FATS OIL AND GREASE BEST MANAGEMENT PRACTICES MANUAL (BMPs)

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Fats, oil and grease, called FOG in the wastewater business, have negative impacts on wastewater collection and treatment systems. A large percentage of 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.

This manual was written to provide food service establishment (FSE) managers and owners with information about animal and vegetable-based oil and grease prevention techniques that are effective in both reducing maintenance costs and preventing oil and grease discharges to the sewer system.

Many food service establishments participate in FOG recycling programs. Ensuring that “grease control devices” are properly designed, sized, installed and most importantly maintained is more difficult. This manual focuses on proper maintenance of grease control devices and includes answers to many of the commonly asked questions related to grease pretreatment.

Knowledgeable staff, working with business owners, can effectively prevent oil and grease buildup and associated problems for both the Wastewater Treatment Plant and the food service establishment owner.

If you have questions, please call the Sanford Sewerage District at 324-5313.

FREQUENTLY ASKED QUESTIONS:

Is grease a problem?

In the sewage collection and treatment business the emphatic answer is 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 water cause trouble in the collection system pipes. It decreases pipe capacity and, therefore, requires the 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 warm water may not appear harmful. But as the water cools, the grease or fat congeals on the interior of pipes and other surfaces which may cause a blockage of the sanitary sewer, and even shutdown of wastewater treatment units.

Problems caused by FOG from restaurants and other food service establishments have served as the basis for ordinances and regulations governing the discharge of grease materials to the sanitary sewer system. The discharge of FOG has forced the requirement of the installation of "**Grease Control Devices**", commonly known as grease traps, interceptors or FOG Disposal Systems.

Do I need a grease control device?

Any food service establishment that prepares foods is required to install a grease control device.

Do I have a grease control device?

If you are uncertain whether your establishment has a grease control device, you should contact the Sanford Sewerage District at 324-5313.

What is a "grease trap" and how does it work?

A grease trap is more correctly known as a hydro-mechanical interceptor, and is intended to be used as a pretreatment device to reduce loading to the "gravity grease interceptor". A grease trap is a small reservoir built into the wastewater piping leading 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 of properly. See *How A Grease Trap Works* for a description of how various components of a hydro-mechanical interceptor function.

What is a "gravity grease interceptor" and how does it work?

A gravity grease interceptor is a vault with a minimum capacity of 600 gallons. Sometimes these may be located in a building basement, but are more often located exterior to a building, in the ground. The vault includes a minimum of two compartments, and flow between each compartment is 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 hydro-mechanical trap to congeal and rise to the surface where it accumulates until the interceptor is cleaned.

What is a "FOG disposal system"?

FOG disposal systems are engineered alternatives to traps and interceptors. They are designed to remove grease from wastewater to acceptable levels.

How do I clean my grease control device?

Please refer to *Grease Control Device Maintenance*.

Can you recommend a maintenance schedule?

Best Management Practices and the National Restaurant Association recommend cleaning a (hydro-mechanical interceptor) grease trap weekly. Some establishments will find it necessary to clean their traps more often. Gravity grease interceptors should be cleaned twice annually at a minimum. **By industry standards and Best Management Practices, both types of grease interceptors, hydro-mechanical and gravity, should be cleaned when the grease layer and solids on the bottom combined exceed 25% of the unit capacity.** FOG disposal systems should be maintained according to the manufacturer's recommendations.

What if I don't install a grease control device?

Most foods contain oil or grease, even coffee additives. Additionally, if the establishment uses fats, oil or grease in food preparation, it will eventually encounter a maintenance problem with a plugged building sewer line, or will cause or contribute to the municipal sewer plugging. The blockage can create a sewer backup situation and ultimately a potential health problem in the establishment. 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 on 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 resulting in a sanitary sewer overflow is also a violation of the federal Clean Water Act, state and local law.

Who determines whether I need a grease control device?

When waste pretreatment is required by the Sanford Sewerage District, an approved grease control device shall be installed according to the Maine Uniform Plumbing Code (MUPC). The MUPC and the City of Sanford Ordinances will assist the establishment in making this determination. The Sanford Sewerage Ordinance prohibits the discharge of materials that can solidify and create blockages in the sewer system or treatment plant. The city makes periodic inspections to assure proper installation of and maintenance of grease control devices.

How can I get into compliance?

Representatives of the food service establishment shall contact the Sanford Sewerage District at 324-5313. If a grease control device is necessary or modification of the existing system is required, the establishment shall purchase a permit for the device through the Sanford Sewerage District located at 281 River Street, Springvale, ME.

What are the criteria for inspecting grease control devices?

The establishment is responsible for periodically inspecting and maintaining their grease control system at a frequency that will assure adequate protection of internal plumbing and collection systems of the Sanford Sewerage District. All food service establishments will be inspected by the Sanford Sewerage District. SSD uses the following criteria to assess the condition of both hydro-mechanical and gravity grease interceptors:

Percent of volume in device:	**<25**	**25-50**	**>50**
Condition:	**Good**	**Fair**	**Poor**

If the device is in POOR condition, the establishment will be issued a compliance order to have the device cleaned. The establishment will be required to contact the Sanford Sewerage District to provide written verification the device has been properly cleaned.

BEST MANAGEMENT PRACTICES (BMPs)

1. Kitchen Operations

- ***Train kitchen staff*** and other employees to ensure BMPs are implemented. People are more willing to support an effort if they understand the basis for it. All of the subsequent benefits of BMPs will have a better chance of being implemented.

- ***Post "No Grease" signs*** above sinks and on the front of dishwashers. Signs serve as a constant reminder for staff working in kitchens. These reminders will help minimize grease discharge to the grease control devices and reduce the cost of cleaning and disposal.

- ***Use water temperatures less than 140^{o} F*** in all sinks, especially the pre-rinse sink before the mechanical dishwasher. If water hotter than 140^{o} F enters a grease control device, the grease will liquefy and be carried out of the device into the sewer lines.

- ***Use the three-sink dishwashing system***, which includes sinks for washing, rinsing and sanitizing. Water temperature should be less than 140^{o} F (see above).

- ***Recycle waste cooking oil***. There are many waste oil recyclers throughout Maine. This is a cost recovery opportunity. The food service establishment may be paid for certain waste material and will reduce the amount of garbage it must pay to haul away.

- ***Dry wipe pots, pans, and dishware prior to dishwashing,*** disposing of wastes to solid trash. The grease and food that remains in pots, pans, and dishware will likely go to the solid waste stream. By dry wiping and disposing in garbage receptacles, the material will not be sent to the grease traps and interceptors, which will reduce the frequency of maintenance.

- ***Observe dishwashing practices.***

- ***Dispose of food waste by*** recycling and/or solid waste removal. Some recyclers will take food waste for animal feed.

  In absence of such services, food waste can be disposed as solid waste in the solid waste stream by solid waste haulers. 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 control device cleaning.

2. Properly Maintain Grease Control Devices to Prevent Discharge into the Sanitary Sewer

- ***Witness all grease control device cleaning*** and maintenance activities to ensure the device is properly operating. Make sure to use the "25%" rule to determine cleaning

frequency. Remember, if more than 25% of the capacity of the grease interceptor is taken up by the grease layer and the sludge layer combined, the device should be cleaned. Witnessing the cleaning operation will assure the establishment is getting full value for service provided.

- ***Clean grease traps weekly.*** If grease traps are more than 50% full when cleaned weekly, the cleaning frequency needs to be increased. If the trap is located too close to a hot water source, the hot water may cause the grease to liquefy and be carried out to the sewer pipes, leaving the trap "clean".

  Weekly cleaning of grease traps by the establishment staff will protect the gravity grease interceptor and reduce the frequency of maintaining the interceptor. Maintain cleaning records for a period of at least 3 years on site.

- ***Clean gravity interceptors routinely*** to ensure that grease accumulation does not cause the interceptor to operate poorly and discharge grease to the public sewer. A minimum frequency of at least twice per year is required; however, more frequent cleaning is often required to meet peak operational performance.

  The cleaning frequency is a function of the type of food prepared, the size of the interceptor, and the volume of flow discharged by the establishment.

  Routine cleaning will prevent plugging of the sewer line between the food service establishment and the sanitary sewer system. If the line plugs, sewage may back up into the establishment, leading to health consequences and operational costs.

  *Remember, the combined total of the grease layer and sludge layer should be no more than 25% of the capacity of the interceptor.

- ***Clean FOG Disposal Systems as per manufacturer recommendations.***

- ***Keep a maintenance log*** on site for at least 3 years. The maintenance log serves as a record of the frequency and volume of cleaning the grease control device and can help the establishment manager optimize cleaning frequency to reduce costs. It is required by the pretreatment program to ensure that grease control device maintenance is performed on a regular basis.

3. <u>Prevent Fats, Oil and Grease from Entering Surface Waters or Storm Drains</u>

- ***The City of Sanford has policies in place for stormwater protection,*** which require covering outdoor grease and oil storage containers. Uncovered grease and oil storage containers can collect rainwater and attract animals. Since grease and oil float, the rainwater can cause overflow onto the ground. Such an overflow will eventually reach the stormwater system and nearby streams. This will degrade the water quality of the receiving stream.

Discharging grease and oil into storm drains is prohibited by City, State and Federal regulations. Failure to prevent the discharge of grease and oil into the storm drainage system may result in legal penalties and/or fines.

Inspect outside storage areas for signs of oil and grease spills. Make sure all covers are in place.

- ***Locate grease dumpsters*** and storage containers away from storm drain catch basins. The farther away from the catch basin, the more time someone has to clean up spills. Be careful to not allow oil or grease to drip onto the ground while being carried to the storage container.

- ***Spill controls extend below*** the water surface and trap floatable materials like oil and grease, preventing them from traveling further downstream. Check the nearest catch basis for signs of oil and grease.

  Use absorbent pads or "socks" in the storm drain catch basins if grease or oil is present. Do not use free flowing material such as "kitty litter" or sawdust in a catch basin.

  Notify the City of Sanford Public Works if grease or oil enters any stormwater catch basin.

- ***Routinely clean kitchen exhaust*** system filters. 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.

  Establish a regular schedule of exhaust filter cleaning and maintain records on site for a minimum of 3 years.