhole overflows, or sewage backups in homes and businesses.

Two types of FOG pollutants are common to wastewater systems. Petroleum-based oil and grease (non-polar concentrations) occur at businesses using oil and grease, and can usually be identified and regulated by municipalities through local limits and associated pretreatment permit conditions. Animal and vegetable-based oil and grease (polar concentrations) are more difficult to regulate due to the large number of restaurants and fast-food outlets in every community.

This manual is written to provide municipal pretreatment staff, along with restaurant and fast food business managers and owners, with information about animal and vegetable-based oil and grease pollution prevention techniques focused on their businesses, effective in both reducing maintenance costs for business owners, and preventing oil and grease discharges to the sewer system.

Many of the nation□ s fast-food restaurant chains participate in FOG recycling programs. Ensuring that grease trap and grease interceptors are properly installed□ and most importantly, properly maintained□ is more difficult.

This manual focuses on proper maintenance of grease traps and interceptors, and includes inspection checklists for municipal pretreatment inspectors.

Manual contents include:

- Frequently Asked Questions about Fats, Oil, and Grease
- Best Management Practices (BMPs)
- Prohibitions Relating to Discharge of Fats, Oil, and Grease
- Grease Trap and Interceptor Maintenance
- Fats, Oil, and Grease Haulers and Recyclers
- How Grease Traps and Interceptors Work
- Compliance Inspection and Installation Checklists

Knowledgeable municipal pretreatment staff, working with business owners, can effectively prevent oil and grease buildup, and associated problems, for both the sewerage agency and the restaurant owner.

Chapter 2
Frequently Asked Questions about Fats, Oil, and Grease

Is grease a problem?

In the sewage collection and treatment business, the answer is an emphatic YES! Grease is singled out for special attention because of its poor solubility in water and its tendency to separate from the liquid solution.

Large amounts of oil and grease in the wastewater cause trouble in the collection system pipes. It 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.

Grease in a warm liquid may not appear harmful. But, as the liquid cools, the grease or fat congeals and causes nauseous mats on the surface of settling tanks, digesters, and the interior of pipes and other surfaces which may cause a shutdown of wastewater treatment units.

The information in this chapter is courtesy of Clean Water Services.

Problems caused by wastes from restaurants and other grease-producing establishments have served as the basis for ordinances and regulations governing the discharge of grease materials to the sanitary sewer system. This type of waste has forced the requirement of the installation of preliminary treatment facilities, commonly known as grease traps or interceptors.

What is a grease trap and how does it work?

A trap is a small reservoir built into the wastewater piping a short distance from the grease producing area. Baffles in the reservoir retain the wastewater long enough for the grease to congeal and rise to the surface. The grease can then be removed and disposed properly. See *How Grease Traps and Interceptors Work* for a description of how the various components of a grease trap function.

What is a grease interceptor?

An interceptor is a vault with a minimum capacity of between 500 and 750 gallons that is located on the exterior of the building. The vault includes a minimum of two compartments, and flow between each compartment is through a 90-degree fitting designed for grease retention. The capacity of the interceptor provides adequate residence time so that the wastewater has time to cool, allowing any remaining grease not collected by the traps time to congeal and rise to the surface where it accumulates until the interceptor is cleaned. See *How Grease Traps and Interceptors Work* for a description of how the various components of a grease interceptor function.

How do I clean my grease trap?

Refer to *Maintenance of Grease Traps and Interceptors.*

Can you recommend a grease interceptor maintenance schedule?

All grease interceptors should be cleaned at least twice each year. Some establishments will find it necessary to clean their traps more often than twice per month. If the establishment is having to clean it too often, the owner should consider installing a larger trap or interceptor.

Do I have a grease trap?

If the establishment is uncertain whether it has a grease trap, the owner should contact the local sewer agency for the community served.

Do I need a grease trap?

Any establishment that introduces grease or oil into the drainage and sewage system in quantities large enough to cause line blockages or hinder sewage treatment is required to install a grease trap or interceptor. Interceptors are usually required for high volume restaurants (full menu establishments operating 16 hours per day and/or serving 500+ meals per day) and large commercial establishments such as hotels, hospitals, factories, or school kitchens. Grease traps are required for small volume (fast food or take-out restaurants with limited menus, minimum dishwashing, and/or minimal seating capacity) and medium volume (full menu establishments operating 8 to 16 hours per day and/or serving 100 to 400 meals per day) establishments. Medium volume establishments may be required to install an interceptor depending upon the size of the establishment.

Is the grease trap I have adequate?

The Uniform Plumbing Code (UPC) requires that no grease trap have a capacity less than 20 gallons per minute (gpm) or more than 55 gpm. The size of the trap depends upon the number of fixtures connected to it. The following table provides criteria for sizing grease traps:

Total number of fixtures connected	Required rate of flow, gpm	Grease retention capacity, lbs
1	20	40
2	25	50
3	35	70
4	50	100

The size will also depend largely upon the maintenance schedule. If a grease trap or interceptor is not maintained regularly it will not provide the necessary grease removal. The establishment should work out a specific cleaning schedule that is right for the establishment. All grease traps need to have the grease cleaned out periodically and no one likes to do the job. It is a dirty job. Running extremely hot water down the drain only moves the problem down stream. It does not go away. Catch the grease at the source! This is the most economical means to reduce all costs.

What if I don□t install a grease trap?

If the establishment uses grease and oil in food preparation, it will eventually encounter a maintenance problem with a plugged building sewer line. The blockage can create a sewer backup situation and ultimately a potential health problem in the establishment. Someone will have to pay for removing the blockage. If the problem is in the building sewer line, then the establishment has direct responsibility for paying for the maintenance. If the blockage or restriction is in the public sewer main and it can be proven that the establishment is the cause of the blockage, then the establishment may have to pay for the public sewer to be maintained. Blocking a sanitary sewer line is also a violation of the federal Clean Water Act.

Who determines if I need a grease trap or interceptor?

When waste pretreatment is required by the Administrative Authority, an approved grease trap or interceptor shall be installed according to the UPC. The rules of the Health Department and your municipal sanitary sewer agency will also assist the establishment in determining if a grease trap or interceptor is required. All administrative authorities prohibit the discharge of materials that can solidify and create blockages in the wastewater collection system or treatment plants. The Health Department makes periodic inspections to see that no health problems exist due to improperly maintained grease interceptors. These rules will be enforced if a problem exists.

How can I get in compliance?

The establishment should contact its local jurisdiction. The establishment will be asked to purchase a permit for the grease trap. This will enable the proper jurisdiction to assist the establishment in cleaning schedules and advise them of a problem showing up in the wastewater collection system. A grease interceptor permit is required regardless of whether the establishment has an existing trap or is installing a new one.

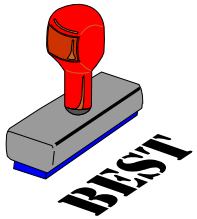
What are the criteria for inspecting grease traps?

All food service establishments suspected of causing problems to the collection system or treatment facilities will be inspected. Some agencies use the following criteria to inspect grease traps:

Percent of trap filled	Trap condition
25	Good
25–50	Fair
>50	Poor

If the trap is in fair condition, the establishment should be advised to keep an eye on the maintenance schedule. The cleaning frequency may

need to be increased. If the trap is in poor condition, the establishment should be issued a compliance order to have it cleaned immediately. The establishment should then be required to contact the issuing authority within 30 days to verify that the grease interceptor has been properly cleaned.



Chapter 3
Best Management Practices (BMPs)

Fats, oil, and grease can be managed effectively in the food service industry to minimize adverse impacts on municipal wastewater systems and the environment. Municipal pretreatment staff and food service industry workers have developed BMPs that, when implemented, will minimize the adverse impacts of FOG. This chapter summarizes these BMPs, and other important information, including the reason for BMPs, the benefit of BMPs to the food service industry, and inspection tips for municipal pretreatment staff to determine if the BMPs are being implemented.

Train kitchen staff

BMP	Train kitchen staff and other employees about how they can help ensure BMPs are implemented.
Reason For	People are more willing to support an effort if they understand the basis for it.
Benefit to food service establishment	All of the subsequent benefits of BMPs will have a better chance of being implemented.
Pretreatment inspection tips	Talk to the establishment manager about the training program that he/she has implemented.

Post “No Grease” signs

BMP	Post □ No Grease□ signs above sinks and on the front of dishwashers.
Reason For	Signs serve as a constant reminder for staff working in kitchens.
Benefit to food service establishment	These reminders will help minimize grease discharge to the traps and interceptors and reduce the cost of cleaning and disposal.
Pretreatment inspection tips	Check appropriate locations for □ No Grease□ signs.

Use water temperatures less than 140° F

BMP	Use water temperatures less than 140□ F in all sinks, especially the pre-rinse sink before the mechanical dishwasher. The mechanical dishwasher requires a minimum temperature of 160□ F, but the UPC prohibits discharging the dishwasher to grease traps.
Reason For	Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal or solidify in the sanitary sewer system as the water cools.
Benefit to food service establishment	The food service establishment will reduce its costs for the energy□ gas or electric□ for heating the water.
Pretreatment inspection tips	Check boiler or hot water heater discharge temperature. Measure the temperature of the hot water being discharged from the closest sink.

Use a three-sink dishwashing system

BMP	Use a three-sink dishwashing system, which includes sinks for washing, rinsing, and sanitizing in a 50 to 100 ppm bleach solution. Water temperatures are less than 140° F.
Reason For	The three-sink system uses water temperatures less than 140° F where a mechanical dishwasher requires a minimum temperature of 160° F. Note: The UPC prohibits the discharge of dishwasher water to grease traps.
Benefit to food service establishment	The food service establishment will reduce its costs for the energy □ gas or electric □ for heating the water for the mechanical dishwasher and for operating the dishwasher.
Pretreatment inspection tips	Measure the temperature of the hot water at the three-sink system.

Recycle waste cooking oil

BMP	Recycle waste cooking oil.
Reason For	There are many waste oil recyclers throughout Oregon. This is a cost recovery opportunity.
Benefit to food service establishment	The food service establishment will be paid for the waste material and will reduce the amount of garbage it must pay to have hauled away.
Pretreatment inspection tips	Obtain the name of the recycler used. Review recycling records. Confirm records with the recycler.

“Dry wipe” pots, pans, and dishware prior to dishwashing

BMP	□ Dry wipe□ pots, pans, and dishware prior to dishwashing.
Reason For	The grease and food that remains in pots, pans, and dishware will likely go to the landfill. By □ dry wiping□ and disposing in garbage receptacles, the material will not be sent to the grease traps and interceptors.
Benefit to food service establishment	This will reduce the amount of material going to grease traps and interceptors, which will require less frequent cleaning, reducing maintenance costs.
Pretreatment inspection tips	Observe dishwashing practices.

Dispose of food waste by recycling and/or solid waste removal

BMP	Dispose of food waste by recycling and/or solid waste removal.
Reason For	Some recyclers will take food waste for animal feed. In the absence of such recyclers, the food waste can be disposed as solid waste in landfills by solid waste haulers.
Benefit to food service establishment	Recycling food wastes will reduce the cost of solid waste disposal. Solid waste disposal of food waste will reduce the frequency and cost of grease trap and interceptor cleaning.
Pretreatment inspection tips	Inspect grease traps and interceptors for food waste accumulation. Confirm the recycler or solid waste removal company with the establishment manager.

Witness all grease trap or interceptor cleaning and maintenance

BMP	Witness all grease trap or interceptor cleaning and maintenance activities to ensure that the device is properly operating.
Reason For	Grease trap/interceptor haulers and recyclers may take shortcuts. If the establishment manager inspects the cleaning operation and ensures it is consistent with the procedures in *Grease Trap and Interceptor Maintenance* they are more assured of getting full value for their money.
Benefit to food service establishment	The establishment will ensure it is getting value for the cost of cleaning the grease trap or interceptor. Otherwise the establishment may be paying for cleaning more often than necessary.
Pretreatment inspection tips	None.

Clean undersink grease traps weekly

BMP	Clean undersink grease traps weekly. If grease traps are more than 50 percent full when cleaned weekly, the cleaning frequency needs to be increased.
Reason For	Undersink grease traps have less volume than grease interceptors. Weekly cleaning of undersink grease traps by the establishment□ s own maintenance staff will reduce the cost of cleaning the grease interceptor. If the establishment does not have a grease interceptor, the undersink grease trap is the only means of preventing grease from entering the sanitary sewer system. If the grease trap is not providing adequate protection, the local sewer agency may require installation of a grease interceptor.
Benefit to food service establishment	This will extend the length of the cleaning cycle for grease interceptors that the establishment maintains.
Pretreatment inspection tips	Visually inspect the contents of the undersink grease trap. Inspect cleaning records.

Clean grease interceptors routinely

BMP	Clean grease interceptors routinely.
Reason For	Grease interceptors must be cleaned routinely to ensure that grease accumulation does not cause the interceptor to operate poorly. The cleaning frequency is a function of the type of establishment, the size of the interceptor, and the volume of flow discharged by the establishment.
Benefit to food service establishment	Routine cleaning will prevent plugging of the sewer line between the food service establishment and the sanitary sewer system. If the line plugs, the sewer line may back up into the establishment, and the business will need to hire someone to unplug it.
Pretreatment inspection tips	Interceptor should have no more than 1/3 the depth as grease, **AND** Interceptor should have no more than 1/4 the depth as sediment, **AND** No more than 25 percent of the depth should be a combination of grease (top) and sediment (bottom).

Keep a maintenance log

BMP	Keep a maintenance log.
Reason For	The maintenance log serves as a record of the frequency and volume of cleaning the interceptor. It is required by the pretreatment program to ensure that grease trap/interceptor maintenance is performed on a regular basis.
Benefit to food service establishment	The maintenance log serves as a record of cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce cost.
Pretreatment inspection tips	Inspect maintenance log. Provide the establishment with a sample maintenance log if it does not have one. Confirm the maintenance log with the grease hauler identified.

Cover outdoor grease and oil storage containers

BMP	Cover outdoor grease and oil storage containers. Some local jurisdictions will have BMPs in place for stormwater also.
Reason For	Uncovered grease and oil storage containers can collect rainwater. Since grease and oil float, the rainwater can cause an overflow onto the ground. Such an overflow will eventually reach the stormwater system and nearby streams.
Benefit to food service establishment	The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.
Pretreatment inspection tips	Observe storage area for signs of oil and grease. Inspect containers for covers. Remove covers to ensure containers have not overflowed and do not have excess water.

Locate grease dumpsters and storage containers away from storm drain catch basins

BMP	Locate grease dumpsters and storage containers away from storm drain catch basins.
Reason For	The farther away from the catch basin, the more time someone has to clean up spills or drainage prior to entering the storm drain system. Be aware of oil and grease dripped on the ground while carrying waste to the dumpster, as well as oil and grease that may □ooze□ from the dumpster.
Benefit to food service establishment	The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.
Pretreatment inspection tips	Observe storage area for signs of oil and grease. Inspect the closest catch basin for signs of accumulated grease and oil.

Use absorbent pads or other material in storm drain catch basins

BMP	Use absorbent pads or other material in the storm drain catch basins if grease dumpsters and containers must be located nearby. Do not use free flowing absorbent materials such as □ kitty litter□ or sawdust.
Reason For	Absorbent pads and other materials can serve as an effective barrier to grease and oil entering the storm drain system.
Benefit to food service establishment	The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Also, discharge of grease and oil to the storm drain may result in legal penalties or fines.
Pretreatment inspection tips	Check the nearest catch basin and drainage paths for signs of grease and oil. Require absorbent pads if the basin is within 20 feet of grease dumpsters or containers, or if there are signs of grease in the catch basin at any distance. Do not permit the use of free flowing absorbent material such as □ kitty litter.□

Use absorbent pads or other material to clean up spilled material

BMP	Use absorbent pads or other material to clean up spilled material around outdoor equipment, containers or dumpsters. Do not use free flowing absorbent materials such as □ kitty litter□ or sawdust that can be discharged to the storm drain.
Reason For	Absorbent pads or materials can help clean up grease and oil that is spilled on the ground and prevent it from flowing to the storm drain system.
Benefit to food service establishment	The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.
Pretreatment inspection tips	If grease and oil are observed on the ground in the storage area, recommend the use of absorbents to minimize

movement of the grease and oil.

Do not permit the use of free flowing absorbent material such as □ kitty litter.□

Routinely clean kitchen exhaust system filters

BMP	Routinely clean kitchen exhaust system filters.
Reason For	If grease and oil escape through the kitchen exhaust system, it can accumulate on the roof of the establishment and eventually enter the storm drain system when it rains.
Benefit to food service establishment	The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.
Pretreatment inspection tips	Inspect roof (if safely accessible) for signs of oil and grease. Require a maintenance schedule and records for cleaning exhaust filters. Cleaning is usually by washing, which will discharge the grease to the interceptor where it can be controlled.

Chapter 4
Prohibitions Relating to Discharge of Fats, Oil, and Grease

Certain activities relating to discharge of fats, oil, and grease are prohibited. These activities, if allowed, would interfere with the proper operation of grease traps and interceptors and potentially have an immediate, negative effect on the municipal wastewater system or the environment. This chapter provides a list of prohibited activities and the basis for each prohibition.

Prohibitions	Basis
Do not discharge fats, oil, and grease in concentrations that will cause an obstruction to the flow in a sewer, or pass through or cause interference at a wastewater treatment facility.	Grease can solidify and trap other solid particles to completely plug the wastewater collection system.
Do not discharge grease, improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshings, or entrails.	These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
Do not discharge wastewater with temperatures in excess of 140° F to any grease traps. This includes water from mechanical dishwashers that have a minimum required temperature of 160° F.	Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools. Note: High temperature water, such as from a dishwasher, is discharged to the remotely-located grease interceptor, if there is one. The remote location and the high volume of the interceptor allows the water time to cool so that there is not a problem with dissolving grease and moving it further downstream. The high volume also provides dilution of the detergents in the dishwasher waste.
Do not discharge waste from a food waste disposal unit to any grease traps.	The food waste will greatly reduce the capacity of the grease trap for retaining grease and can cause worse problems with blockages.

Prohibitions	Basis
Do not discharge caustics, acids, solvents, or other emulsifying agents.	Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
Do not discharge fats, wax, grease or oils containing substances that will become viscous between 32° F (0°C) and 150°F (65°C).	The temperatures shown are temperatures that can occur in the wastewater collection and treatment system. If these substances congeal, solidify, or become too viscous, they can cause blockages and other operations and maintenance problems.
Do not utilize biological agents for grease remediation without permission from the sewerage agency receiving the waste.	The biological agents may disrupt the biological treatment process at the wastewater treatment plant.
Do not clean equipment outdoors in an area where water can flow to the gutter, storm drain, or street.	Grease and dirt will be washed off the equipment and enter the storm drain system and flow to nearby streams.

Chapter 5
Grease Trap and Interceptor Maintenance

The grease traps and interceptors used by food service establishments must be cleaned on a regular basis to ensure that they work properly. Regular cleaning of grease traps and interceptors can improve their efficiency and effectiveness. This chapter describes step-by-step maintenance actions that can be used to clean these devices.

Grease trap maintenance is usually performed by maintenance staff, or other employees. Grease interceptor (GI) maintenance, which is usually performed by permitted haulers or recyclers (See *Fats, Oil, and Grease Haulers and Recyclers*), consists of removing the entire volume (liquids and solids) from the GI and properly disposing of the material in accordance with all Federal, State, and/or local laws. When performed properly and at the appropriate frequency, GI and trap maintenance can greatly reduce the discharge of FOG into the wastewater collection system.

The required maintenance frequency for GIs and traps depends greatly on the amount of FOG a facility generates as well as any BMPs implemented to reduce the FOG discharged into the sanitary sewer system. In many cases, an establishment that implements

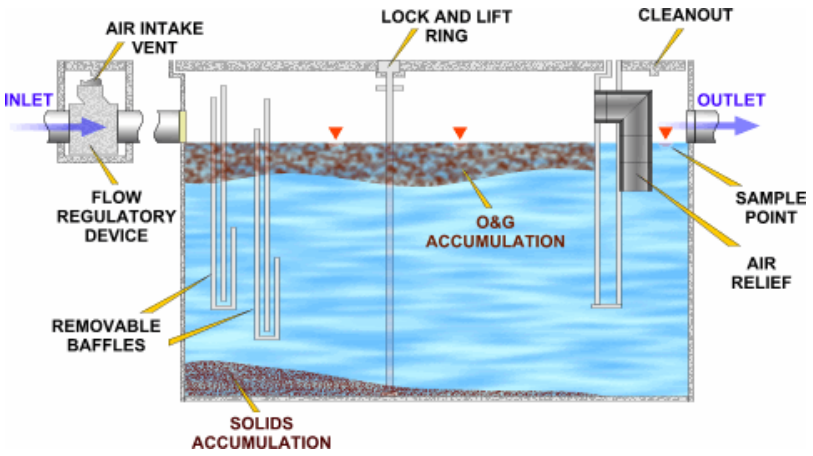
BMPs will realize financial benefit through a reduction in their required GI and trap maintenance frequency. Refer to *Best Management Practices* for examples of BMPs that FOG generating establishments should implement.

WARNING!

Do not use hot water, acids, caustics, solvents, or emulsifying agents when cleaning grease traps and interceptors.

Grease Trap Maintenance

A proper maintenance procedure for a grease trap is outlined on the following page:

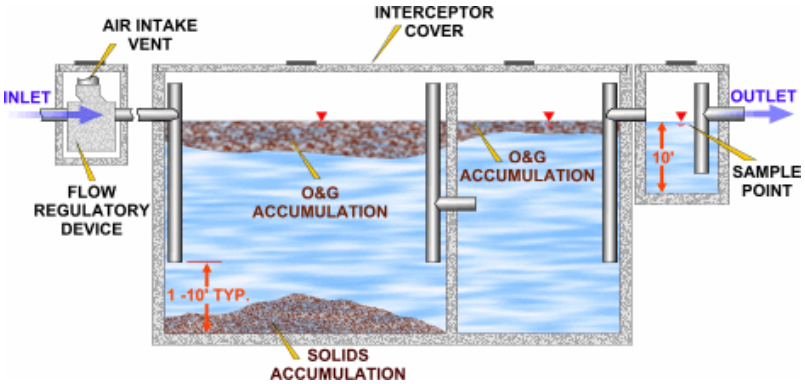


Step	Action
1.	Bail out any water in the trap or interceptor to facilitate cleaning. The water should be discharged to the sanitary sewer system.
2.	Remove baffles if possible.
3.	Dip the accumulated grease out of the interceptor and deposit in a watertight container.
4.	Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible, and deposit the grease into a watertight container.
5.	Contact a recycler for grease pick-up.
6.	Replace the baffle and the lid.
7.	Record the volume of grease removed on the maintenance log.

Grease Interceptor Maintenance

Grease interceptors, due to their size, will usually be cleaned by grease haulers or recyclers. Licensed septic haulers can also pump out grease interceptors and haul the waste to the treatment plant. The hauler must notify DEQ when hauling grease. A proper maintenance procedure for a grease interceptor is outlined below:

NOTE: Since the establishment is liable for the condition of their pretreatment devices, the establishment owners/representatives should witness all cleaning/maintenance activities to verify that the interceptor is being fully cleaned and properly maintained.



Step	Action
1.	Contact a grease hauler or recycler for cleaning. See *Fats, Oil, and Grease Haulers and Recyclers*.
2.	Ensure that all flow is stopped to the interceptor by shutting the isolation valve in the inlet piping to the interceptor.
3.	Remove the lid and bail out any water in the trap or interceptor to facilitate cleaning. The water should be discharged to the sanitary sewer system.
4.	Remove baffles if possible.
5.	Dip the accumulated grease out of the interceptor and deposit in a watertight container.
6.	Pump out the settled solids and then the remaining liquids.
7.	Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible, and deposit the grease into a watertight container.
8.	Replace the baffle and the lid.
9.	Record the volume of grease removed on the maintenance log.

Grease Interceptor Cleaning Record Verification Form

Facility Name: _____

Address: _____

Service Company used: _____

Date	Cleaned by	Witnessed by	Gallons pumped	Grease disposal site	Remarks

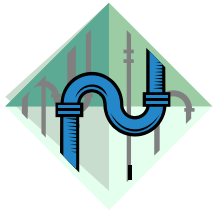
Chapter 6
Fats, Oil, and Grease Haulers and Recyclers

Regular cleaning of grease traps and interceptors requires that the accumulated fats, oil, and grease be physically removed from the trap or interceptor and properly disposed or recycled. This chapter provides a list of FOG hauling and recycling businesses that serve Oregon and Southwest Washington. Phone numbers and acceptance criteria are provided for each business.

NOTE: DEQ licensed septic haulers not included on this list can also pump out grease traps and interceptors and haul the waste to a wastewater treatment plant. The hauler must submit a written request to the appropriate regional DEQ office for every new site that they wish to haul from and the DEQ region will approve this action by letter.

Hauler/recycler and location	Phone number	Acceptance criteria
Eastern Oregon		
Darling International Kuna, ID	208/344-8318	Picks up and recycles cooking oil. Provides storage container for oil.
Redmond Tallow Co. Redmond, OR	541/548-4343	Picks up and recycles cooking oil. Provides storage container for oil.
Mid-Willamette Valley		
Eugene Chemical and Rendering Works Harrisburg, OR	541/995-6025 800/944-0295	Picks up and recycles cooking oil. Provides storage container for oil. Can pick up and process some grease trap waste. Does not accept GI waste.
South Coast Hide & Tallow Coquille, OR	541/396-4967	Picks up and recycles cooking oil. Provides storage container for oil.
Southern Oregon		
Clearwater CO-OP Grants Pass, OR	541/476-3654	Accepts grease trap and interceptor waste from haulers. Has own treatment system.
Southern Oregon Tallow Co. Central Point, OR	541/826-3141	Pumps out grease traps and interceptors. Picks up and recycles cooking oil. Provides dumpster for oil.
South Coast Hide & Tallow Coquille, OR	541/396-4967	Picks up and recycles cooking oil. Provides storage container for oil.
Southwest Washington		
Colson□s Rendering, Inc. Vancouver, WA	360/892-3247 503/793-1467	Picks up and recycles cooking oil.

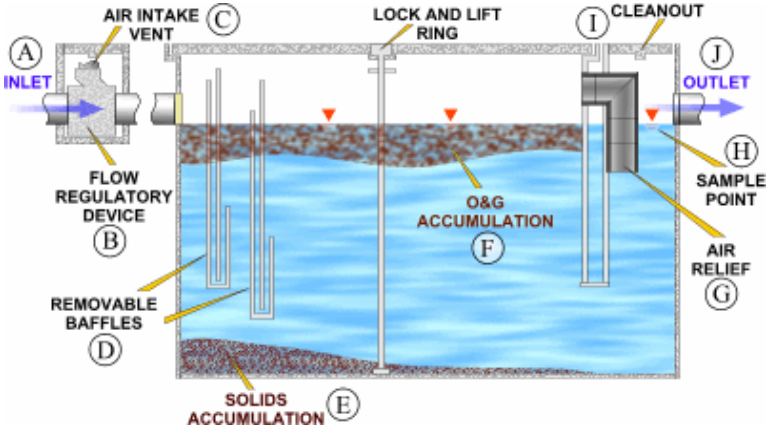
Hauler/recycler and location	Phone number	Acceptance criteria
Portland Metropolitan Area		
AllPump Sanitation Services Portland, OR	503/285-5838	Pumps out grease traps and interceptors
ABCO Sanitation Services Oregon City, OR	503/657-0219	Pumps out grease traps and interceptors.
Area Recyclers (Division of Baker Commodities) Portland, OR	503/240-4440	Pumps out grease traps and interceptors. Picks up waste cooking fats, oils, and grease.
Baker Commodities, Inc Portland, OR	503/289-1221 503/283-5372 800/743-5947	Pumps out grease traps and interceptors and treats waste in own treatment system. Picks up and recycles cooking oil. Provides storage containers for oil.
Colson□s Rendering, Inc. Vancouver, WA	360/892-3247 503/793-1467	Picks up and recycles cooking oil.
Darling International/ Portland Rendering Co. Portland, OR	503/289-1102 800/328-1101	Pumps out grease interceptors. Picks up and recycles cooking oil. Provides storage containers for oil.
Makk Systems Tigard, OR	503/624-0623	Pumps out grease traps and interceptors. Processes waste in own treatment system.
Oregon Oils Portland, OR	503/233-0818	Pumps out grease traps and interceptors. Picks up and recycles cooking oil. Provides storage containers for oil.
River City Environmental Portland, OR	503/252-6144	Pumps out grease traps and interceptors. Picks up and recycles cooking oil. Provides storage containers for oil.



Chapter 7
How Grease Traps and Interceptors Work

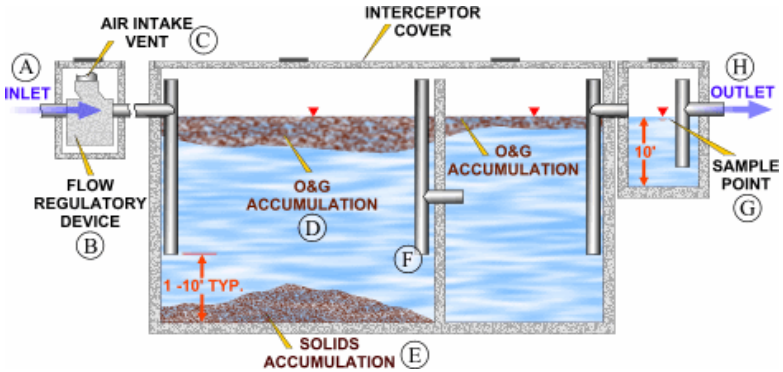
This chapter explains how grease traps and interceptors work. Understanding how treatment devices work improves operation and maintenance. The chapter uses a graphic of each device, with a description keyed to each element of the graphic. The description is designed to follow the flow of wastewater through the grease trap or interceptor.

Grease Traps

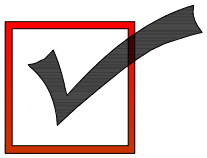


Item	Description
A	Flow from four or fewer kitchen fixtures enters the grease trap.
B	An approved flow control or restricting device is installed to restrict flow to the grease trap to the rated capacity of the trap.
C	An air intake valve allows air into the open space of the grease trap to prevent siphonage and back-pressure.
D	Baffles help to retain grease toward the upstream end of the trap since grease floats and will generally not go under the baffle. This helps to prevent grease from leaving the trap and moving further downstream where it can create blockages.
E	Solids in the wastewater that do not float will be deposited on the bottom of the grease trap and will need to be removed during routine grease trap cleaning.
F	Oil and grease floats on the water surface and accumulates behind the baffles. The oil and grease will be removed during routine grease trap cleaning.
G	Air relief is provided to maintain proper air circulation within the grease trap.
H	Some grease traps have a sample point at the outlet end of the trap to sample the quality of the grease trap effluent.
I	A cleanout is provided at the outlet or just downstream of the outlet to provide access into the pipe to remove any blockages.
J	The water exits the grease trap through the outlet pipe and continues on to the grease interceptor or the sanitary sewer system.

Grease Interceptors (GIs)



Item	Description
A	Flow from undersink grease traps or directly from plumbing fixtures enters the GI. The UPC requires that all flow entering the interceptor enter through the inlet pipe.
B	An approved flow control or restricting device is installed to restrict the flow to the GI to the rated capacity of the interceptor.
C	An air intake valve allows air into the open space of the GI to prevent siphonage and back-pressure.
D	Oil and grease floats on the water surface and accumulates behind the grease retaining fittings and the wall separating the compartments. The oil and grease will be removed during routine GI cleaning.
E	Solids in the wastewater that do not float will be deposited on the bottom of the GI and will need to be removed during routine interceptor cleaning.
F	Grease retaining fittings extend down into the water to within 12 inches of the bottom of the interceptor. Because grease floats, it generally does not enter the fitting and is not carried into the next compartment. The fittings also extend above the water surface to provide air relief.
G	Some interceptors have a sample box so that inspectors or employees of the establishment can periodically take effluent samples. Having a sample box is recommended by the UPC but not required.
H	Flow exits the interceptor through the outlet pipe and continues on to the sanitary sewer system.



Chapter 8
Compliance Inspection and Installation Checklists

A role of municipal pretreatment staff is to determine compliance with ordinances, regulations, or BMPs designed to protect wastewater systems and the environment. This chapter provides checklists for pretreatment staff to use when visiting food service establishments. Two checklists are provided:

- Compliance inspection
- Installation

Each checklist can be used as a reminder during site visits and as file documentation for compliance of each establishment inspected.

Inspection Checklist

Form Instructions:

1. Completely fill out general information.

2. For items that require some measurement of field data, the inspector should obtain the necessary data or information and record it under the column titled, □ Field Data.□

3. For all items marked in violation, note the fact that the establishment contact was notified of the violation and the contact's response.

Inspector:_____

Signature:_____

Date:_____

Time Inspection Started:_____

Time Inspection Completed:_____

Establishment:_____

Address:_____

Contact Name:_____

Phone:_____

Inspection Checklist (continued)

No.	Item description	Field data (as appropriate)	Compliance status[1]
1.	The establishment has implemented a training program to ensure that the BMPs are followed.		
2.	□ No Grease□ signs are posted in appropriate locations.		
3.	The establishment recycles waste cooking oil and can provide records of this.		
4.	Water temperatures at all sinks, especially the pre-rinse sink before the mechanical dishwasher or the sinks in the three-sink system are less than 140° F. Measure and record temperature.		
5.	The establishment □ dry wipes□ pots, pans, and dishware prior to rinsing and washing.		
6.	Food waste is disposed of by recycling or solid waste removal and is not discharged to the grease traps or interceptors.		
7.	Grease trap(s) is cleaned regularly. Note and record the frequency of cleaning.		

[1] An entry should be made for each item using the following codes:
- □ C□ □ Compliance with the item
- □ V□ □ Violation of the item (provide explanation in the notes)
- □ NA□ □ Not applicable (provide explanation in the notes)
- □ NC□ □ Not checked (provide explanation in the notes)

Inspection Checklist (continued)

No.	Item description	Field data (as appropriate)	Compliance status[1]
8.	Grease trap cleaning frequency is documented on a maintenance log (obtain a copy of the document).		
9.	GI does not contain greater than one-third the depth in grease accumulation. Estimate and record amount of grease in interceptor.		
10.	GI does not contain greater than one-quarter the depth in sediment accumulation. Estimate and record amount of sediment in interceptor if possible.		
11.	GI is cleaned and maintained regularly. Note and record the frequency of cleaning.		
12.	GI cleaning and maintenance frequency is documented on a maintenance log (obtain a copy of the document).		
13.	Outdoor grease and oil storage containers are covered and do not show signs of overflowing.		
14.	Grease and oil storage containers are protected from discharge to storm drains.		

[1] An entry should be made for each item using the following codes:

- C – Compliance with the item
- V – Violation of the item (provide explanation in the notes)
- NA – Not applicable (provide explanation in the notes)
- NC – Not checked (provide explanation in the notes)

Inspection Checklist (continued)

No.	Item description	Field data (as appropriate)	Compliance status[1]
15.	Absorbent pads or other materials (not free flowing material such as cat litter) are used to clean up any spills or leakages that could reach the storm drain.		
16.	Storm drain catch basins show no signs of grease or oil.		
17.	The roof shows no signs of grease and oil from the exhaust system.		
18.	Exhaust system filters are cleaned regularly, which is documented by cleaning records. Note and record the frequency of cleaning.		

[1] An entry should be made for each item using the following codes:

- C – Compliance with the item
- V – Violation of the item (provide explanation in the notes)
- NA – Not applicable (provide explanation in the notes)
- NC – Not checked (provide explanation in the notes)

Inspection Checklist Notes

Installation Checklist

Form Instructions:

1. Completely fill out general information.
2. For all items marked in violation, note the fact that the establishment contact was notified of the violation and the contact's response.

Inspector:_____

Signature:_____

Date:_____

Time Inspection Started:_____

Time Inspection Completed:_____

Establishment:_____

Address:_____

Contact Name:_____

Phone:_____

Installation Checklist (continued)

No.	Item description	Compliance status[1]
1.	Each grease trap serves not more than four single compartment sinks of the same depth. Grease trap is sized based upon the number of fixtures discharging to it. See *Frequently Asked Questions about Fats, Oil, and Grease*.	
2.	Grease trap has a water seal of not less than two inches in depth or the diameter of its outlet, whichever is greater.	
3.	No food waste disposal unit or dishwasher is connected to or discharges into any grease trap.	
4.	Waste from toilets and urinals does not discharge to the GI.	
5.	Waste in excess of 140° F is not discharged to any grease trap. Dishwasher with a min. temperature of 160° F is not discharged to any grease trap.	
6.	The vertical distance between the fixture outlets and grease trap weirs is as short as practical.	
7.	GI is as close as practical to the fixtures served.	
8.	Each fixture connected to a grease trap is provided with an approved type flow control or restricting device installed in a readily accessible and visible location. Devices shall be designed so that the flow through the device or devices at no time exceeds the rated capacity of the grease trap or interceptor.	
9.	Each fixture discharging into a grease trap or interceptor is individually trapped and vented in an approved manner.	
10.	Each grease trap and interceptor is properly vented to allow air circulation throughout the entire drain system.	
11.	No water jacketed grease trap or interceptor is installed.	

[1] An entry should be made for each item using the following codes:

- C – Compliance with the item
- V – Violation of the item (provide explanation in the notes)
- NA – Not applicable (provide explanation in the notes)
- NC – Not checked (provide explanation in the notes)

Installation Checklist (continued)

No.	Item description	Compliance status[1]
12.	GI is easily accessible for inspection and cleaning and access does not require the use of ladders or the removal of bulky equipment.	
13.	There is a minimum of one access point into each compartment of the interceptor and no access points are greater than 10 feet apart. Each access opening is leak-resistant and cannot slide, rotate, or flip.	
14.	Location of GI is shown on approved building plans. Drawings of interceptor are complete and show all dimensions, capacities, reinforcing and structural design calculations.	
15.	GI is not installed in any part of a building where food is handled. Location shall meet the approval of the Administrative Authority.	
16.	GI serves a single business establishment.	
17.	GI has a minimum of two compartments and 3-inch diameter fittings designed for grease retention. The compartments shall be separated by partitions or baffles that extend at least 6 inches above the water level. The inlet compartment shall be two-thirds of the total interceptor capacity and shall have a minimum liquid volume of 333 gallons. The length of the inlet compartment shall be longer than the inside width of the interceptor.	
18.	The liquid depth shall be greater than or equal to 2 feet 6 inches and less than 6 feet 0 inches.	
19.	The inlet and outlet fittings shall be a baffle tee (or similar flow device) that extends at least 4 inches above the water level to within 12 inches of the bottom of the interceptor. The outlet tee out of a sample box shall extend at least 6 inches below the water surface. Flow between the separate compartments is through a baffle tee or bend that extends down to within 12 inches of the bottom of the interceptor.	

Installation Checklist (continued)

No.	Item description	Compliance status[1]

[1] An entry should be made for each item using the following codes:
- C Compliance with the item
- V Violation of the item (provide explanation in the notes)
- NA Not applicable (provide explanation in the notes)
- NC Not checked (provide explanation in the notes)

20.	There shall be a minimum of 9 inches of open vent space above the water level to the top of the interceptor. The airspace has a minimum capacity equal to 12-1/2 percent of the interceptors liquid volume.	
21.	The GI has at least one square foot of surface area for every 45 gallons of liquid capacity.	
22.	All waste enters the interceptor through the inlet pipe.	
23.	GI cover is gastight and has a minimum opening of 20 inches in diameter.	
24.	GIs located in areas of pedestrian or vehicle travel are adequately designed to support the imposed loads. Review of structural calculations may be required to verify adequacy.	
25.	Redwood baffles are not installed in GI.	
26.	A sample box is provided on the outlet side of the GI. This is recommended and may be required by the UPC so that the administrative authority can periodically sample the effluent quality.	
27.	GI is permanently and legibly marked with the manufacturer's name of trademark, model number, UPC certification mark and registration (if product is listed by the International Association of Plumbing and Mechanical Officials), and any other markings required by law.	

[1] An entry should be made for each item using the following codes:
- C Compliance with the item
- V Violation of the item (provide explanation in the notes)
- NA Not applicable (provide explanation in the notes)
- NC Not checked (provide explanation in the notes)

Installation Checklist Notes: