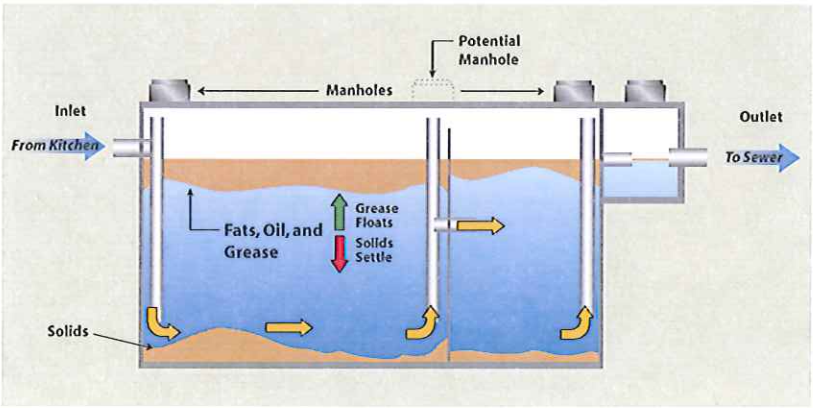
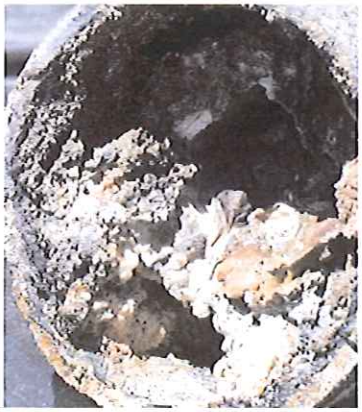
National Restaurant Association

FATS, OILS AND GREASE CONTROL
PROGRAM TOOL KIT

September 2006





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[1] Photo courtesy of Monterey Regional Water Pollution Control Agency

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ISSUE OVERVIEW/HISTORY

Cooking grease in wastewater discharged from apartment buildings, homes, restaurants, and hotels is causing fats, oil, and grease (FOG or grease) blockages in sewer lines. These grease blockages, located in either the property owner's sewer lateral or the public agency's sanitary sewer system, can cause back-ups into kitchens or basements, or can lead to sanitary sewer overflows (SSOs) which can cause untreated sewage to flow onto streets and travel to storm drains, creeks, and other surface waters. SSOs have become the focus of many large lawsuits and a Report to Congress by the EPA in 2004. This has made the control of grease blockages a high priority for the EPA and many states which are now requiring municipalities to adopt FOG Control Programs that include controlling the FOG discharge from restaurants.

In September 2005, Connecticut issued a General Permit requiring restaurants and other food service establishments to install grease interceptors. In May 2006, California adopted a state law to reduce SSOs that requires each sewer agency to adopt a FOG Control Program and to regulate restaurants and other food service establishments. Other states have adopted or are considering similar regulations.

The National Restaurant Association supports efforts to reduce grease blockages and SSOs which will protect the environment and help keep restaurant drain lines clear. As with any new environmental program, we also have a concern that some new regulations may negatively impact restaurants without substantial benefit in reducing grease blockages.

This paper has been developed to provide State Restaurant Associations and individual restaurants with a general understanding of the FOG blockage problem, new FOG control regulations, logical FOG control practices, and guidance for evaluating FOG control requirements. This Tool Kit should be used by State Associations and individual restaurants to work together with sewering agencies to develop logical and technically based FOG Control Programs that are effective and fair.

TERMINOLOGY

The following terms are often used interchangeably throughout the United States, but for the sake of the readers of this Tool Kit, these terms are defined as follows:

Conventional Grease Interceptor

A large grease control tank, typically installed outside and in-ground, cleaned by a pumping company

Grease Trap

A small grease control device with manual grease removal, typically installed inside and above ground, generally cleaned and maintained by restaurant staff

Grease Removal Device (Automatic Grease Trap)

A small grease control device with automatic grease removal, typically installed inside and above ground, generally cleaned and maintained by restaurant staff

Grease Control Device

General term used for any conventional grease interceptor, grease trap, grease removal device, or alternative technology used to separate oil and grease from kitchen wastewater.

Note: Many plumbing codes and agency ordinances are now using the term "grease interceptors" for all grease control devices.

ELEMENTS OF GREASE CONTROL PROGRAMS

Due to new State regulations, EPA enforcement, or SSO lawsuits, your local sewer agency may have already contacted your restaurant to explain their FOG Control Program or to issue your restaurant a wastewater discharge permit. You may have been asked to install a grease interceptor or grease trap. At the very least, you have probably been issued a flyer or poster encouraging you to reduce your FOG discharge through kitchen Best Management Practices (BMPs) such as scraping plates or recycling your fryer grease.

The following grease control program elements may soon be required for your restaurant, if they haven't been required already:

PERMITS Some agencies are issuing or are requiring restaurants to apply for a wastewater discharge permit in order to regulate their grease discharge. This allows the agency to spell out the restaurant's responsibilities, but the permitting process can be very complicated and burdensome for both the agency and the restaurant. The National Restaurant Association recognizes that some agencies may choose to permit restaurants, but the permits should be simple and straightforward. Many agencies have developed a brief and easy to understand permit that refers to an agency's ordinance or other policy documents. This permit process works well for the agency and the restaurant.

IMPLEMENTATION OF KITCHEN BEST MANAGEMENT PRACTICES (BMPS) Although many restaurants have already implemented Kitchen Best Management Practices (BMPs) to prevent grease from being discharged down the drains, some agencies are requiring restaurants to implement specific Kitchen BMPs as a condition of their FOG Control Program. The National Restaurant Association supports BMPs that will prevent grease blockages; however, the BMPs should be practical and cost effective.

GREASE CONTROL DEVICE INSTALLATION REQUIREMENTS Grease control devices have been in use for years at many restaurants. However, many agencies are looking to require more restaurants to install grease control devices. Although these devices are a logical requirement for many restaurants, the National Restaurant Association is concerned that some agencies may require restaurants that discharge little or no grease to unnecessarily install expensive grease control devices.

GREASE CONTROL DEVICE CLEANING AND MAINTENANCE REQUIREMENTS Grease control devices must be cleaned or maintained regularly in order to function properly. Quarterly cleaning is sufficient for most conventional grease interceptors and weekly cleaning or maintenance is sufficient for most grease traps and grease removal devices, particularly if Kitchen BMPs are implemented. However, some agencies are requiring mandatory monthly cleaning of conventional grease interceptors or daily cleaning or maintenance of grease traps or grease removal devices. This is excessive at a vast majority of restaurants. The National Restaurant Association recognizes that more frequent cleaning or maintenance may be warranted for specific restaurants, but this should only be a requirement if there is evidence to justify these frequencies.

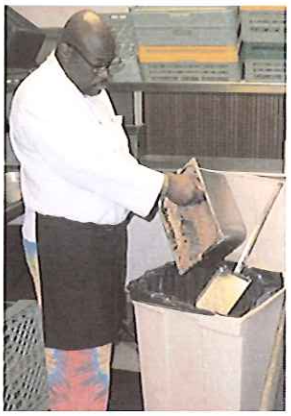
WASTEWATER DISCHARGE–OIL AND GREASE CONCENTRATION LIMIT REQUIREMENT Some agencies are sampling and analyzing the wastewater discharge from restaurants (or their grease control devices) and requiring that the wastewater contain less than a prescribed concentration limit of oil and grease. Oil and grease limits can vary from 100 milligrams per liter (mg/L) to 500 mg/L. These limits can also be stated as parts per million (ppm). Because the laboratory test used for this analysis measures both emulsified and non-emulsified oil and grease, these limits are not a true indication of the effectiveness of grease control devices or the grease blockage potential of the restaurant discharge. For this reason, many agencies are moving away from oil and grease limits and relying instead on inspection of grease control devices to confirm proper maintenance and in some cases closed circuit television (CCTV) monitoring of the sewer line. The National Restaurant Association does not support oil and grease limits, but does support any monitoring efforts by agencies that provide a true indication of the impact of grease discharges by restaurants.

KITCHEN BEST MANAGEMENT PRACTICES (BMPs)

There are many ways in which restaurants can prevent or reduce the amount of grease that is discharged into kitchen drains. Based on researching Kitchen BMPs throughout the country, the National Restaurant Association has prepared the following list of helpful Kitchen BMPs that are considered practical and cost effective for most restaurants:

1. KEEP GREASE OUT OF THE DRAINS/COLLECT AND RENDER YELLOW GREASE Prevent pouring excess oil or grease down the drain. This "yellow grease" should be collected and rendered. The more yellow grease that is collected and rendered, the less grease that ends up in drains, or in grease interceptors or grease traps.

2. SCRAPE GREASE AND FOOD FROM PLATES AND COOKWARE BEFORE WASHING Using gloves or rubber spatulas, grease and greasy food scraps should be scraped off plates and cookware before washing. This material should be added to the trash or recycled as part of a food waste recycling program.



3. USE DRAIN SCREENS Using drain screens, particularly on sink drains, will prevent much of the grease and greasy food particles from ending up in the drains.

4. WIPE UP GREASE SPILLS BEFORE USING WATER Grease spills and grease drippings should be wiped up with a paper or cloth towel or through the use of other adsorbent materials such as kitty litter before using water to minimize the amount of grease ending up in the drains.

5. LIMIT GARBAGE DISPOSAL USE TO NON-GREASY FOOD MATERIALS For restaurants that have garbage disposals, they should be limited to processing non-greasy food materials such as lettuce in food preparation areas to minimize the amount of grease ending up in the drains.

6. EMPLOYEE TRAINING Employees must be trained to implement the kitchen BMPs and/or to properly clean out grease control devices such as grease traps.

*Photos 1, 2 and 4 courtesy of East Bay Municipal Utility District.

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BENEFITS TO THE RESTAURANT OF IMPROVING FOG CONTROL

Whether a restaurant is part of a FOG control program or not, improved FOG control provides multiple benefits for restaurants:

FOG Control Practice	Benefit
Improved Kitchen BMPs (less grease down the drain)	• Reduced drain line blockages and cleaning • Reduced cost of drain line cleaning and jetting • Reduced SSOs • Reduced odors • Reduced non-renderable waste grease generation
Increased cleaning or maintenance of grease control devices	• Reduced drain line blockages and cleaning • Reduced SSOs • Reduced odors
Overall compliance with the FOG control program	• Avoidance of non-compliance fees or fines • Benefit the environment and the community

REQUIREMENTS TO INSTALL A GREASE CONTROL DEVICE

Most agencies consider the requirement to install grease control devices to be the most important part of their FOG control program. The general thinking is that even if Kitchen BMPs are not fully implemented, the grease control device(s) will capture the grease and protect the sewer. Sewer use ordinances based on national plumbing codes provide the authority for agencies to require certain restaurants to install grease control devices. However, determining which restaurants require grease control devices and which grease control device(s) is the most appropriate for a specific restaurant provides a challenge for every agency.

Requirements for New Restaurants

Most new restaurants are required to install a grease control device to prevent grease from flowing into the agency's sanitary sewer system. This is a logical requirement for new restaurants that are expected to discharge grease due to their menu or kitchen fixtures. Examples include restaurants that prepare significant quantities of steak, pork, chicken, fish, pasta, soup, or fried food using grills, fryers, rotisseries, woks, and tilt kettles. Conversely, many new restaurants should not be required to install a grease control device if they are not expected to discharge much grease due to their menu or kitchen fixtures. For example, the requirement to install a conventional grease interceptor is most likely unnecessary for sandwich shops, coffee shops, juice shops and other non-grease generating restaurants.

Concerning these new non-grease generating restaurants, some sewering agencies believe that they should require the installation of conventional grease interceptors. This requirement may be due to the agency's concern that the next owner or tenant may convert the business into a restaurant that will discharge a significant amount of grease. The National Restaurant Association recognizes this concern and encourages sewering agencies to not require the current restaurant to incur the cost of installing and maintaining a conventional grease interceptor for grease that may or may not be discharged by a future restaurant. One logical solution is to require these new restaurants to plumb the kitchen waste piping separately from the sanitary waste piping and to provide outdoor space for a conventional grease interceptor in case a retrofit is needed in the future. Indoor grease control devices may also be installed in the restaurant, if space is not available outside.

Requirements for Existing Restaurants

Many existing restaurants already have grease control devices installed. If these devices are properly maintained, they should provide sufficient grease control and no other devices should be needed for these restaurants in most cases. Due to new grease control requirements in many areas of the country, existing restaurants without grease control devices are being required to install a grease control device(s). However, many agencies are "grandfathering" (i.e., removing or postponing the requirement) existing restaurants due to the potential significant cost of purchasing the device or retrofitting the facility. Logical reasons why some agencies may not "grandfather" certain existing restaurants and may require grease removal devices are: 1) when a significant remodel occurs; 2) non-adherence to FOG Control Program requirements; or 3) discharging to a portion of the sewer system that has a history of grease blockages.

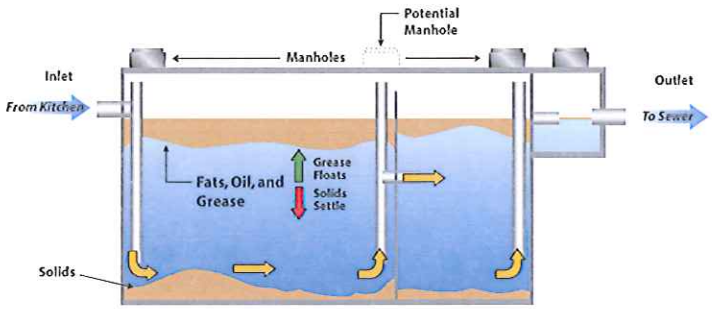
Plumbing and Sizing Requirements

Grease control device plumbing and sizing requirements vary throughout the United States based on differing plumbing codes and agency preferences. The National Restaurant Association is planning to provide more information in this area through future literature or on our Web site.

CLEANING AND/OR MAINTENANCE OF GREASE CONTROL DEVICES

CONVENTIONAL GREASE INTERCEPTORS

Conventional grease interceptors operate by gravity separation. Given sufficient space and time, floating grease and settled solids separate from the kitchen wastewater and slowly accumulate in the interceptor (see the figure below).



CONVENTIONAL GREASE INTERCEPTOR Outdoor, In-ground-Precast Concrete (Typical)

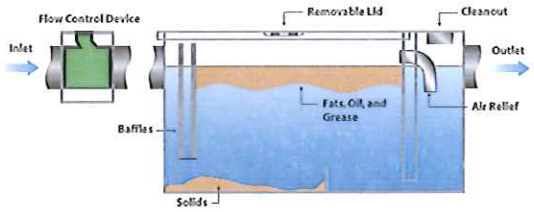
For the interceptor to perform correctly, the floating grease and settled solids must be removed before they accumulate beyond a certain level to avoid clogging the plumbing in the interceptor or significantly reducing the overall space in the interceptor, which affects the ability of the interceptor to separate the waste material from the wastewater. The standard maintenance level for floating grease and settled solids accumulation is "The 25% Rule." According to "The 25% Rule," if the combined accumulation of floating grease and or settled solids exceeds 25% of the capacity of the interceptor, the interceptor must be cleaned (pumped) by a waste hauler. The "25% Rule" or a similar standard has been adopted and is now being enforced by many sewering agencies around the country.

Many agencies require that conventional grease interceptors be cleaned at a mandatory minimum frequency to prevent the over-accumulation of floating grease and settled solids. Minimum quarterly cleaning is perhaps the most common requirement, but some agencies require more frequent cleaning (e.g., monthly cleaning). Although more frequent cleaning may be appropriate for some restaurants with unusually high grease discharge, this is likely overkill for a vast majority of restaurants.

It is important that conventional grease interceptors be pumped out completely when they are cleaned. Otherwise the settled solids will accumulate and eventually clog the internal plumbing in the interceptor. At the very least, the decay of the solids over time will generate hydrogen sulfide gas and unpleasant odors (rotten egg smell). Many agencies require that conventional grease interceptors be fully pumped out every time due to these concerns.

GREASE TRAP[1]

Grease traps also operate by gravity separation; however, grease traps use a flow control device and baffles to allow the separation of floating FOG and settled solids in a much smaller tank (see the figure below).



GREASE TRAP Indoor, Above Ground (Typical)

Like a conventional grease interceptor, in order for a grease trap to perform correctly, the floating FOG and settled solids must be removed regularly. However, since grease traps are significantly smaller than conventional grease interceptors, the necessary frequency of cleaning is much greater. Minimum weekly cleaning is required by some agencies. Some restaurants may have to clean out their grease trap more often than weekly due to unusually high grease discharge from specific fixtures. It is reasonable for most restaurants to conduct weekly checks or cleaning of the grease trap to ensure proper operation.

Grease trap cleaning is typically conducted by restaurant staff; however, some agencies require that pumping companies conduct the cleaning. This is problematic for most restaurants since the cost of using a pumping company for such a frequent basic cleaning practice may discourage the restaurant from cleaning the grease trap as often as it is needed.

[1] Grease Removal Devices (GRDs) are very similar to grease traps in terms of their size and how they separate the oil and grease from the wastewater. Due to their automatic grease removal design, grease removal devices do not require as much cleaning as grease traps, but they typically require more frequent maintenance.

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