



UNITED STATES MARINE CORPS
MARINE CORPS BASE
BOX 555010
CAMP PENDLETON, CALIFORNIA 92055-5010

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SEP 12 2011

BASE ORDER 11345.2

From: Commanding Officer
To: Distribution List

Subj: FATS, OILS, AND GREASE CONTROL (FOG) PROGRAM

Ref: (a) National Pollutant Discharge Elimination System
(NPDES) Permit Number CA0109347

Encl: (1) Grease Trap Inspection Checklist
(2) FOG Training Checklist
(3) Sample Education Poster

1. Situation

a. The Fats, Oils, and Grease (FOG) Control Program is established to ensure compliance with all applicable Federal, State, and local regulations pertaining to the operation and management of the Base's wastewater treatment system. This Order outlines the best management practices advocated by Marine Corps Base, Camp Pendleton (MCB CamPen) and has the potential to provide significant benefits through cost avoidance, improved environmental management, and enhanced operational capabilities.

b. The requirements outlined in this Order establish the goals and policies of the FOG Control Program and are applicable to all organizations aboard MCB CamPen, to include: any command, activity, reserve component, or contractor working aboard the Installation; staff organization; supporting agency which is affiliated with the United States Marine Corps, Department of the Navy, or Department of Defense. This Order also applies to organizations organic to or otherwise temporarily residents because of training or mobilization commitments.

c. Reference (a) requires wastewater treatment systems to obtain a Collection System Permit. The Permit contains performance standards, operation and maintenance requirements, inspection requirements and record keeping, monitoring and reporting requirements.

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

2. Mission. The procedures detailed in this Order will be implemented by all new and existing non-residential food preparation facilities located aboard the Installation and will be instituted by all area commanders that oversee and are involved with the construction, operation, and maintenance of facilities that generate and/or work with any FOG. Personnel subject to these guidelines include, but are not limited to, any civilian or military member who processes, handles, serves, or otherwise works in association with food in facilities such as mess halls, restaurants, snack bars, cooking schools, or any other potential generator of FOG.

3. Execution

a. Commander's Intent and Concept of Operations

(1) Commander's Intent. This Order is new and should be reviewed in its entirety by all personnel aboard MCB CamPen. The policies and procedures described in this Order are applicable to all military and civilian personnel aboard MCB CamPen and will be instituted accordingly.

(2) Concept of Operations

(a) Types of FOG

1. FOG originates from butter, lard, vegetable fats and oils, meats, nuts, and is found on food preparation equipment, cookware, grills, and in deep fryers. FOG liquefies under high temperature conditions associated with cooking and cleaning. FOG coats wastewater collection system pipes and accumulates in the Installation's Sewage Treatment Plants (STP).

2. Wastewater collection systems were not designed to handle excessive FOG accumulation. FOG in sewer lines can create blockages that lead to sewer spills. FOG that reaches the STPs increases the biological and chemical oxygen demands, which leads to higher wastewater treatment costs and lower efficiency. FOG-caused sewer backups are completely preventable.

3. Since FOG will occur in a combination of four forms (free, mechanically emulsified, chemically emulsified, and dissolved), the efficiency of grease traps varies from site to site. Free oil FOG will float on top of water as a liquid. This oil accounts for the majority of the FOG used in a food service facility. A grease trap can effectively remove free oil if the system flow rate is slow

enough to allow efficient separation. However, grease traps are designed to capture incidental releases of FOG. Grease traps should never be used in lieu of the proper FOG handling techniques discussed in paragraph 3(a).

4. Mechanically emulsified, chemically emulsified, and dissolved FOG are difficult to remove from the wastewater system. Mechanically emulsified FOG typically occurs when an oil and water mixture is agitated and the oil is formed into small droplets. If given enough time, these droplets will float on top of the water. However, a grease trap cannot effectively remove mechanically emulsified FOG, as it does not allow enough time for the droplets to float to the top of the water.

5. Chemically emulsified FOG occurs when oil has been broken down into very small particles that will not float on the water surface. Dissolved FOG occurs when degreasing compounds and water are used as cleaning agents. Chemically emulsified and dissolved FOG will not separate from water. A grease trap does not effectively remove these types of FOG.

(b) Proper FOG Handling Techniques

1. The intentional release, disposal, or introduction of FOG into the wastewater system is prohibited aboard MCB CamPen. Under no conditions should FOG, or FOG components, be poured, scraped, or otherwise disposed of in sinks, toilets, or any other wastewater system constituent.

2. The best way to manage FOG is to keep it out of the sewer system. All fryer oil should be collected and managed appropriately. FOG under fryer baskets should be soaked up with food grade paper and disposable towels. Cloth towels should not be used as grease will enter the wastewater system when the towel is washed.

3. A large portion of the FOG in the wastewater system originates from dishwashing and clean-up activities at food preparation facilities. The majority of this FOG comes from the pot sink. All FOG should be scraped off all cooking supplies and equipment, including cookware, utensils, dishes, and other serving ware, and disposed of in the proper container, such as a rendering tank or trash can. FOG collection containers are typically supplied by the disposal contractor and consist of a 55-gallon container with a clamp-on type cover. Do

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not dispose of scrapings in the sink, toilet, floor drain, or any other component of the wastewater system.

(c) Grease Traps. Grease traps (also called grease interceptors and grease separation devices) are used by the Installation to help control the amount of incidental FOG that enters the wastewater system. Grease traps cannot remove large amounts of FOG. Therefore, it is essential that all activities properly dispose of FOG using the proper FOG handling techniques.

(d) Grease Trap Design and Construction

1. To effectively remove FOG, grease traps must be properly sized, constructed, and installed in the correct location. All grease-bearing drains, such as mop sinks, wash sinks, prep sinks, utility sinks, dishwashers, pre-rinse sinks, and floor drains in food preparation areas should discharge to a grease trap. A toilet or clothes washing machine should not be plumbed to a grease trap.

2. It is essential that only grease-laden wastewater be permitted to enter the grease trap. Suspended solids, such as sugar, starches, and other non-FOG food items will accumulate in the grease trap and reduce its efficiency. Solid waste items, such as straws, napkins, and mop strings, can cause blockages in the system. Under no circumstances should waste strainers be removed from, and/or solid waste disposed into, the grease trap.

(e) Bioaugmentation

1. Biological agents and/or enzymes are added to grease traps to increase their efficiency. This process, called bioaugmentation, is sensitive to chemical changes in the wastewater system. While the system can handle small, diluted amounts of detergents and cleaning products (such as bleach, pine oil, etc.), certain chemicals are known to disrupt the bioaugmentation system. The Facilities Maintenance Department must approve all detergents and cleaning products that are ultimately discharged to the wastewater system.

2. Grease traps and bioaugmentation plans are based on estimates of the peak and average daily water flow and FOG concentrations. Unusually high water flows and FOG concentrations associated with hood cleaning and special events cannot be properly processed by the system. Therefore, FOG cleaning events involving large water use such as hood cleaning

require notification of supporting contractors/Facilities Maintenance Department to allow appropriate dosage of biological agents and/or enzymes in the system.

(f) Grease Trap Maintenance

1. Dining hall and commercial restaurant supervisors and/or Facilities Maintenance Department representatives shall inspect grease traps at least once every 90 days. A grease trap inspection checklist is provided, enclosure (1). This form shall be completed every 90 days and will be maintained for a period of three years. Facilities that have a history of grease trap problems shall be inspected more often. Appropriate type and concentrations of biological agents and/or enzyme use shall be confirmed semi-annually.

2. Grease traps will be skimmed as needed. Grease traps will be pumped out as required to prevent overflows, wastewater system blockages, and excessive biological and chemical oxygen demands on the system. Complete cleaning of grease traps should include removal of all grease caps, liquids, and solids. The sides should be scraped or hosed down and the trap refilled with water.

3. Dining hall supervisors should contact the Facilities Support Contracts Division at (760) 725-3342 if any problems with the grease traps are experienced and/or when a grease trap needs to be serviced. Problems are indicated by wastewater backups, reduced wastewater flow rates, and a foul smell coming from the drain area. Facilities should never continuously run hot water to flush the grease trap.

(g) Public Awareness. Public awareness is essential to any Grease Control Plan. The Installation will maintain an educational and enforcement program that emphasizes proper operation and maintenance of any grease trap connected to the wastewater system. All public awareness efforts must be documented and records must be available for inspection.

(h) Commercial Education

1. The Installation recognizes that food service establishments typically have limited time and resources available for activities other than food preparation. Furthermore, personnel turnover may be high and the facility may be unaware of the environmental aspects of their activities. However, it is critical that FOG is kept from the wastewater

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system. Therefore, all non-residential establishments that work with FOG shall establish and maintain a grease control training program.

2. At a minimum, the training shall establish waste awareness by informing all new and current employees of food waste impacts (on the wastewater system) and proper food waste handling techniques. This training shall be given to all new employees prior to food handling. All employees shall receive yearly refresher training on FOG impacts and proper handling techniques. An online FOG training course titled "Oil & Grease Handling" is available at <https://mcbenvpnd102.nmci.usmc.mil/elms>. After registering online and completing the student profile, navigate to the online course menu to select this course. If you do not have a Computer Access Card (CAC), call (760) 725-9775 to obtain a CD-ROM version of the course.

3. Enclosure (2) provides a training checklist and enclosure (3) provides an example of information that should be posted by drains to increase employee awareness of proper FOG handling techniques. All training efforts shall be documented and training records shall be available for inspection.

4. Facility supervisors are critical to this Grease Control Program Policy's success. Supervisors are responsible for maintaining employee awareness of and compliance with this Order. The level of commitment by supervisors can be directly correlated to the achievements of the program. Therefore, supervisors are strongly encouraged to attend more frequent training on FOG best management practices. Supervisors will be held accountable for all FOG violations at their facility.

(i) Residential Education. As part of the Facilities Maintenance Department's Source Control Pretreatment Program, FOG best management practice general awareness information will be disseminated yearly to all Installation residents via informational flyers and posted on the MCB CamPen website at <http://www.marines.mil/unit/basecampendleton/Pages/home.aspx>. At a minimum, this information will explain the proper method of grease disposal. If grease loading of the wastewater system becomes an issue, the program will be modified to provide more frequent distribution. An example flyer is provided in enclosure (3).

b. Subordinate Element Missions

(1) The Assistant Chief of Staff, Environmental Security shall serve as a general point of contact for regulatory site visits and inspections.

(2) Assistant Chief of Staff, Facilities

(a) Shall serve as FOG Program Coordinator and have control over policy matters.

(b) Shall initiate and maintain the residential FOG education program, in conjunction with Base Housing, aboard the Installation.

(c) Shall initiate and maintain the Wastewater Source Control Pretreatment Program (SCPP) that shall include quarterly inspection of all grease traps aboard MCB CamPen.

(d) Shall initiate and maintain an ongoing sewage collection system condition assessment that includes cleaning and closed circuit television inspections of sewer lines.

(e) Shall program and manage needed collection system maintenance and repair as determined by collection system condition assessments.

(3) Public Works Department

(a) Shall ensure the proper design of grease traps in accordance with accepted industry standards.

(b) Shall program and budget for the upgrade, replacement, or construction of grease traps.

(4) Facilities Support Contracts Division

(a) Shall ensure all Installation maintenance and cleaning contracts include provisions for the proper procedure for FOG disposal.

(b) Shall ensure that all cleaning contract specifications include language that prohibits the removal of soils strainers from, and the disposal of any solid waste to, the wastewater system.

(c) Shall maintain records of all grease trap maintenance and cleaning activities for a period of three years.

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(5) Assistant Chief of Staff, Marine Corps Community Services (MCCS)

(a) Shall ensure that all MCCS-managed commercial restaurants that prepare food for sale are equipped with a grease trap or grease interceptor.

(b) Shall ensure that all commercial restaurant staff receive periodic FOG training as described in this Order.

(c) Shall maintain records of grease trap inspections and maintenance for a period of three years.


(6) The Officer in Charge of Construction/Resident Officer in Charge of Construction. Shall ensure that all applicable Installation construction contracts include provisions for the proper construction of grease traps in accordance with accepted industry standards.

4. Administration and Logistics. Directives issued by this Headquarters are published and distributed electronically. Electronic versions of the Base directives can be found at: <https://c27ipacpndl03w/intranet.manpower.usmc.mil/ipac/manpower/Adj/directives/default.aspx>

5. Command and Signal

a. Command. This Order may be applicable to all commands, organizations, units, and activities located aboard MCB CamPen.

b. Signal. This Order is effective the date signed.


O. A. JAMMAL
Chief of Staff

DISTRIBUTION: A-3
B
C

Grease Trap Inspection Checklist

Inspection Date and Time		Building Number	
Facility Name		POC	
Checklist		GRT-001	Grease Traps
Sequence #	Question	Regulatory Citation	
00001	Are general housekeeping and grease trap conditions satisfactory (i.e., no ground discoloration or rancid odors / chemical smell)?		
00050	No evidence of recent overflows?		
00100	Is the grease trap cleaned with sufficient frequency to prevent blockages and overflows (i.e., is the grease level below inlets and outlets, less than 6 inches thick and not hardened)?		
00150	Is the grease trap free of trash and debris?		
00200	Is documentation available to ascertain that a proper maintenance and/or pumping schedule is established?		
00250	MCCS FACILITIES ONLY: Is proper documentation available to verify that monthly inspections of the grease trap are accomplished to ensure its proper working condition?		
00300	Are access covers accessible and removable to facilitate inspection and cleaning as needed?		
00350	Does the grease trap appear to be operating properly and effectively?		
00400	Is the direct dumping/disposal of grease into the grease trap prohibited?		
00450	Does the grease trap POC understand his / her responsibilities as well as the basic operation of the grease trap?		
00500	Indicate last date of cleaning/service.		
00550	Indicate frequency of blockages.		
00600	Indicate usage of bioenzymes.		
00650	Other observations/comments.		

FOG Training Checklist


1. Fats, oils, and greases come from food and can accumulate in the wastewater systems.
2. Fats, oils, and greases cause sewer backups and increase wastewater treatment costs.
3. Under no circumstances should any food waste be disposed of into wastewater system (including sinks and toilets).
4. All waste fryer oil should be poured into a rendering tank, never down the drain or in the toilet.
5. Notify the supervisor if the rendering tank is half full. The supervisor is ultimately responsible for the proper disposal (via the approved contractor) of the rendering tank contents.
6. All food waste should be disposed of in the proper container or trash can.
7. All cookware, utensils, dishes, serving ware, and all other cooking supplies and equipment should be scraped to remove all traces of food prior to washing.
8. Soak up FOG under fryer baskets with food grade paper and dispose in the trash can.
9. Wipe down work areas with paper towels. Do not use cloth towels, as the accumulated grease will enter the wastewater system when the towel is washed.
10. Never dispose of solid waste, such as straws, napkins, and mop strings, down the drain. These items should go into the trash can.
11. At least two weeks in advance, post a schedule of all special events and hood cleaning so that the wastewater system can be adjusted.
12. Notify the supervisor if there is any problem with slow drainage of the wastewater or an unpleasant odor. Never "flush" the system with large amounts of hot water.

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Sample Education Poster

The Grease Goblin and associated materials were developed and produced by the North Carolina Division of Pollution Prevention and Environmental Assistance, which is part of the North Carolina Department of Environment and Natural Resources.

The following image was obtained from the website - <http://www.p2pays.org/ref/13/12327.pdf>

WANTED: YOUR DRAIN'S WORST ENEMY		Don't Feed the Grease Goblin!	
 <p style="text-align: right;">the Grease Goblin</p>		DO	DO NOT
<p>✓ Put oil and grease in collection containers</p> <p>✓ Remove oil and grease from kitchen utensils, equipment, and food preparation areas with scrapers/towels/brooms</p> <p>✓ Keep grease out of wash water</p> <p>✓ Place food scraps in collection containers</p>		<p>⊗ Pour oil and grease down drains</p> <p>⊗ Wash fryers/griddles, pots/pans, and plates with water until oil and grease are removed</p> <p>⊗ Use hot water to rinse grease off surfaces</p> <p>⊗ Put food scraps down drains</p>	
<p>LAST SEEN Loitering in Sinks and Drains</p> <p>WANTED FOR Causing Sewer Overflows</p>		<p>Help keep this guy out of your drains and in the hands of the proper authorities!</p>	
<p><small>U.S. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES Division of Pollution Prevention and Environmental Assistance 1-800-732-0174</small></p>		<p><small>500 copies of this poster. Downloadable poster on another page or a set of 2000 8 1/2 x 11 inch 1000</small></p>	

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The following image was obtained from the website - <http://www.p2pays.org/ref/19/18005.pdf>

BEWARE OF THE
Grease Goblin

LAST SEEN:
Loitering in Sinks
and Drains

WANTED FOR:
Causing Sewer
Overflows

DID YOU KNOW...
Most sanitary sewer backups occur between
your home and the town's sewer main?
You can help prevent a costly and unsanitary
overflow by following a few simple steps:

DO

- ✓ Scrape excess grease in a container and dispose of it in the garbage.
- ✓ Place food scraps in waste containers or garbage bags for disposal with solid wastes, or start a compost pile; promote use of scraping ware prior to washing.
- ✓ Place a wastebasket in the bathroom to dispose of solid wastes. Disposable diapers, condoms, and personal hygiene products do not belong in the sewer system.
- ✓ Promote the concept of "3 R's": Reduce, Reuse, Recycle.

DO NOT

- ⊗ Pour grease, fats, and oils from cooking down the drain.
- ⊗ Use the toilet as a wastebasket.
- ⊗ Use the sewer as a means of disposing food scraps.

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