



Understanding Grease Control

A Grease Control Program companion publication

Need help understanding KUB's official Wastewater Rules and Regulations and Grease Control Program materials?

See inside for information on

- Applying for/obtaining a permit
- Installing appropriate equipment
- Maintaining/cleaning equipment
- Training employees



Avoid Grease Issues

Fats, oils, or grease (FOG) from cooking and from washing pots or dishes can cause blockages and overflows.

Problems

FOG can also cause rancid odors or messy (and costly) backups into your business.



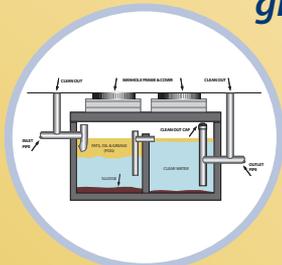
Blockage



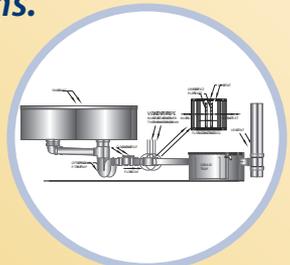
Overflow

Proper grease control equipment and maintenance can help you avoid grease-related problems.

Solutions



Interceptor



Trap



Pumper

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Proper Grease Control Helps You

- Ensure reliable wastewater service for your facility
- Protect your property
- Protect our environment
- Meet regulatory requirements of KUB's Wastewater Rules and Regulations, Grease Control Program

Serving Our Customers, Protecting Our Environment

KUB exists to serve its customers and improve the quality of life in our community. We are also committed to protecting public health and our environment and providing utility services that are safe, reliable, and affordable.

We work every day to balance customers' needs with the needs of our systems and with regulatory standards we must meet. Our Century II and Grease Control Programs are good examples of how we do that.

Under Century II, our system management program, we are replacing 2 percent of the wastewater system every year. We also clean 150 to 200 miles of sewer pipes annually. Replacement and maintenance projects are expensive, but the investment in our community's health and future is worth it.

Good stewardship also requires ongoing system maintenance to meet regulatory requirements. That includes trying to prevent problems caused by grease.

And that is where our customers can help. Grease is one of the primary causes of blockages and overflows in a wastewater collection system. Keeping fats, oils, and grease (FOG) out of the sanitary sewer helps ensure reliable wastewater service for your food service facility (FSF). It also helps protect your property—and our environment.

If grease enters your drains (even just grease from washing dishes), it can build up and lead to messy, costly sewage backups in your building or overflows in our community.

I hope this guide answers any questions you may have about how to meet the requirements of KUB's Grease Control Program. If you have further questions, our program staff will be happy to help. Just call 594-8337.

Thank you,



Mintha Roach
KUB Chief Executive Officer

Century II



Grease Control Program Mandated by the EPA and TDEC

KUB is committed to providing cost-effective wastewater service and to operating our wastewater system in an environmentally responsible manner.

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) also require utilities like KUB to maintain an effective Grease Control Program (GCP). KUB instituted a GCP to protect the public from sanitary sewer overflows (SSOs), which can occur when fats, oils, and grease (FOG) build up inside sewer pipes and cause a blockage.

Overflows can pose a significant public health concern and are a potential threat to our environment. Through our GCP, KUB works with grease-producing facilities that may contribute to grease-related overflows to ensure that they have and maintain adequate grease control equipment.



The proper installation and maintenance of grease control equipment helps prevent sewer overflows in our environment or back-ups in your facility.



Cleaning up and sanitizing after an overflow or back-up is messy—and costly.

Basic Grease Control Program Requirements

Following these four steps will help you comply with KUB's GCP:

- Apply for and obtain a Grease Control Program permit from KUB
- Install adequately sized equipment to control FOG
- Maintain and clean the equipment on a KUB-approved schedule
- Train employees on proper disposal and control of FOG

This publication explains each step. KUB will also provide additional information and assistance as you go through the process.

KUB Grease Control Permitting

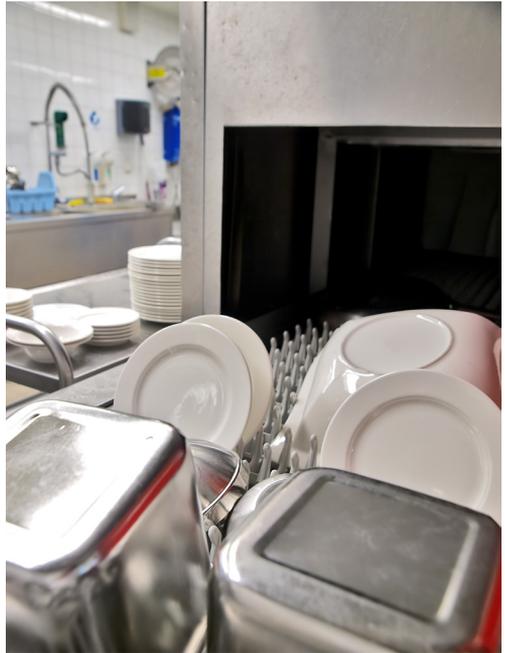
KUB requires all food service facilities (FSFs) to obtain a GCP permit. Both new and remodeled FSFs must contact KUB to submit information to help determine the type and size of grease control equipment needed.

Remodeling may include (but is not limited to) the addition of

- New plumbing fixtures
- New kitchen equipment
- Increased seating capacity

FSFs must submit an updated permit application periodically and provide current facility and contact information. They should also report any changes in the facility since their last permit application was submitted. That helps prevent changes from going unnoticed, which may mean grease is not being adequately controlled.

KUB applies a minimum fee of \$100 directly to the bill of permitted FSFs. The fee increases if the FSF does not maintain compliance with GCP requirements or is classified as having a high potential to discharge grease.



Permitting Approval Process

KUB must approve the type and size of grease control equipment an FSF plans to use. KUB must also inspect and approve the grease control equipment's installation to ensure safe and easy access for monitoring and maintenance.

KUB works with local plumbing inspectors to help ensure equipment is installed appropriately. FSFs must obtain KUB's approval of grease control equipment in addition to obtaining all the necessary plumbing permits. If you have questions about equipment size, call KUB at 594-8337. For questions about plumbing requirements or permits in the City of Knoxville, call 215-2999. For Knox County, call 215-2325.

GCP Permitting, Sizing, Installation Process for Food Service Facilities

FSFs must call KUB at 594-8337 to discuss grease control requirements to prevent construction or opening delays—and to avoid having to replace incorrect or undersized equipment.

Follow these steps:

- 1. Call KUB's Grease Control Program at 594-8337 to obtain a GCP application and sizing information.**
- 2. Read KUB's Grease Control Program documentation first, and then complete the GCP application.**
- 3. Submit Grease Control Permit Application to KUB [Attn: JK15] at P.O. Box 59017, Knoxville, TN, 37950-9017. Remember: Call KUB with any questions.**
- 4. KUB reviews the submitted application and notifies FSF of the required grease control equipment, typically within two business days of receiving a properly completed application. [KUB returns improperly completed applications to the FSF for correction.]**
- 5. Be sure to acquire any necessary plumbing permits.**
- 6. Call 811 to have underground utilities marked for free if the equipment installation requires external digging. [See page 16 for more information.]**
- 7. Purchase and install KUB-approved grease control equipment per KUB's GCP specifications. Remember: If you have questions, a simple phone call to KUB now, rather than after you purchase and install the equipment, can save you time and money.**
- 8. Call KUB to schedule an inspection of the grease control equipment at least two business days in advance of the desired implementation date.**
- 9. KUB performs the installation inspection. If the installation passes inspection, KUB permits the facility.**

Grease Control Equipment

KUB requires all FSFs to properly install adequately sized grease control equipment. That means traps or interceptors, depending on the amount of grease produced and the FSF's operations. KUB uses an EPA-approved grease control equipment sizing formula to help determine the proper size equipment needed.

The amount and type of food prepared or served and the plumbing fixtures in the facility are all important in determining the size and type of equipment needed. Some facilities, for example, may only serve catered food, but those facilities must also install grease control equipment that meets KUB's program requirements and local plumbing code requirements.

Plumbing fixtures also affect the grease control equipment needed. FSFs using an automatic dishwasher or a garbage grinder must plumb it through a grease interceptor. KUB prohibits plumbing those appliances through a grease trap.

Two Types of Grease Control Equipment

Grease Interceptor:

- A large tank or device used to separate and hold FOG to keep it from discharging into the sanitary sewer. Typically located outside, due to its large size.
- Grease interceptors must be safely and easily accessible so they can be inspected and maintained properly. The area above each access manhole must be free from obstruction for at least 11 feet or the depth of the interceptor (whichever is greater) unless the FSF requests an exception and KUB approves it.
- All grease interceptors must have a mid-baffle wall and manhole access above both the inlet and outlet piping tees, and they must be plumbed to KUB's GCP specifications.*

Example of common grease interceptor



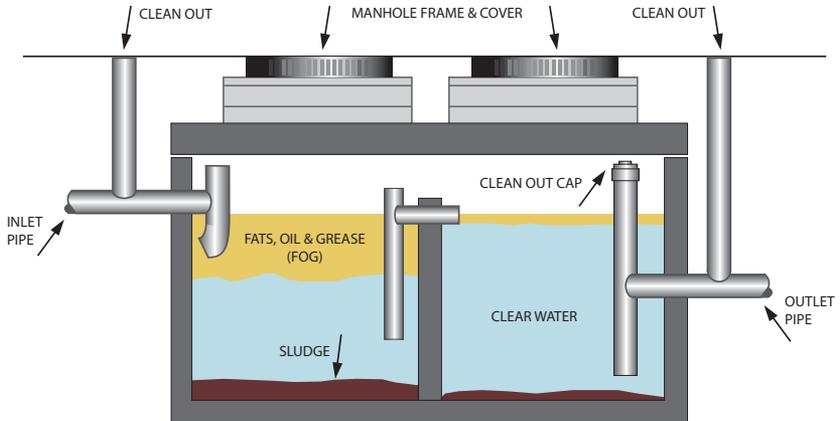
*See www.kub.org, *Hot Topics Index*, *Grease Control Program Documentation*.

Examples of alternative grease interceptors in KUB's system

Note: Alternative interceptors must be reviewed and approved by KUB.



Alternative Interceptor diagram



Grease Trap:

- Typically a box-shaped device that is installed inside to capture FOG from sinks or other fixtures and keep it from entering the sanitary sewer system.
- A grease trap must have a properly rated and vented flow restrictor, which must be visible and accessible, between each plumbing fixture and the trap's inlet.
- A grease trap may be installed sitting on the floor, if space allows. If it is installed in the floor, its top must be flush with or above the floor, so it can be opened, cleaned, and inspected without having to enter a crawl space or unfinished basement area.
- A grease trap must have a clear and unobstructed space above it that is greater than or equal to the depth of the grease trap to provide safe, easy access for inspection and maintenance unless the FSF requests an exception and KUB approves it.
- Grease traps may not use automated self-cleaning equipment or mechanisms.

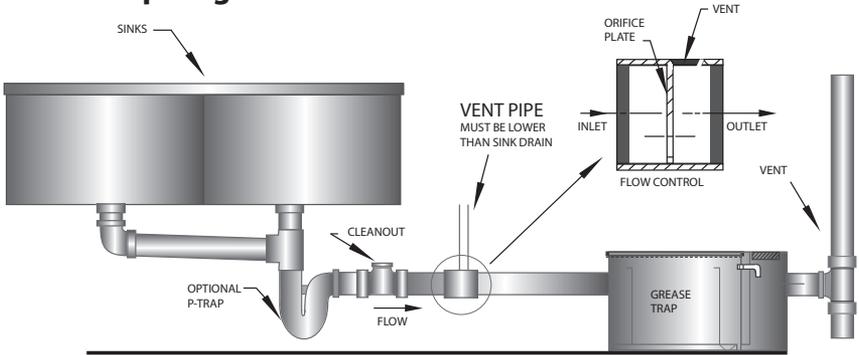


Examples of common grease traps





Grease Trap Diagram



FOG can build up in your wastewater pipes and KUB sewers. Proper grease trap installation and maintenance help prevent messy, costly sewer overflows in our environment or in your facility.



Ongoing FSF Responsibilities

After completing the permitting process, FSFs must

- Train all employees in proper grease disposal practices and the requirements of KUB's GCP
- Clean equipment at the required frequency
- Maintain and conspicuously post logs on site to document cleaning events
- Post "No Grease" signs over kitchen sinks and mop sinks
- Ensure equipment remains in good operational condition
- Follow KUB requirements that prohibit the constant, regular, or scheduled use of any additives
- Notify KUB of any changes or upgrades
- Submit current GCP permit application periodically

Avoid Problems, Extra Costs Through Proper Maintenance

Grease control equipment captures FOG to keep it from entering the sanitary sewer system. By design, solids, fats, oils, and grease build up in the equipment until they are pumped out and taken for proper disposal by waste haulers. The entire contents must be pumped and the equipment cleaned on the required frequency (which KUB will establish) to keep it working properly and in good condition.

Insufficient maintenance may lead to

- Discharge of grease
- Building backups
- Corrosion and possible equipment failure
- Costly equipment replacement
- Notices of Noncompliance
- Newspaper publication of the facility and its noncompliance
- Other enforcement action as specified in KUB's Wastewater Rules and Regulations.



Inspection and Assessment

KUB's GCP personnel routinely inspect FSFs in our wastewater service area. Inspectors check the grease control equipment and maintenance records to ensure compliance with the program.

Inspectors also try to determine if the FSF has made changes it has not communicated to KUB that might impact grease control. For instance, adding a dishwasher may require additional grease control equipment because the large volume of hot water and soap discharged from a dishwasher can easily dissolve grease in a trap and flush it into KUB's sewers. KUB communicates any noncompliant issues or items that need further review to the FSF.

KUB also assigns FSFs a risk rating based on their potential risk to discharge grease. KUB rates FSFs that maintain compliance and have adequately sized equipment as low to medium risk. KUB classifies facilities as having high or unacceptable risk if they

- Fail to clean their equipment as required
- Have inadequately sized equipment
- Contribute to grease build up downstream in the collection system
- Fail to comply with KUB's GCP requirements

KUB asks high-risk and unacceptable rated FSFs to take corrective action, including possibly installing larger equipment.



Frequently Asked Grease Control Program Questions

Why does KUB have a Grease Control Program? And why must food service facilities comply with its requirements?

Fats, oils, and grease (FOG) can come from cooking and preparing a variety of foods or washing dishes and are commonly discharged to the wastewater system. Over time, they build up in sewer pipes, eventually causing a blockage. Grease blockages cause problems like sewage backups in buildings, rancid odors, and sewer system overflows. In addition, overflows from the wastewater system pose a significant public health concern, are a potential threat to our environment because of the sewage that is released, and are prohibited by TDEC and EPA.

Grease-related blockages in sewer mains are a primary cause of sanitary sewer overflows in cities across the nation, and the EPA requires wastewater systems to have a Grease Control Program (GCP) to help prevent overflows.

KUB received a federal Consent Decree (CD) in 2004 that required KUB to eliminate sanitary sewer overflows. One of the CD requirements included implementing a GCP to reduce grease-related overflows in our community. We implemented our program in 2005.

Each year, KUB cleans between 150 and 200 miles of sewer mains to prevent blockage-related overflows and remove the buildup of any grease in our wastewater system that results from food preparation and service.

Food services facilities (FSFs) produce significantly more grease, compared to residential kitchens, each day as they serve large numbers of customers. For that reason, the GCP requires all FSFs to have and maintain adequately sized grease control equipment to prevent the grease generated by the business from entering the wastewater system.

Why does KUB seem to be enforcing the program requirements more now?

When we implemented our GCP in 2005, we did not require all FSF customers to replace existing undersized equipment. That would have been very costly for the FSFs and very difficult to manage. Instead, we began the phased implementation by requiring new businesses to install equipment that would effectively control their grease and help them comply with this regulatory program.

The requirements are not new, and our intent has always been to bring all FSFs into compliance. KUB's program has never allowed "grandfathering"—we have always required existing facilities to increase the size of their equipment when certain conditions occur.

We place priority on those facilities that have the greatest potential to release greasy wastewater to our sewer system. Each year we inspect those businesses and give them the appropriate information about the program's equipment and maintenance requirements.

KUB's Grease Control Program requires any business to come up to existing program equipment standards when one of three conditions is discovered.

1. If food service facilities remodel or change their operation it is a good time to evaluate the food operation and determine the type of equipment needed. Thus, KUB expects facilities to come into compliance at that time.
2. If a facility fails to clean and maintain its existing equipment to control grease, it can be required to install larger equipment, typically a grease interceptor, which is more effective.
3. If KUB finds evidence of grease in the sewer mains downstream of the facility, KUB will evaluate the compliance history and size of the grease control equipment in those facilities upstream to be sure sizing is appropriate.

KUB recognizes upgrades can be a significant cost of doing business, so in all cases we work with facilities on the implementation schedule as long as they are working toward a solution.

What is KUB doing to control grease? And why is the cost of grease control the burden of the food service facility?

KUB continually inspects and cleans the wastewater system to help prevent blockage related overflows. Each year, we clean an average of 200 miles of sewer mains to remove the build up of any grease in our wastewater system.

Even though KUB is working to remove grease to help prevent blockages, the best way to manage the problem is to keep grease out of the system in the first place. FSFs bear the cost rather than shifting this burden to customers who do not discharge significant amounts of grease. That approach is consistent with what other wastewater utilities across the nation are doing. It is not unique to KUB's program requirements.

KUB and our community are not unique in addressing the problems related to grease and the impact it can have on the wastewater system. Although each food service facility (FSF) can be somewhat different, generally grease traps or interceptors prove to be the most effective way to address the issue.

What is the difference between a trap and an interceptor?

Grease traps and grease interceptors are both types of grease control equipment; however, they are different. Their main differences are their size and their ability to separate and prevent FOG from entering the sewers. [See pages 6 through 9 for photos and diagrams.] *continued*

A grease trap is a smaller device that usually holds less than 200 pounds of grease. Grease traps are typically installed near a sink sitting on the floor level or are set with their top at floor level.

Grease interceptors are generally large pre-cast concrete tanks; however, they can be constructed of fiberglass or stainless steel. They can also be poured-in-place or fabricated on site. Grease interceptors typically hold between 1,000 to 3,000 gallons of liquid and are designed with two separate compartments.

No domestic (bathroom) waste should be plumbed through a trap or interceptor. The bathroom solids will fill it up too quickly and grease pumpers may not pump it if domestic waste is within the grease trap or grease interceptor.

Traps/interceptors must be the proper size for the amount of food preparation and clean-up that occurs in the process of operation. The trap/interceptor is also a requirement of the Plumber's Code if the FSF has the potential to discharge grease into the sewer system.

Who mandated the need for these interceptors to be installed?

Sewer overflows and aging wastewater system infrastructure are growing concerns across our nation. KUB, like many other utilities, is under a federal Consent Decree by the Environmental Protection Agency (EPA), which requires system improvements and ongoing compliance programs, like the GCP.

KUB's Grease Control Program is aimed at non-residential customers that prepare, cook, or serve food. Customers in this category must follow guidelines regarding disposal of grease waste.

Although KUB does not require residential customers to install grease control equipment, we do encourage proper grease disposal in the home through our Can the Grease education program. Grease does not belong in the sewer pipes, no matter the source.

What is the cost?

KUB works with each FSF to determine what is required to be compliant with the Grease Control Program requirements. Following a formula set by the EPA, KUB communicates to the FSF the size of interceptor or trap needed to meet requirements. The FSF then works with a contractor/plumber to coordinate the installation. The cost will vary for each FSF depending on a variety of factors that can impact the installation, such as the extent of construction and excavation required for the installation, size of the interceptor/trap, number of dishwashers, and contractor/plumber expenses.

How do businesses learn about this program and how to comply with it?

New businesses must obtain a City of Knoxville Plumbing Permit and have plans approved before starting up. This process results in KUB being contacted about the potential new food service facility, and KUB will contact the facility with information about the program. KUB inspectors also provide information about the program during inspections. And the City has an informative Business guide that includes information about KUB's Grease Control Program requirements.

KUB has been working with existing FSFs in its wastewater service territory since before 2005 to address the discharge of grease. All FSFs must sign an acknowledgment of KUB's Grease Control Program and indicate their intent to comply with regulations. KUB will then work with the business to find a mutually agreeable construction schedule so the FSF has adequate time to prepare for and complete the installation.

Visit www.kub.org or call 865-594-8337 to learn more about KUB's Grease Control Program.

What happens if I don't comply?

KUB has the administrative authority to enforce this program. If a user has violated or is violating the intent of the program, KUB will initiate corrective actions including, but not limited to, a civil penalty in an amount not to exceed \$10,000 dollars per offense and the possibility of water and/or wastewater service termination. Civil penalties or termination of water and/or wastewater service may be appealed in accordance with Section XV of the Rules and Regulations.

What happens if I don't have room for the equipment?

Many businesses, like those downtown, for example, are in smaller and/or older structures where space is often an issue. Those FSFs and their plumbers or maintenance personnel were still able to achieve compliance—sometimes in unique ways and places. [See page 7 for examples.]

Call 811 Before Any Digging Project

No matter what your project, always make a free call to 811 to have underground utilities marked before you dig. It's the law, and it helps protect you from dangerous, costly dig ins.



Your Safe Digging Checklist

- Make a free call to 811 at least three working days before digging.
- Give the 811 operator your name, start date/duration of project, type of excavation, and the project location.
- Outline the area where you plan to dig with white paint.
- Wait for the site to be marked. If the markings wash away or are covered, call 811 again before digging.
- Respect all markings: Dig with care in the "safety zone" (width of utility plus two feet on each side).

Remember: Most buried service lines (like water, sewer laterals, and underground electric) will not be marked. Natural gas service lines, however, will be marked.

Toilets Are Not Trash Cans!

Keeping FOG out of sewers is important, but you can do more to protect our environment and your plumbing:

- Never flush rags, baby/personal hygiene wipes, paper towels, feminine products, dental floss, or disposable toilet wand heads. They can clog pipes or jam pumps, leading to sewer overflows, backups into buildings, and costly repairs.
- Never flush prescription or over-the-counter drugs to help keep them out of waterways. Take drugs to collection events or the permanent collection site (open 24/7) in the lobby of the Knoxville Police Dept. Safety Building, 800 Howard Baker Jr. Ave.

Just because you *can* flush it doesn't mean you should. Think before you flush.





Let's conserve together.

www.kub.org



Please recycle.

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