Handy Sanitary District

Fat, Oil, and Grease (FOG)

Regulations

Approved Feb. 10, 2011

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1. Introduction

1.1 Fats, Oils, and Grease (FOG) is a leading cause of sanitary sewer overflows (SSO) in North Carolina. Grease is a common term for animal fats and vegetable oils. Residential and commercial users, who are often unaware that they are causing potential harm, introduce FOG from their cooking processes, into their plumbing system and Handy Sanitary District's sanitary sewer system. Over time FOG builds up and clogs pipes and plumbing. In the collection system, FOG leads to blockages, which can cause sewer overflows onto streets and property, in the grinder pump stations, and into the homes and businesses. These overflows disrupt residential, commercial, and industrial operations, and carry the potential for health risks which comes from contact with disease-causing organisms. Raw sewage can carry bacteria, viruses, parasite organisms, etc., which may bring diseases from mild gastroenteritis (diarrhea) to life threatening ailments such as chlorea, dysentery, and hepatitis. They also increase sewer system maintenance costs and present potential impacts to our environment.

2. Definitions

2.1 HSD – Handy Sanitary District

2.2 Manager – General Manager of Handy Sanitary District

2.3 Director – Utilities Director of Handy Sanitary District

2.4 FOG – material either liquid or solid, composed primarily of fat, oil, or grease from animal or vegetable sources. Examples of FOG include kitchen cooking grease, vegetable oil, bacon grease, etc.

2.5 Food Handling Facilities – Any commercial or institutional facility discharging kitchen or food preparation wastewaters including restaurants, motels, hotels, cafeterias, schools, bars, churches, etc.

2.6 Grease Interceptor – A device, usually located underground and outside of a Food Handling Facility designed to collect, contain, and remove food wastes and grease from the wastewater while allowing the remaining wastewater to be discharged to HSD's wastewater collection system by gravity or by pumping measures.

2.7 Grease/Solids Depth – The grease/solids depth consists of the combined depth of the grease cap at the top of the Grease Interceptor's liquid level and the solids deposition at the bottom of the Interceptor. (Example: The grease cap at the top of the liquid measures six inches and the solids at the bottom measures eight inches for a combined accumulation of 14 inches. The interceptors liquid level is 48 inches. The grease/solids depth is 14 divided b y 48 times 100 or 29% of the liquid depth.)

2.8 Grease Trap – Indoor, "under the counter" units designed to collect, contain, and remove food wastes and grease from the wastewater while allowing the remaining wastewater to be discharged to HSD's wastewater collection system by gravity or by pumping measures.

2.9 Oil/Water Separator – A device, designed to remove oil (e.g. petroleum-based products) from the waste stream while allowing the remaining wastewater to be discharged to HSD's wastewater collection system by gravity or pumping measures.

2.10 User – Any person, establishment, or facility that contributes, causes, or permits the contribution of FOG into HSD's sanitary sewer system.

2.11 Variance – A written document issued by HSD's General Manager that modifies and/or changes requirements of the FOG program for a specific user.

3. FOG Reduction Best Management Practices

3.1 The best way to reduce FOG in your plumbing and HSD's sanitary sewer system is to keep it from going down the drain in the first place. Household sinks (bathrooms and kitchen) and toilets all discharge to the sanitary sewer system.

3.2 Some best management practices that residents can practice to reduce FOG generation include:

3.2.1. Be careful of what you put down your drains or flush down your toilets!

3.2.2. Scrape, or dry wipe, excess grease from frying pans, pots and dishes into containers (old milk cartons, frozen juice containers, etc.) or a plastic garbage bag, and dispose of in the garbage. Cat litter or used coffee grounds can absorb the liquid in the container.

3.2.3. Pour all cooking oils (including salad oils, frying oil/grease, bacon fat, marinades, etc.) into a container for ultimate disposal with the trash.

3.2.4. Place leftover foods, meat trimmings, etc. in the trash can and not down the garbage disposal.

3.2.5 Never dump motor oil or other lubricants down the drain. Take them to a collection station.

3.2.6 Never use the toilet for disposal of kitchen wastes. Also, do not flush disposable diapers, paper towels and other bulky paper products down the toilet. These bulky items, combined with the grease build-up will stop the flow of wastewater through private plumbing and the sewer system.

3.3 Controlling grease at its source goes a long way toward eliminating blockages and backups that result from grease build-up. Appendix A is a Fact Sheet for Best Management Practices for commercial establishments prepared by the North Carolina Pretreatment Coordinators. Special procedures may be required for specific applications.

4. General Requirements

4.1 In order to reduce sewer blockages, Food Handling Facilities that discharge into HSD's sanitary sewer system must install a Grease Interceptor or Trap. Grease Interceptors shall be required at the users expense, when such user operates food preparation or serving facilities. Grease Interceptors may be required in other commercial or industrial applications when deemed necessary by the Manager.

4.2 The Manager reserves the right to make determinations of Grease Interceptors or Grease Trap adequacy, need, and effectiveness based on a review of all relevant information regarding Grease Interceptor/Trap performance, maintenance, and facility site/building review. To assure adequacy and effectiveness, the Manager may require repairs, modifications, or replacement of such Interceptors or Traps. The Manager may request specific information impacting potential FOG production including menus, hours/days of operation, food preparation procedures, clean up practices, etc.

4.3 Automotive-related facilities that may contribute petroleum-based oil to HSD's sanitary sewer collection system are required to install an EDA or DENR-approved Oil-Water Separator.

4.4 Wastewater from sanitary facilities shall not be introduced into any Grease Interceptor, Grease Trap or Oil/Water Separator.

4.5 New Food Handling Facilities will not be allowed to initiate operations until a Grease Interceptor is approved and inspected by HSD. Existing facilities must comply by July 1, 2011.

4.6 Any facility with an existing Grease Interceptor or Trap that anticipates expanding food handling or preparation operations must receive approval from the Manager.

5. Authority

5.1 The North Carolina Clean Water Act of 1999 required jurisdictions to obtain a permit from the Department of Environment and Natural Resources for the operation of wastewater collection systems.

5.2 With the completion of the sewer project and to comply with the Sewer Use Ordinance, the Division of Water Quality will require Handy Sanitary District to create and enforce a Fat, Oil, and Grease Program. This will be a portion of our permit requirements.

6. Design Guidelines

6.1 Detailed plans, showing the Grease Interceptor facilities and operating procedures, must be approved by HSD General Manager and the Local Building Inspection and Public Health. The review and approval by HSD shall in no way relieve the user from the responsibility of meeting effluent discharge limitations or properly maintaining the device.

6.2 Grease Interceptor Design

Outside, in-ground, Grease Interceptors are required for all Food Handling Facilities, unless a Variance is granted by the Manager. Grease Interceptors are typically pre-cast concrete units that are plumbed to receive only kitchen wastes (pot sinks, prep sinks, can wash, floor drains, dishwasher, and food grinder waste). The Grease Interceptor should be located as close to the source as possible, and in a manner that is fully accessible for regular and safe maintenance, cleaning and sampling, without creating a nuisance.

6.3 A registered North Carolina Professional Engineer (PE) must affix his PE seal to all designs that encroach public right-of-way (not on private property).

6.4 Minimum design criteria for pre-manufactured Grease Interceptors shall include:

6.4.1 Minimum capacity of 1,000 gallons

6.4.2 9 inches of freeboard above the normal liquid level to the top of the interceptor.

6.4.3 2 inch inlet and outlet differential

6.4.4 3 inch minimum wall thickness and reinforced with 6 inch x 6 inch, #10 gauge welded wire.

6.4.5 Minimum concrete compressive strength of 3,500 psi.

6.4.6 Minimum 2:1 length/width ratio.

6.4.7 At least two compartments with an interior baffle wall located two-thirds to three-quarters of the distance from the inlet end wall, vented at the top and with adequate flow through holes

6.4.8 Outlet tee constructed of PVC, PE, or equivalent, minimum class 160 pipe extending 50 percent of liquid depth.

6.4.9 24 inch minimum access openings over both compartments brought up to at least finished grade and protected from surface water runoff. Access covers shall be cast iron or equivalent.

6.4.10 Design shall facilitate sampling of the interceptor's effluent, measurement of the grease layer, and clean out pumping operations.

6.4.11 Watertight per vacuum or exfiltration test

6.4.12 Properly sealed joints to prevent infiltration or exfiltration.

6.5 Minimum structural criteria shall include:

6.5.1 Minimum structural design at 150 lbs/ft2 (non-vehicular traffic installations)

6.5.2 H-20 bridge load for vehicular traffic conditions

6.5.3 ACI Building Code 318 (reinforced concrete design)

6.5.4 ASTM C1227-93 Standards for Pre-Cast Concrete Tanks

6.5.5 ASTM C890 Structural Design Load for Pre-Cast Water and Wastewater Structures

6.6 Grease Traps

Indoor, point source Grease Traps incorporated into the kitchen plumbing may be allowed if the installation of a suitable outdoor Grease Interceptor is infeasible or unnecessary, a "hardship" is acknowledged, and the Manager approves a Variance (See Section 10. Variance). Certain conditions may be imposed by the Manager with the issuance of a Variance, such as an increased clean-out frequency, futher study, etc.

6.7 A licensed North Carolina Plumbing Contractor shall install all Grease Interceptors and Grease Traps in compliance with the latest edition of the North Carolina State Plumbing Code and obtain a building permit from the local Building Inspections and/or Public Health.

6.8 The user shall verify the minimum tankage required based on the anticipated flow rates and organic loads, using generally accepted methods of design such as Environmental Protection Agency, North Carolina Division of Environmental Health or Uniform Plumbing Code methods. **The user shall be solely responsible for the performance of the device and it's ability to consistently reduce effluent FOG concentrations below 100 mg/l as measured by EPA Method 1664A.**

7. Maintenance Practices/Records

7.1 Grease Interceptors and Traps should be cleaned as frequently as necessary to maintain FOG concentrations below 100 mg/l in the effluent, but in no case shall cleaning intervals exceed 30 days. Grease Traps may require more frequent cleaning. Grease Interceptors with a combined grease/solids depth (see Section 2 Definitions) of greater than 25% of the liquid depth are also considered in violation.

7.2 Haulers are required to use HSD approved equipment that contains incremental depth markings on a plastic cylinder to measure the grease cap and solids deposition depths.

7.3 All waste removed from the Grease Interceptor or Trap must be disposed at a facility permitted by the North Carolina Division of Solid Waste Management to receive such waste. The user shall be responsible for the proper removal and lawful disposal of the Grease Interceptor/Trap waste.

7.4 The use of enzymes, chemical, or biological additives is not considered an acceptable Grease Interceptor/Trap maintenance practice.

7.5 All Food Handling Facilities that discharge into HSD's sanitary sewer system shall maintain written records, on site, of maintenance activities for grease removal devices. A copy of the Grease Removal Device Maintenance Form, "Maintenance Form", contained in Appendix B, shall be completed and delivered, or mailed, to Handy Sanitary District office on a monthly basis, or according to the frequency schedule stipulated by Manager. HSD is not responsible for documents that are not received at the address below. Completed Maintenance Forms are required for facilities that remove FOG using Grease Interceptors or Grease Traps and shall be submitted to:

Handy Sanitary District

P.O. Box 987

Denton NC 27239

7.6 A Grease Removal Device Maintenance Log, "Maintenance Log" that summarizes maintenance activities is provided in Appendix D. This form shall be clearly posted in the kitchen at all times, and in plain view of kitchen workers, to illustrate maintenance activities and compliance with these regulations. The Maintenance Log shall summarize information contained in the Maintenance Form for Interceptor installations.

7.7 The Maintenance Log shall be updated every time a Grease Trap is cleaned out. Grease Trap maintenance typically involves removing the contents of the Grease Trap for interim disposal in an outdoor, on-site, grease storage barrel. The waste hauler then removes the contents of the grease storage barrel for ultimate disposal and completes the Maintenance Form, with appropriate signatures for the waste hauler and kitchen manager. The Maintenance Form is then submitted the HSD at the frequency requested.

7.8 Maintenance records must be kept by the user for at least three (3) years and shall be provided upon request from representatives of HSD or the local Health Inspector. Failure to provide maintenance records upon request shall be considered a violation.

8. Determination of Compliance with Maintenance Requirements

8.1 A Grease Interceptor shall be considered out of compliance if any of the following conditions exist:

8.1.1 FOG concentrations are found to exceed 100 mg/l as measured by EPA Method 1664A

8.1.2 Maintenance cleaning has not been accomplished every 30 days, unless a Variance is granted.

8.1.3 The grease/solids depth exceeds 25% of the liquid depth

8.1.4 Failure to submit records

8.1.5 Inspection hindrance

8.1.6 Failure to maintain on-site records

8.1.7 Failure to maintain Interceptors or Traps in proper working order

8.1.8 Source of sewer blockage

8.1.9 Source of sanitary sewer overflow

8.1.10 Falsification of records

8.2 Typically, Food Handling Facilities will be evaluated based on maintenance cleaning compliance and reported grease/solids depths. HSD may perform random inspections to determine if grease/solids depth exceed 25% of the interceptor's liquid depth and/or collect samples for determination of effluent FOG concentrations.

9. Inspection and Sampling

9.1 Handy Sanitary District may conduct inspections of Food Handling Facilities connected to the sanitary sewer system, as HSD deems necessary to ascertain whether the purpose and requirements of these FOG regulations are being met. Persons or occupants of premises where wastewater is created, discharged or suspected to be discharged, shall allow HSD personnel ready access at all reasonable times to all parts of the premises for the purpose of inspection, sampling, and records examination. HSD shall have the right to set up on the users property such devices as are necessary to conduct sampling, inspection, and compliance monitoring operations. Denial of HSD's access to the user's property shall be deemed a violation. Unreasonable delays may be considered denial of access. A Grease Interceptor Inspection Form used by HSD is contained in Appendix C.

10. Variance

10.1 A Variance to the design and maintenance requirements contained herein may be requested when compliance creates an undue hardship or if a grease trap is sufficient. Hardships caused by space availability, minimal anticipated FOG production, cost, etc., may be grounds for a variance. The user must submit sufficient documentation, as required by the Manager, which explains the need to vary from design or maintenance requirements. A minimum of four months of data should be submitted for maintenance cleaning frequency modifications or similar requests.

10.2 After review of the documentation, HSD will notify the Food Handling Facility in writing of acceptance of denial of the Variance request. HSD may also request further study pursuant to or, as a condition of the Variance. Certain conditions may be imposed by the Manager for installations that have received a Variance.

10.3 If a Variance is granted and the user subsequently increases anticipated food service production or HSD later determines that the discharge adversely impacts the sanitary sewer collection system or treatment works, the Variance may be revoked.

10.4 A Variance application fee of $300.00 will be paid to HSD upon submission of the Variance request and prior to HSD review. Variance application fees may be waived at the discretion of the Manager for follow up modifications of the same variant issue contained in the original application. (For example, if a variance had been granted to allow maintenance cleaning every two months and, subsequently it can be shown that a three-month maintenance frequency is acceptable, then the fee may be waived.)

10.5 HSD will waive Variance application fees for existing facilities until Oct. 1, 2011. After this date, existing facilities operating prior to Oct. 1, 2011 will be required to submit the Variance application fee.

11. Enforcement

11.1 If any residence or Food Handling Facility is determined to be the source, in whole or in part, of a sanitary sewer blockage and/or overflow, the residence or facility will be accessed a fine of not less than $500 and not more than $10,000, plus remediation costs for clean up, in addition to any fines dispensed from the State of North Carolina. The fines contained herein are not exclusive and the Manager may use other methods to remedy the situation, such as the termination of water and wastewater service, legal action, etc.

Minor Violations

	1st Offense	2nd Offense	3rd Offense	4th Offense & up
Failure to submit records	Warning	$100	$150	Major Violation
Inspection hindrance	Warning	$100	$150	Major Violation
Failure to maintain on-site records	Warning	$100	$150	Major Violation

Moderate Violations

	1st Offense	2nd Offense	3rd Offense	4th Offense & up
Failure to maintain interceptors in proper working order	$150	$300	$500	$1,000
Failure to clean out interceptor every 30 days	$150	$300	$500	$1,000

Major Violations

Source of sewer blockage (minimum)	$500
Source of sanitary sewer overflow (minimum)	$1,000
Falsification of records	$1,000

Appendix A:

Fact Sheet For Best Management Practices

Appendix B

Grease Removal Device Maintenance Form

Grease Removal Device Maintenance Form

Handy Sanitary District FOG Program

DATE: _____

FOG ID# _____

SERVICE EVENT: _____
(Pump Out, Sampling, Special Event)

FOOD HANDLING FACILITY: _____

NAME/ADDRESS: _____

_____

_____

TELEPHONE: _____

SIGNATURE: _____ (KITCHEN MNG)

_____ (WASTE HAULER)

WASTE HAULER NAME/ADDRESS: _____

_____

_____

_____

NC PERMIT # _____

RECORD OF SERVICE: (ONLY GREASE INTERCEPTOR FACILITIES NEED TO MEASURE GREASE/SOLID DEPTHS)

GREASE/SOLIDS DEPTH: _____ IN. (GREASE+SOLIDS DEPTH) / _____ IN (NORMAL LIGUID DEPTH) X 100 = _____%

TOTAL GALLONS PUMPED OUT: _____ (INTERCEPTOR AND TRAP REMOVAL FACILITIES MUST COMPLETE)

DESCRIPTION OF SERVICE: _____

_____

_____

SUGGESTIONS FOR MAINTENANCE/MANAGEMENT: _____

_____

DESTINATION OF DISCHARGE: (WASTE PROCESSOR NAME/LOCATION) _____

_____

LAS PERMIT # _____

PERMIT OPERATOR: _____ (PRINT)

APPENDIX C:

GREASE INTERCEPTOR INSPECTION FORM

DATE: _____ TIME: _____

INSPECTOR: _____

SITE INFORMATION

FOOD HANDLING FACILITY: _____

FOG ID #: _____

LOCATION: _____

_____

_____

CONTACT NAME: _____ TITLE: _____

PHONE: (_____) _____

INTERCEPTOR INSPECTION

LAST DATE OF INSPECTION: _____

INTERCEPTOR LOCATION: _____
(SKETCH ON BACK)

INTERCEPTOR TYPE: _____

INTERCEPTOR SIZE: _____ GALLONS DIMENSION (L X W)_____

TRAP: _____ lb _____ gpm

ACCESS MANHOLES IN PLACE: YES / NO

SAMPLE TEE / SAMPLE POINT ON INTERCEPTOR: YES / NO

	1ST COMPARTMENT	2ND COMPARTMENT	3RD COMPARTMENT
GREASE CAP	IN/FT	IN/FT	IN/FT
SOLIDS DEPTH	IN/FT	IN/FT	IN/FT

OBSERVATIONS/COMMENTS:

_____

_____

INTERCEPTOR SAMPLING

INTERCEPTOR SAMPLED: YES / NO DATE: _____ TIME: _____

SAMPLE ID: _____ SAMPLE TYPE: GRAB / COMPOSITE

PH: _____ TEMP: _____

FATS/OIL REMOVAL

1. CONTRACTED COMPANY (GREASE REMOVAL): _____
2. DATE OF LAST SERVICE (GREASE REMOVAL): _____
3. PUMPING FREQUENCY: _____
4. RECORDS KEPT OF INTERCEPTOR SERVICE: YES / NO

VIOLATION: Y / N TYPE:_____ CAUSE OF VIOLATION: _____

APPENDIX D:

GREASE REMOVAL DEVICE MAINTENANCE LOG

GREASE REMOVAL DEVICE MAINTENANCE LOG
HANDY SANITARY DISTRICT

FOOD HANDLING _____

FOG ID# _____

FACILITY _____

NAME/ADDRESS _____

_____

_____

YEAR: _____

TELEPHONE _____

DATE	WASTE HAULER	WASTE PROCESSOR (DESTINATION	GREASE/SOLIDS DEPTH * (% OF NORMAL LIQUID DEPTH)	TOTAL GALLONS PUMPED OUT	MAIN/ MNG SUGG	ACTIONS TAKEN

* INTERCEPTORS ONLY