

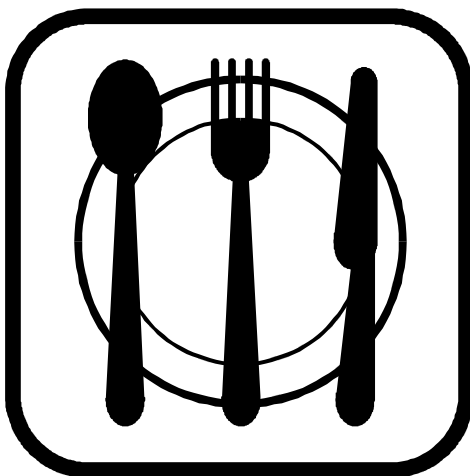
US EPA ARCHIVE DOCUMENT

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**Fats Oil & Grease Compliance and Best
Management Practices Workbook**

For

Restaurants



January 2011

US Environmental Protection Agency

Narragansett Bay Commission

University of Rhode Island

RI Department of Environmental Management

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Acknowledgements

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U.S. Environmental Protection Agency (EPA)
Narragansett Bay Commission (NBC)
University of Rhode Island, Center for Pollution Prevention (URI)
RI Department of Environmental Management (DEM)



Some of the information presented in this workbook was obtained from published documents produced by other states including North Carolina, California, Oregon and Florida.

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Attachments

- **Inspection Checklists**
- **Compliance Checklist**
- **Best Management Practices Checklist**
- **Self-Certification Checklist**

DISCLAIMER: The Project Partners do not warrant or assume any legal liability or responsibility for the accuracy, completeness, usefulness, or application of any information, apparatus, product, or process disclosed in this document.

Section 1.0 – Overview



Fats, oils and grease, also referred to as “FOG”, are by-products from restaurants and other food service establishments. Typical operations that produce FOG include washing of dishes/pots/utensils, floor cleaning and equipment sanitation. Within the Narragansett Bay Commission (NBC) district (Providence, North Providence, Johnston, Lincoln, Cumberland, Pawtucket, Central Falls, the northern portion of East Providence, and small portions of Cranston and Smithfield) there are approximately 800 restaurants and facilities which are permitted by NBC to discharge wastewater to the sewer system. Excess FOG in this wastewater can and will negatively affect the sewer system and NBC’s wastewater treatment operations.

Sewer Line Impacted from Excess Grease Build-up



The workbook has been designed to help you understand both NBC regulatory requirements and voluntary FOG Best Management Practices (BMPs) using two checklists - one for meeting regulatory requirements and the other for implementing BMPs that improve the overall life cycle management of FOG. This workbook is meant for those food establishments that are permitted to discharge wastewater to the NBC sewer system. *If your establishment is not on a sewer system and relies on an underground septic system for wastewater disposal an entirely different set of regulations issued by the Rhode Island Department of Environmental Management (DEM) apply and you will need to contact the DEM office listed below to obtain the appropriate permits.*

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This workbook helps to explain the questions found in the two checklists attached at the end of this document. The first checklist (4 pages) is the one used by NBC Pretreatment staff when they inspect your facility to make sure that all regulations defined in your Wastewater Discharge Permit and NBC's Rules and Regulations are followed correctly (compliance). The second checklist (1 page) covers best management practices to 1) help ensure compliance (defined in the first checklist), 2) provide useful suggestions to prevent unnecessary waste generation, 3) implement life-cycle processing of used oils and grease in the form of biodiesel production, and 4) allow for self-certification and recognition.

Restaurants located in the NBC district are inspected on a regular basis, so performing periodic "self-inspections" will better prepare you for unannounced NBC inspections. You should read through the attached NBC regulatory checklist and, along with the explanations provided in this workbook, make sure that your restaurant is in compliance all the applicable regulations. By implementing the BMPs, you will generate less waste, educate employees improve working conditions, receive recognition, and help to supply a primary raw material for local biodiesel production. Participation in this self-inspection and BMP certification **program** is voluntary (unless otherwise required by the NBC as part of an enforcement action, see Part II (2) instructions), **but each applicable restaurant/establishment must still comply with the NBC wastewater regulations.**

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Section 2.0 – Compliance Checklist Information

This checklist is the same one used by NBC inspectors and is found at the end of the workbook. You should make sure that your food service establishment is in full compliance with each of the items listed on this checklist. Most of the items are somewhat technical and directly relate to the operation of your restaurant.



Part I – Facility Information

- (1) **Company Owner:** Individual or organization that is legally responsible for business operations and activities.
- (2) **Contact Person:** Individual who represents the business and whom NBC can communicate with. The owner can be the contact person. **If anyone other than the owner or an officer of the company is to be named the contact person that person must complete** a “Designation of Authorized Agent form” (<http://www.narrabay.com/RegulatoryCompliance/PretreatmentProgram/Pretreatment%20Forms.aspx>) have it **signed by the owner or officer of the company** and submit it to NBC.
- (3) **Type of Grease Removal Unit (GRU):** A GRU may be required as part of the discharge permit. There are two types of GRUs typically used by restaurants:

Automatic Electromechanical GRU. This type of GRU is most commonly used in the NBC district. It is designed to accept wastewater from operations with the potential to have high concentrations of oil & grease. These operations include but are not limited to:

- Pre-rinsing
- Pot washing and three-bay sinks
- Soup kettle washing
- Work stations
- Floor drains

Wastewater from some operations should not be discharged through this type of GRU, such as: water from automatic dish washers, vegetable prep sinks, steam tables, ice machines and freezers. Garbage grinders and disposals are



Typical Automatic Electromechanical GRU

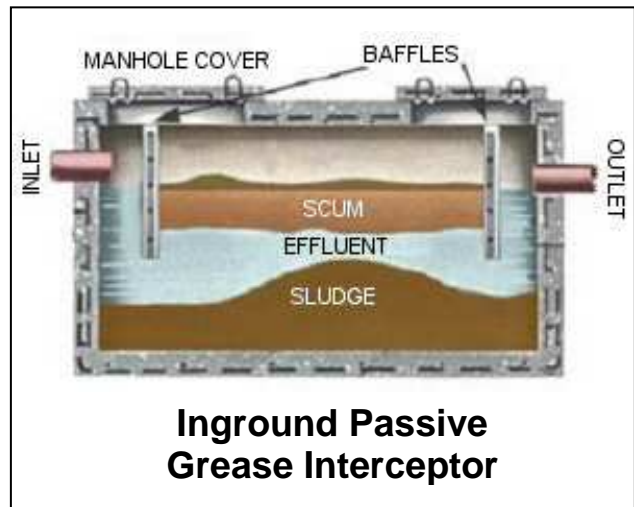
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prohibited unless they discharge to an outdoor in-ground unit with adequate retention time (see next section).

Outdoor In-ground Passive Grease Interceptor. This outdoor in-ground unit is the **second** type of GRU used by some facilities to capture fats, oils and grease before they enter the sewer line. The system is usually sized to handle 15 gal per seat but cannot be smaller than 500 gallons. In the NBC district, restaurants can choose either the indoor electromechanical GRU or the outdoor in-ground interceptor. Other wastewater treatment facilities may have different requirements; if you plan to move outside the NBC district, you should check the requirements for that locality.

Discharges from the following operations are required to flow into the interceptor:

- Pre-rinsing
- Pot washing and three-bay sinks
- Soup kettle washing
- Work stations
- Floor drains
- Dish washers
- Garbage grinders/disposals



Detailed requirements on the operation of the GRU's are later explained in Part 3.

- (4) **Brand of GRU:** The model and manufacturer information is included here.
- (5) **Size of GRU:** The capacity of the GRU should be known, for example, the recommended flow rate through the GRU.
- (6) **Type of Food Served:** This information is helpful to determine whether your restaurant deals with food products that can potentially create high levels of FOG.
- (7) **Hours of Operation:** Hours during which the restaurant is in operation.
- (8) **Seating Capacity:** Number of seats available for patrons of the restaurant.
- (9) **Based upon seating capacity, is user properly classified for permit fee billing purposes?:** This questions needs to be answered by an NBC official

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in order to confirm that the NBC permit is consistent with the capacity of the restaurant.

- (10) ***Menu on file?:*** This question is for NBC use to ensure that the company file is accurate.
- (11) ***Drive through window?:*** Self-explanatory.

Part II – Requirements/Progress Since Last Inspection

- (1) ***What was required of the firm since the last inspection?:*** After every inspection a letter is issued to you detailing any requirements for your facility. NBC staff will review these requirements with you and determine if they have been satisfied.
- (2) ***Has required work been completed? If no, when will it be completed?:*** The NBC inspector will determine that items which required corrective actions from the last inspection have been properly addressed. If any items have not been properly addressed, the inspector will inform you that you are in violation of NBC requirements. A Notice of Violation (NOV) will be issued to your facility giving you a new due date to complete the required work. Written certification may be required to be submitted.

Part III – GRU Maintenance/Installation Information

- (1) ***Has grease removal system been installed according to NBC approved plans?:*** All GRUs must be approved by NBC prior to installation. The system in place must match the approved plans. NBC staff will verify this during the inspection.
- (2) ***Have changes been made without NBC notification and approval?:*** Any changes to the operation of the restaurant and GRU need to be stated in writing and submitted to NBC at least 30 days prior to making the change. NBC approval must be given prior to instituting any changes. For example, if you have made some modifications to your kitchen operations after you submitted plans to NBC and you failed to notify NBC of the changes, you have violated the terms of your permit.
- (3) ***Unit accessible?:*** You need to make sure that either the indoor electro-mechanical GRU or the outside passive interceptor can be easily accessed for inspection, maintenance and sampling.
- (4) ***Power supplied to GRU?:*** If you have the electro-mechanical GRU type, electrical power **must** be connected. Not applicable to the outdoor passive interceptor.

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- (5) ***GRU solids basket was present and operational?:*** The electro-mechanical unit utilizes a strainer basket that captures solids. This basket is critical to proper operation of the unit. Not applicable to the outdoor passive interceptor.
- (6) ***Solids basket had been emptied?:*** The strainer basket mentioned in (5) must be emptied at least daily so as not to cause flow restriction problems and overflow situations. (Not applicable to the outdoor passive interceptor.)
- (7) ***GRU wiper blades were fully operational?:*** A wiper system is typically used in the electro-mechanical unit to scrape accumulated grease off the wheel or belt. If the wiper blades are not clean and in contact with the wheel or belt, grease will build-up and render the unit ineffective, so it is important to make sure that this part is functioning properly. (Not applicable to the outdoor passive interceptor.)
- (8) ***GRU trough was clean and operational?:*** The trough collects the grease separated by the electro-mechanical GRU. It needs to be cleaned out **regularly** to ensure proper operation. (Not applicable to the outdoor passive interceptor.)
- (9) ***GRU timer was fully operational?:*** The electro-mechanical unit is equipped with a timer that turns the system on and off. Timers vary from unit to unit so you need to check the equipment manual to make sure that the timer is working properly on your unit. For example, the unit should not be turned on overnight when wastewater is not being generated. (Not applicable to the outdoor passive interceptor.)
- (10) ***GRU installed in accordance with NBC requirements?:*** For either the indoor electro-mechanical or outdoor passive interceptor unit, the GRU must be installed according to the approved plans.
- (11) ***Sample port was properly installed?:*** For either the indoor electro-mechanical or outdoor passive interceptor unit, a sample port is required so that water samples can be taken at any time for analysis.
- (12) ***Grease container present?:*** The grease container collects grease separated by the electro-mechanical GRU. The container collects what is called “brown grease” and should be emptied into the appropriate receptacle for disposal. (Not applicable to the outdoor passive interceptor.)
- (13) ***Unit has been properly cleaned?:*** While specific parts of the GRU are described above for operation and maintenance, it is very important that the entire unit be inspected and cleaned periodically. Indoor electro-mechanical GRUs must be wet-vacuumed and cleaned out on a regular basis. Outdoor

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passive interceptors (picture on page 7) will contain solids on the bottom and a grease layer on top. Licensed waste disposal services need to be contacted so that the sludge and scum can be pumped out periodically.

- (14) ***How is the grease disposed of?:*** For the outdoor passive interceptors, the waste grease is pumped out and taken away by a licensed hauler. The grease recovered from indoor electro-mechanical GRUs can be disposed of as solid waste in the regular garbage or combined with the “yellow” grease for off-site reprocessing. “Yellow” grease is a more pure form of used oil taken directly from food cooking operations such as from Fryolators. Yellow grease is an excellent source of material for biodiesel production. Additional discussion on biodiesel can be found in the Best Management Practices section.

Part IV – Record Keeping

- (1) ***Is the facility required to maintain a logbook?:*** If your facility has a GRU as part of the permit requirements, then you are required to maintain a logbook. Sample logbook formats are provided with the NBC permit, but you can use any tracking sheet as long as the information required by the permit is maintained in a neat, organized way. Information must be recorded in the logbook as detailed in the permit and kept up-to-date.
- (2) ***Does the logbook properly document the following?***
- a. **Cleaning and emptying of solids basket?**
 - b. **Cleaning of wiper blades?**
 - c. **Cleaning of trough?**
 - d. **Estimated amount of grease removed?:** Estimate the quantity of grease collected in and removed from the grease container.
 - e. **Wet vacuuming of the GRU?:** Record the dates of the wet-vacuuming of the unit.
 - f. **Thickness of the grease layer (passive)?:** If you have an outdoor in-ground interceptor, you should periodically measure the grease or scum layer on top (see figure on page 7). A ruler can be used to estimate the thickness. If the layer becomes too thick or grease is observed in the final discharge pipe you should have the interceptor pumped out.
 - g. **For indoor passive GRUs - mandatory monthly cleanings including amount of grease removed, date, time?:** For indoor electro-mechanical GRUs, the tank, including the grease and solids, must be

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pumped out once every month at a minimum and more frequently if they are full.

- h. **Maintenance performed?:** All maintenance activities including those already mentioned above should be noted in the logbook.
- i. **Physical receipts for each pump-out retained?:** For the in-ground interceptor, when the waste hauler comes to pump out the tank, a receipt will be provided. This receipt is the official record of the pump out. Copies of these receipts must be available for review by NBC staff.

Part V – User Education (For NBC use only)

NBC inspectors have a section of the checklist used for educational purposes which is not included here.

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Section 3.0 – Best Management Practices Checklist Information

The information presented in this section pertains to the BMP checklist recently developed by NBC and other project partners to inform restaurants on how to maintain the best possible system for managing fats, oils and grease.



Part I – Pre Cleanup

- (1) *Are pots, pans and other dishware wiped clean (Dry Cleanup) before washing (i.e. are food scraps and FOG scraped into trash and/or are paper towels used to wipe away excess FOG)?*: Employees should take measures to ensure the remaining food and grease on dishes, pots and pans are prevented from entering the drains. Dry cleanups should be practiced by using rubber scrapers to remove fats, oil, and grease from cookware using food grade paper to soak up oil and grease under fryer baskets, and using paper towels to wipe down work areas. Dry cleanup techniques will help to reduce the amount of material entering the grease removal unit and will reduce the frequency of clean-outs, thus saving money and reducing the chance of non-compliance.
- (2) *Are Dry Cleanup activities ever monitored by a supervisor?*: If employees are supervised, they will be more apt to perform dry cleanup activities. Initially, close supervision may be needed until the employees become accustomed to pre-cleaning.
- (3) *Are employees given formal instruction/training not to allow **FOG** or food waste to enter drains?*: It is important to train the staff to let them know what will happen if excess **FOG** and food enter the drains. Explanation of increased costs and burden to the business which could affect the stability of the business and their jobs may convince the employees to be more conscientious of good practices.
- (4) *Are “No **FOG** Discharge” signs placed over appropriate sinks?*: Signs are an excellent and constant reminder for all staff. These reminders will help to reduce the amount of grease that ends up in the traps and interceptors, therefore reducing the cost of cleaning and disposal.

Part II – **FOG** On-Site Management and Handling

- (1) *Does the facility use fryalator(s)?*: Fryalators are commonly used to cook food with vegetable oil and are the major source of waste “yellow” grease. If fryalators are used, it is useful to monitor how much oil is used and disposed

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of and how often. The number of units that are being used should be noted here. If your facility does not use fryalators you can skip the rest of this section and proceed to Question (2).

How often is oil replaced in each unit?: Write down how often you change the oil. Information will be used to determine how much oil you actually use and dispose of.

How much oil is placed in each unit?: Write down how much oil each unit holds. Combined with the frequency you change the oil, you can determine how much oil you are using.

How is waste “Yellow Grease” from fryalator(s) managed?: Yellow grease is the waste oil removed from the fryalators. Note how you are currently managing this waste, whether it be trash disposal or off-site shipment. Ideally, the best method is to store the yellow grease for transport to a biodiesel processing facility where the waste oil is converted to usable fuel. NBC can provide information regarding local facilities that can pick up the yellow grease.

Is waste FOG picked up by a waste grease hauler?: As mentioned above, it is best to have a company that can re-process the waste FOG for value-added products as your waste grease hauler. If you are using such a hauler, you should include information about them here.

How much FOG is typically collected?: Write down the amount and frequency of the waste grease that is hauled away.

How is waste FOG ultimately managed?: As mentioned above, it is beneficial to recycle waste oil and even food wastes. There are companies that specialize in taking waste oil from fryalators and other types of equipment and then converting the waste material into animal feed or biofuel. Often these companies will collect the grease from your facility and process it for little or no cost to you. A good recycling program reduces the amount of solid waste to be disposed of and prevents discharge to the sewer, thus helping to reduce maintenance and stress of any grease trap or interceptor.

- (2) ***Does the facility use indoor GRU(s)?:*** Three types of grease removal units were discussed in Section 2.0 – electro-mechanical GRUs, passive indoor units and passive outdoor in-ground grease interceptors. The type of FOG O&G removed and recovered from GRUs is called “brown” grease. Another GRU type is the passive indoor grease trap that holds less volume than the outdoor grease interceptors and thus needs to be cleaned more frequently. If your facility uses these indoor GRUs, you must inform the NBC and maintain

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the unit(s) regularly in accordance with your Wastewater Discharge Permit. It is good practice to inspect and clean them daily to help reduce the amount of grease leaving your facility and entering the discharge line.

The recovered grease from the indoor GRU(s) should be placed in a proper disposal container for either disposal or recycle. You also should keep track of how much brown grease is removed from the indoor trap(s) and note how this particular grease waste is managed. Brown grease has less recycle value than yellow grease, so brown grease is typically disposed of in the trash.

- (3) ***Does the facility have an outdoor grease interceptor?:*** As explained in Section 2.0, some facilities have this type of grease removal equipment to separate out **FOG** from the wastewater stream before entering the sewer line. If your restaurant does not use an outdoor in-ground interceptor, you can skip this section and go on to Question (4).

You need to keep track of how often the interceptor is pumped out and how much is hauled away. Write down the name and contact information of the hauler and, if possible, try to determine where the hauled waste is ultimately sent to (sewage treatment plant, for example).

Outdoor grease interceptors should be cleaned out regularly to prevent fats, oil and grease from being discharged to the sewer. They should be cleaned at least quarterly, but more frequent cleaning intervals may be necessary to prevent your grease interceptor from operating improperly. If you see floating grease or grease deposits in the sampling standpipe of the interceptor, you need to increase the service frequency. Make sure your service/hauler cleans any accumulated deposits off any contact points and piping.

- (4) ***Are employees trained in **FOG** spill management procedures?:*** You should make sure that all employees understand how to deal with accidental oil/grease spills. Proper training will ensure that personnel react correctly to spills and any release of oil and grease into the drains.
- (5) ***Are spill clean-up kits available and readily accessible (should include absorbent material, broom, shovel and container for collected material)?:*** It is strongly recommended that your restaurant be equipped with commercial spill kits that contain absorbent materials and are located in an easy accessible area with a broom and shovel. As part of your training program, employees should know where the spill kits are kept and how to use them properly. These kits can help you to clean up oil and grease that has been spilled onto the ground and prevent the spills from entering any floor drain systems (indoor) or, if the spill occurs outside, entering any storm drain systems. Do

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not use absorbent materials such as “kitty litter” or saw dust since they can flow into the storm drains outside when it rains. Use absorbent pads or cloths to clean up any spills or leaks.

- (6) *Is there a designated employee(s) responsible for **FOG** management?:* Always having a person (even if that person varies per shift) assigned to be responsible for managing the oil and grease waste will help to ensure that all required tasks and best management practices are performed properly. If there is no single person in charge of oil/grease management, miscommunication and inadvertent discharge of oil/grease into the sewer can result and create problems for your business.
- (7) *Are formal safe handling procedures in place for transferring collected **FOG** from kitchen to storage/disposal areas?:* Preventing spills reduces the amount of time and resources wasted on cleaning food preparation and serving areas. Also, a workplace without spills and the risk of slips and falls is safer for employees.
- (8) *Is waste **FOG** stored indoors?:* If you don't store waste **FOG** indoors, proceed to question (9). If you do, it is important that the waste is stored in sturdy, leak-proof containers that are labeled properly and away from any floor drains. Accidental spills that end up in drains can cause problems with clogging and non-compliant sewer discharge.
- (9) *Is any waste **FOG** stored outdoors?:* If waste oil/grease is stored outside, it is important that the covers on the containers are always kept closed to prevent rainwater from entering. Overflow situations could arise and allow the oil/grease to reach the ground and enter storm drain systems. Storm drains are connected to natural waterways and/or sewer systems and any oil/grease contamination can have serious environmental impacts. In addition, if the outdoor bins are designated for recycle, water contamination may render the waste oil unusable for further processing into high value products like biofuels.

All containers should be labeled and kept away from storm drains. It is also recommended that secondary containment be in place to hold any fluid that could leak out of the storage container. Berms (short-walled structures, resembling a curb) can be placed around the containers. Or the bins can be placed inside a larger container with enough gap distance between the walls to be able to hold 110% of the volume of the oil bin. It is important to ensure that all potential spills and leaks are prevented and controlled.