



WESTERN VIRGINIA
WATER AUTHORITY

Fats, Oils, and Grease (FOG) Discharge Policy

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A. GENERAL FATS, OILS AND GREASE (FOG) DISCHARGE POLICY

- I. Fats, oil and grease (FOG) in wastewater can result in the decreased carrying capacity of sewers due to congealed, cooled grease which coats the inside of the pipes. Once a pipe becomes constricted, the potential for a blockage increases. Blockages can and will eventually cause sanitary sewer overflows.
- II. The following is the FOG Policy for the Western Virginia Water Authority (the "Authority") including grease interceptor sizing examples in Appendix A, Best Management Practices in Appendix B, and FOG Policy definitions in Appendix C. The purpose of establishing the FOG Policy is to protect public health by eliminating sanitary sewer system overflows due to FOG and reduce the amount of FOG discharged to the sanitary sewer system while reducing maintenance costs for the Authority's customers and improving operation of the collection system. Any wastewater, which contains FOG, shall only be discharged into the Authority's sanitary sewer system under the conditions of this Policy and with a valid FOG discharge permit.
- III. A FOG discharge permit shall be required of any customer of the Authority including businesses, institutions, or establishments participating in the preparation or service of food, where fats, oil and grease may be discharged into a public sewer, except as provided in item A (V) and in accordance with the schedule provided in item A (IV). Such customers shall obtain a FOG discharge permit from the Authority as a condition of wastewater service. Grease interceptors, waste oil collection devices or other applicable pretreatment units shall be installed, operated, maintained, and repaired solely at the customer's expense.
- IV. Schedule for Compliance with the FOG Discharge Policy
 1. New construction of any establishment meeting the criteria of item A (III) shall obtain a FOG discharge permit and be in full compliance with its construction requirements before commencing any wastewater discharges to the sanitary sewer system.
 2. Existing structures meeting the criteria of item A (III) due to a change of use shall obtain a FOG discharge permit and be in full compliance with its provisions within 6 months of issuance.
 3. Existing structures meeting the criteria of item A (III) being renovated or expanded shall obtain a FOG discharge permit and be in full compliance with its provisions within 6 months of issuance.
 - a. Existing structures being renovated or expanded that already have a FOG discharge permit shall contact the Authority to determine if a modification is needed.

4. Existing establishments determined by the Authority to be contributing FOG to the sanitary sewer system in excess of 200 mg/L as total recoverable FOG, are causing increased downstream maintenance of the sanitary sewer system, or are contributing to downstream backups or overflows due to grease blockages shall obtain a FOG discharge permit and be in full compliance with its provisions within 6 months of issuance.
5. Regardless of permit status, establishments causing FOG blockages shall also be responsible for costs incurred by the Authority to remedy the effect of the establishment's FOG discharge.

V. Exceptions:

1. Establishments meeting the criteria of item A (III) that use disposable service ware and have less than 25 seats will not be required to install a grease interceptor. This exception does not apply to wholesalers, commercial kitchens or take-out only establishments. The establishment shall complete and submit a FOG discharge permit application showing fixtures, seat count and certify usage of disposable service ware and shall comply with all other provisions of the FOG Policy. Exception must be pre-approved by Authority prior to: construction of new establishment; beginning modifications and/or opening of a new establishment in an existing building; or beginning construction of new seating addition or kitchen expansion of an existing establishment.
2. A FOG discharge permit shall not be required for single-family residences unless such residences have been converted for commercial food preparation use.
3. A FOG discharge permit shall not be required for duplexes, triplexes, quadplexes, or apartment complexes. However, multifamily dwellings which are found to be contributing FOG in sufficient quantities to cause main line blockages or increased maintenance in the sanitary sewer system shall be required to obtain a FOG discharge permit.
4. Single service kitchens with no food preparation (microwave heating and serve only), and which use only disposal service ware will not be required to install a grease interceptor. This applies only to establishments that are not serving the general public. The establishment shall complete and submit a FOG discharge permit application showing number of fixtures, seat count, and certify usage of disposable services ware and shall comply with all other the provisions of the FOG Policy. Exception must be pre-approved by Authority prior to: construction of new establishment; beginning modifications and/or opening of a new establishment in an existing building; or beginning

construction of new seating addition or kitchen expansion of an existing establishment.

VI. The Authority reserves the right to waive portions of the FOG Policy at its discretion. If a properly-sized grease interceptor cannot be accommodated within the property of existing establishments, a waiver may be requested from the Authority. For existing establishments, the establishment shall demonstrate to the satisfaction of the Authority that the installation of a grease interceptor would be unfeasible and or would cause an undue hardship in the utilization of the building as a food service establishment. The establishment seeking the waiver shall submit a written request to the Authority detailing the reasons and issues supporting the waiver request. The establishment shall complete and submit a FOG discharge permit application and shall comply with all other provisions of the FOG Discharge Policy as well as the Best Management Practices (BMP) of Appendix B¹. A waiver to the grease interceptor installation requirement shall not relieve the establishment of the requirement to use waste oil barrels to dispose of waste cooking grease as detailed in item E (III).

1. For any establishment granted a waiver that fails to comply with the provisions of the FOG Policy (except as waived) or fails to comply with the BMPs of Appendix B, the Authority reserves the right to require the establishment to install a grease interceptor or pay monthly fees for noncompliance.

B. DESIGN OF GREASE INTERCEPTORS

- I. Grease interceptors shall be designed and constructed in accordance with the provisions of the FOG Policy, in accordance with the most current edition of the Authority's Design and Construction Standards and in compliance with the requirements of the Virginia Department of Health (VDH).
- II. Design and construction shall be approved by the Authority's Engineering Services Division.
- III. The establishment shall hire an engineering firm to prepare site layout, size the grease interceptor and prepare a plan detailing connection to the Authority's sanitary sewer.
- IV. The discharge from the following fixtures shall be included: all sinks, dishwashers, floor drains in food preparation and storage areas, food waste grinders and any other fixtures through which grease may be discharged.

¹ Editor's Note: A waiver to the grease interceptor installation requirement shall not relieve the establishment of other FOG Policy requirements such as use of waste oil barrels to dispose of waste cooking grease as detailed in item E (III).

- V. Grease interceptors shall include isolation valving in the inlet piping to the interceptor to stop flow for cleaning purposes.
- VI. Grease interceptors shall be installed on the customer's property and in a location outside of the customer's establishment, which provides access for inspection, cleaning, and maintenance, including pumping.
- VII. Wastewater from sanitary establishments shall not be introduced into the grease interceptor under any circumstances.
- VIII. Grease interceptors are to be installed at a minimum distance of 10 ft. from sinks and dishwashers to allow for adequate cooling of wastewater. The influent to interceptors shall not exceed 140 degrees Fahrenheit (140° F). The temperature at the flow control device inspection port shall be considered equivalent to the temperature of the influent².
- IX. Where food-waste grinders are installed, the waste from those units may discharge directly into the sanitary sewer system or pass through the grease interceptor according to applicable plumbing codes. For grease interceptors with discharges from a food grinder, the grease interceptor size shall be increased by 30% of the sizing requirement.
- X. Drains that receive "clear waste" only, such as from ice machines, condensate from coils and drink stations, may be plumbed to the sanitary system without passing through the grease interceptor with the condition that the receiving drain is a "hub" type with a minimum of two inches above the finished floor.
- XI. All waste shall only enter the grease interceptor through the inlet flow control device.
- XII. Grease interceptors shall conform to the following criteria when being designed and constructed:
 - 1. New in-ground grease interceptors shall be **no less than 750 gallons** total capacity. The maximum capacity of any grease interceptor shall be 1500 gallons unless advised otherwise by the Authority's Engineering Division. Where sufficient capacity cannot be achieved with a single interceptor, installation of grease interceptors in series shall be required.
 - 2. Minimum 2:1 length to width ratio.
 - 3. Nine (9) inches of freeboard at grease interceptor top.

² Editor's Note: This is to ensure good removal. If the interceptor is either too small or too close to the commercial dishwasher, grease may pass through the interceptor and into the sanitary sewer system.

4. Inlet and outlet tees. Inlet and outlet tees must be plugged at the top of the sanitary tee and be a minimum of four (4) inches in diameter.
5. Access openings over the inlet and outlet (each compartment) within the grease interceptor. Each opening shall be twenty-four (24) inches in diameter and contain pick bars. All covers shall be constructed of cast iron or equivalent traffic bearing material and allow for proper maintenance and inspection.
6. Manholes and covers must extend to the finished grade and be installed to exclude the entrance of surface or storm water into the interceptor.
7. Manhole covers shall:
 - a. Have the word "Grease" cast into the manhole cover
 - b. Contain no holes
 - c. Be a gasket design to prevent inflow of stormwater
8. Full size cleanouts shall be installed on the inlet and outlet sides of the interceptor and extended to grade.
9. Have a minimum concrete compressive strength of 3,500 psi.
10. Joints should be properly sealed to prevent infiltration or exfiltration.
11. Grease interceptors must meet a minimum structural design of 150-pounds per square foot for non-traffic installations. For vehicular traffic conditions the grease interceptor shall be designed to withstand H-20 wheel loads.
12. Grease interceptors shall meet the following standards: ASTM C-1227 (Septic Tanks), C-913 (Pre-cast Concrete Water and Wastewater Structures), ACI-318 (Design) and ASTM C-890 (for establishing Minimum Structural Design Loading).
13. A licensed Virginia design professional will specifically design cast in place grease interceptors.
14. An Authority inspector shall inspect the grease interceptor prior to installation. Contractor shall call (540) 853-5698 forty-eight (48) hours prior to installation. The Authority will not accept a grease interceptor that has not been inspected prior to installation.
15. Prior to Authority inspection, the contractor shall submit shop drawing of the grease interceptor to Cassie Altice at 601 S. Jefferson Street, Roanoke, VA 24011 or fax it to (540) 853-1017. The shop drawing shall list "*Grease Interceptor for (insert the actual project name here)*" as the heading of the

drawing. The Authority reserves the right to waive the shop drawing requirement.

- XIII. In approving an establishment's grease interceptor design, the Authority does not accept liability for the failure of a system to adequately treat wastewater to achieve effluent quality requirements specified under this policy. It is the responsibility of the establishment to insure the appropriate level of treatment necessary for compliance with the FOG Policy and applicable regulations.
- XIV. It is suggested but not required that all new buildings, such as malls, strip centers, etc., containing sections designated for commercial enterprise, provide a stub-out for a separate waste line for future grease interceptor installation. The designer of such new structures shall consider suitable physical property space and sewer gradient that will be conducive for the installation of an exterior grease interceptor(s) for any flex space contained within the building. Physical property restrictions and sewer gradient shall not be a basis for a waiver to install a grease interceptor after the effective date of this policy.

C. PLAN SUBMITTAL REQUIREMENTS

The following procedures are to assist the applicant in permit application, plan submittal, and permit issuance.

- I. Establishments required to install a grease interceptor shall submit the following to the Authority:
 - 1. A completed FOG discharge permit application.
 - 2. Detailed calculations by A & E firm, licensed engineer, or competent design professional showing size of the grease interceptor. An example of grease interceptor sizing is contained in Appendix A.
 - 3. A complete list of all fixtures. For all sinks, list dimensions and drain sizes. For all dishwashers, list discharge flow rates as determined by the manufacturer's specifications.
 - 4. Plans showing:
 - a. Location of grease interceptor, inverts and elevation of manholes.
 - b. Fixture plumbing.

- c. Grease interceptor detail showing correct sizing information.
 - d. Grease recycling barrels located near the dumpster area.
- II. Two (2) copies of calculations and plans are to be submitted to the Authority.
- III. All interceptor construction details shall be reflected in the as-builts submitted to the Authority upon substantial completion or completion of construction.

D. FOG DISCHARGE PERMIT

- I. A FOG discharge permit is required of establishments identified in item A (III) to discharge wastewater the sanitary sewer system. A completed "FOG Discharge Permit Application" shall be submitted to the Authority under the schedule in item A (IV). The permit sets the terms and conditions to achieve compliance with the FOG Policy and shall include installation of a grease interceptor unless excepted or waived, recycling or disposal of waste oil, fats & grease, as required by item E (III) and implementation of all other provisions of the FOG Policy. Certain FOG discharge permits may require compliance with the Best Management Practices of Appendix B. FOG discharge permits may contain specific milestone dates to be met by the establishment.
- II. The terms and conditions of the permit are subject to modification by the Authority at any time as just causes exist. The establishment shall be informed of any proposed changes in the issued permit at least thirty days prior to the effective date of the change(s). Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.
- III. An establishment may request a waiver under the terms of item A (VI) to certain portions of the FOG Policy. Establishments may request a modification to an existing FOG discharge permit to comply with renovation or expansion requirements.
- IV. Any requests for extensions of FOG discharge permit milestone dates must be made in writing to the Authority, at least thirty (30) days in advance of the date.
- V. As a condition precedent to the granting of a permit, the permittee agrees to hold harmless the Authority and the Authority's employees from any liabilities arising from the establishment's operations.

E. ESTABLISHMENT RESPONSIBILITIES

- I. Discharge Criteria:

1. Where fats, oil and grease are by-products of food preparation and/or cleanup, reasonable efforts shall be made to separate waste fats, oil and grease into a separate containers for proper disposal. Waste fats, oil and grease shall not be discharged to any drains or grease interceptors. Such waste shall be placed in a container designed to hold such waste and either recycled or disposed of at suitable locations in accordance with item E (III).
2. Adequately sized grease interceptor shall mean a grease interceptor that does not allow a discharge of wastewater containing fats, oil or grease in excess of 200 mg/l or has not been found to be contributing to line stoppages or require sewer maintenance to prevent stoppages from occurring. It is the responsibility of the establishment to insure compliance with the sanitary sewer discharge limitations.

II. Maintenance, Record Keeping, and Grease Removal

1. Grease interceptors shall be kept free of inorganic solid materials such as grit, rocks, gravel, sand, eating utensils, cigarettes, shells, towels, rags, etc., which could settle into this pocket and thereby reduce the effective volume of the grease interceptor.
2. Grease interceptors shall meet the FOG Policy's compliance requirements and be maintained for efficient FOG removal and shall be cleaned every 90 days. Some establishments may need to clean interceptors more frequently. It is the responsibility of the establishment to monitor and clean interceptor as needed but no less than 90 days³. The Authority reserves the right to adjust cleaning frequency of individual establishments as needed.
3. Interceptor Maintenance Log:
 - a. Every establishment having a grease interceptor shall maintain a log of each pumping for the previous three (3) years. This log shall include the date, time, name of the waste hauler and shall be kept in a conspicuous location on the premises of the establishment for inspection. Trip tickets or manifests shall be maintained for a period of 3 years to substantiate the maintenance log. Establishments shall keep their FOG discharge permit with the log. Permit and log shall be made immediately available to Authority staff upon request.
 - b. A copy of the information required in the maintenance log must be submitted to the Authority annually including trip tickets or manifests. The annual reporting period shall be July 1 through June 30 of each year. The report shall be submitted to the Authority within thirty (30) days after the end of the reporting period.

³ Editors Note: It is recommended that establishments with food grinders discharging to their grease interceptors be cleaned every 30 days.

4. Cleaning Procedures:

- a. An owner, manager or employee of the establishment shall supervise grease interceptor cleaning, and shall be physically present and observe the entire cleaning operation.
- b. The owner, manager or employee of the establishment shall cause the liquid waste hauler, transporter, or other person cleaning or servicing the grease interceptor to evacuate all contents, including floating materials, wastewater, and bottom sludges and solids. Skimming the surface layer of waste material, partial cleaning of the interceptor or use of any method that does not remove the entire contents of the collection device is prohibited. The suction of the floating materials shall be done prior to removal of other contents. After complete evacuation, the walls, top, and bottom of the interceptor shall then be thoroughly scraped and the residue removed. The interceptor shall then be washed down and the residue removed. Upon completion of the servicing, the employee witnessing the cleaning shall make an inspection of the interior of the interceptor and then sign the trip ticket or manifest. The employee shall make an appropriate entry in the establishment log.
- c. Each grease interceptor pumped shall be fully evacuated unless the volume is greater than the tank capacity of the vacuum truck in which case the transporter shall arrange for additional transportation capacity so that the grease interceptor is fully evacuated within a twenty-four hour period.
- d. The return of gray water back into the interceptor from which the waste was removed is prohibited.
- e. All waste removed from each grease interceptor shall be disposed of at an establishment permitted and authorized to receive such waste in accordance with all applicable federal, state, and local regulations. In no way shall the pumped material be returned to any private or public portion of the sanitary sewer system. Additionally, material removed from a grease interceptor shall not be recycled so as to become a food product or part of a food product for animal or human consumption.
- f. It shall be a violation for an establishment to allow grease interceptor waste to be removed from the premises by a transporter that does not have all applicable federal, state, or local permits or registrations. Transportation and disposal of grease or other materials generated by a grease interceptor shall be subject to all applicable federal, state and local regulations.

- g. It is strictly prohibited for any non-water portion of the grease interceptor's contents to be pushed or flushed into the public sanitary sewer at any time. (See item I. Section G. "Violations of Policy")

III. Waste Oil Disposal

1. All establishments shall use waste oil barrels or containers to dispose of waste fats, oil and grease. Such material shall be recycled or disposed of through an establishment permitted and authorized to receive such waste in accordance with all applicable federal, state, and local regulations.

IV. Compliance Requirements

1. Establishments shall comply with the milestone dates of FOG discharge permits.
2. Establishments not in compliance with the cleaning requirements of the FOG Policy shall clean the grease interceptor within 10 business days after the date the establishment receives written notice from the Authority.

F. MONITORING, INSPECTION AND ENTRY

I. Right of Entry - Inspection and Sampling

The Authority shall have the right to enter the premises of any establishment to determine whether the establishment is complying with all requirements of the FOG Policy, any wastewater discharge permit or order issued hereunder. Establishments shall allow the Authority ready access to all parts of the premises for the purposes of inspection, sampling, records examination and copying, and the performance of any additional duties during reasonable business hours.

1. Where an establishment has security measures in force, which require proper identification and clearance before entry into its premise, the establishment shall make necessary arrangements with security so that, upon presentation of suitable identification, Authority staff will be permitted to enter immediately for the purposes of performing specific responsibilities.
2. The Authority shall have the right to set up on the establishment property, or require installation of, such devices as are necessary to conduct sampling and/or metering of the establishment's operations.

3. The Authority may require the establishment to install monitoring equipment as necessary. The establishment's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the establishment at the establishment's expense. All devices used to measure wastewater flow and quality shall be calibrated at least annually to ensure accuracy.
 4. Any temporary or permanent obstruction to safe and easy access to the establishment to be inspected and/or sampled shall be promptly removed by the establishment at the written or verbal request of Authority staff and shall not be replaced. The costs of clearing such access shall be born by the establishment.
 5. Unreasonable delays in allowing Authority staff to access the establishment's premises shall be a violation of this policy.
- II. No new establishment will be allowed to initiate operations until a grease interceptor is installed, approved and inspected by the Authority. The Authority reserves the right to suspend service if the grease interceptor is not in compliance with the FOG Policy.

G. VIOLATIONS OF POLICY

- I. No establishment shall discharge wastewater to the sanitary sewer system in violation of the FOG Policy or the Authority's pretreatment discharge limitations.
- II. It shall be a violation of the FOG Policy for any establishment to:
 1. Modify a grease interceptor structure without the consent or approval of the Authority including alteration or removal of any flow constricting devices so as to cause flow to rise above the design capacity of the grease interceptor.
 2. Provide false maintenance records.
 3. Cause or permit the plugging, blocking, or interference with a grease interceptor or permits others to cause such interference.
 4. Not comply with the provisions of a FOG discharge permit or the FOG Policy.
- III. No customer or establishment, including non-permitted establishments, shall discharge grease in excess of 200 mg/l to the sanitary sewer collection system. If such discharge occurs, the customer or establishment shall be considered in violation of this policy and subject to the remedies described herein.

IV. No establishment shall contribute or cause to be contributed into the grease interceptor or the sanitary sewer system any of the following:

1. Hot water running continuously through grease interceptor;
2. Concentrated alkaline or acidic solutions;
3. Concentrated detergents, emulsifiers, de-emulsifiers, surface active agents, enzymes, degreasers, solvents or any type of product that will liquefy grease interceptor wastes;
4. Any substance that may cause excessive foaming in the sanitary sewer system;
5. Any substance capable of passing the solid or semi-solid contents of the grease interceptor to the sanitary sewer system;
6. Hazardous wastes including concentrated cleaners, pesticides, herbicides, paints, solvents, gasoline or other petroleum products; or
7. Waste fats, oils and grease not generated as part of the wastewater system.

V. When the Authority finds that a user has violated, or continues to violate, any provision of this policy or the WWA Wastewater Rules and Regulations, a wastewater discharge permit or order issued hereunder, or any other pretreatment standard or requirement, the Authority may serve upon that user a written Notice of Violation (NOV). Within ten (10) days of the receipt of this notice, an explanation of the violation, verification of grease trap cleaning, and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted by the user to the Authority. Submission of this plan in no way relieves the user of liability for any violations occurring before or after receipt of the Notice of Violation. Nothing in this section shall limit the authority of the Authority to take any action, including emergency actions or any other enforcement action, without first issuing a Notice of Violation. The Authority may suspend water and/or sewer service, when such suspension is required in order to stop an actual or threatened discharge that:

1. Presents or may present an imminent or substantial endangerment to the health or welfare of persons or the environment;
2. Causes blockages or excessive maintenance to be performed to prevent stoppages in the sanitary sewer collection system; or
3. Causes interference to the sanitary sewer collection system or treatment plant.

- VI. Any customer or establishment notified of a suspension of the water or sewer service shall immediately stop or eliminate the discharge. In the event of a failure of the customer or establishment to comply voluntarily with the suspension order, the Authority shall take such steps as deemed necessary, including immediate termination of water or sewer service, to prevent or minimize damage to the sanitary sewer system or sewer connection or endangerment to any individuals. The Authority shall reinstate the water or sewer service when such conditions causing the suspension have passed or been eliminated. A detailed written statement submitted by the customer or establishment describing the cause(s) of the harmful discharge and the measure(s) taken to prevent any future occurrence shall be submitted to the Authority within fifteen (15) days of the date of occurrence.
- VII. Any customer or establishment may appeal the actions of the Authority by submitting a notice of appeal to the Executive Director within fourteen days from the receipt of a suspension notice from the Authority or other notice requiring action, imposition of a fee, or notice of service termination. An appeal request will not delay action by the Authority.
- VIII. The Executive Director shall conduct a hearing on all appeals within fourteen days of the receipt of notice of appeal. The notice of appeal shall state the technical grounds and objections for the appeal. At the hearing, the Executive Director shall hear and investigate any objection that may be raised and take such action as may be appropriate under the facts and circumstances established. In all other respects, the substantive and procedural requirements for this appeal shall comply with the applicable provisions of the Code of Virginia (1950) as amended.
- IX. The Executive Director shall render a decision within five business days of the date of the hearing. The customer or establishment requesting the appeal may petition the Authority's Board of Directors to review the decision or take other such action as permitted by applicable Virginia law. The Authority reserves the right to seek reimbursement of administrative and operational costs and legal fees resulting from enforcement of this policy.

H. FEES AND COSTS

- I. Progression of fees for violations of the FOG Policy:
1. First occurrence will result in a warning letter and placement of the establishment on a list for increased observation. Notification will be made to the Virginia Health Department.
 2. Second occurrence will result in a letter of violation. For establishments without a FOG discharge permit, the establishment shall apply for a permit. For establishments with a FOG discharge permit, the Authority may require

- submission of a grease interceptor design, maintenance information and/or other corrective actions within 30 days. Collection system cleaning costs will be applied.
3. Third occurrence will include assessment of cleaning costs and noncompliance fees.
 4. Fourth occurrence or failure to pay assessed costs or fees in the time specified shall result in termination of service.
- II. Establishments granted a waiver under item A (VI) that are in noncompliance with the FOG Policy or BMPs shall pay a noncompliance fee of \$50 per month in addition to any other fees identified in section H.
- III. Any establishment that is identified, in whole or in part, as the source of a sanitary sewer blockage and/or overflow, will be assessed a noncompliance fee of not less than \$500 and not more than \$2,500, plus costs for clean up, property damage, regulatory fines and applicable administrative and legal costs.
- IV. Each failure to meet individual requirements of the FOG Policy including grease interceptor maintenance or documentation requirements is considered to be a separate violation of the FOG Policy subject to enforcement.

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Appendix A Sizing

This Appendix is intended to be example guidance for the designer. To determine the size of an exterior, in-ground grease interceptor using the Manning Formula, the calculation is:

Gallons of interceptor = $[(1) = \text{GPM/fixture} \times (2) = \text{total \# fixture ratings of grease-laden waste streams}] + (3) \text{ direct flow from a dishwasher, laundry washer, glass washer (in GPM)} \times (4) \text{ (30 minute retention time)}$

Components of equation are:

1. GPM/fixture – This is derived from the Manning Formula. It takes into account the slope; roughness of the pipe (plastic) used, and pipe diameter size. The drainage rates of various pipe diameter sizes are:
 - 0.5 inch pipe diameter = 0.8 GPM/fixture
 - 1.0 inch pipe diameter = 5.0 GPM/fixture
 - 1.5 inch pipe diameter = 15 GPM/fixture
 - 2.0 inch pipe diameter = 33 GPM/fixture
 - 2.5 inch pipe diameter = 59 GPM/fixture
 - 3.0 inch pipe diameter = 93 GPM/fixture

2. Fixture Ratings of Grease-Laden Waste Streams: Fixtures that have more grease in their waste stream received higher values while less grease corresponds to a lower value. Common Commercial Kitchen Fixtures and their Corresponding Rating (each) are:
 - 2, 3, or 4 compartment pot sink = 1.0
 - 1 or 2 compartment meat prep sink = 0.75
 - Pre-rinse sink = 0.5
 - 1 or 2 compartment vegetable prep sink = 0.25
 - Can wash = 0.25
 - Mop sink = 0.25
 - Floor drain = 0.00

3. Direct Flow from Dishwashers, Laundry washer, and Glass washer: These flows must be added directly to the GPM flow because their potential for discharging large quantities of water in a short time period. Since these appliances have pumps, the Manning Formula cannot be applied to predict flow; must use manufacturer's discharge rate for flow in GPM but not less than the draw down rate.

4. Thirty (30) minute retention time.

Example #1

A restaurant has the following fixtures in their kitchen (all fixtures have a 1.5 inch pipe diameter):

- (1) 3-compartment pot sink
- (1) pre-rinse sink
- (1) 2- compartment vegetable prep sink
- (1) dishwasher that discharges 10 GPM

Using the formula to size exterior grease interceptors, gallons needed for grease interceptor =

$$\begin{aligned} & [[15 \text{ GPM} \times [1 + 0.5 + 0.25] + 10 \text{ GPM}] \times 30 \text{ minutes} = \\ & [[15 \text{ GPM} \times 1.75] + 10 \text{ GPM}] \times 30 \text{ minutes} = \\ & 26.25 \text{ GPM} + 10 \text{ GPM} \times 30 \text{ minutes} = \\ & 36.25 \text{ GPM} \times 30 \text{ minutes} = \end{aligned}$$

1087 gallons round up to the next nearest size =

1,250 gallons grease interceptor is required

Example #2: A restaurant has the following fixtures:

A 0.5 inch pipe diameter: Pre-rinse sink

A 1.5 inch pipe diameter:

- (1) 3-compartment pot sink
- (1) pre-rinse sink
- (1) meat prep sink
- (1) vegetable prep sink

A 3.0 inch pipe diameter:

- (1) can wash

Using the formula to size exterior grease interceptors:

For the pre-rinse sink: take $0.8 \text{ GPM} \times 0.5 = 0.4 \text{ GPM}$

For the 1.5 inch pipe diameter fixtures: $15 \text{ GPM} \times [1 + 0.5 + 0.75 + 0.25] = 15 \text{ GPM} \times 2.5 = 37.5 \text{ GPM}$

For the can wash: $93 \text{ GPM} \times 0.25 = 23.25 \text{ GPM}$

Add $23.25 \text{ GPM} + 37.5 \text{ GPM} + 0.4 \text{ GPM} = 61.15 \text{ GPM} \times 30 \text{ minutes} = 1835 \text{ gallons};$

round up to the next nearest size = 2,000 gallon grease interceptor is required (Two 1,000 gallon in series).

Appendix B Best Management Practices

Unless required by a specific establishment FOG DISCHARGE PERMIT, this Appendix is intended to be operational guidance.

1. FOR CLEAN KITCHEN PRACTICES

- I. Provide regular training to and monitoring of employees on proper and consistency implementation of BMPs to reduce grease discharges to sewer.
- II. Dispose of food waste directly into trash containers.
- III. Dry wipe pots, pans and dishware prior to washing.
- IV. Use absorbent material to soak up FOG under fryer baskets.
- V. Post "NO GREASE" signs above sinks and on the front of dishwashers.
- VI. Properly dispose of all yellow grease into recycling barrels. No yellow grease/oil shall be poured into a drain or flushed into sanitary sewer collection system.
- VII. Place covers on containers before transporting used oil and grease to recycling barrels.

2. FOR RECYCLING FOG

- I. FOG waste can be recycled by rendering or recycling companies.
- II. Collect and recycled used cooking oil in appropriate barrels for recycling.
- III. Collecting and recycling used oil greatly minimizes the amount of FOG that is introduced into the sewer system.

3. FOR GREASE INTERCEPTOR OPERATION (if applicable)

- I. Observe proper grease interceptor cleaning and maintenance procedures to ensure that the device is operating properly. Regular and proper service maximizes interceptor efficiency, prevents spills and minimizes odor.
- II. Train all staff to regularly check the depth of solids and thickness of retained FOG. As a general rule, an interceptor loses its effectiveness when excessive amount of FOG and/or solids accumulate. The frequency of servicing is determined by the accumulation rate of FOG and solids.

- III. Call a pumping company to service the grease interceptor. Have a licensed and certified hauling, rendering or pumping company clean, pump down, and service the grease interceptor regularly.
- IV. Carefully check the interceptor after service to ensure that service was performed correctly.

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Appendix C Definitions

- 1) **Establishment** shall mean customer of the Authority as described in item A (III) engaging in any of the following:
 - a) Commercial food preparation and food service establishment, including but not limited to bakeries, butcher shops, cafes, clubhouses, commercial kitchens, delicatessens, fat rendering plants, ice cream parlors, hospitals, meat packing plants, restaurants, schools, slaughter houses, soap factories, and similar establishments, especially where meat, poultry, seafood, dairy products or fried foods are prepared or served;
 - b) All shopping centers with food processing establishments and / or food courts; and
 - c) All new areas of intensified dwelling, including, but not limited to: adult day care establishments, assisted living establishments, convalescent homes, day nursing and childcare establishments in which food preparation occurs, hotels/motels in which there is a commercial food preparation service, nursing homes, retirement and life care communities and homes, and truck stops with commercial food service.
- 2) **New construction** shall mean any establishment constructed after the effective date of the FOG Policy
- 3) **Existing structures** shall mean any establishment constructed prior to the effective date of the FOG Policy.
- 4) **Change of use** shall mean conversion of an existing structure not previously meeting the definition of an establishment.
- 5) **Renovated** shall mean modifications sufficient to require issuance of a building permit from the locality in which the establishment is situated.
- 6) **Expanded** shall mean establishment modifications that add seating capacity or increases the number of fixtures in the kitchen area.
- 7) **Wholesalers or commercial kitchens** shall mean establishments that meet the requirements of item A (III) but do not have retail sales.

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