

Best Management Practices for Fats, Oils, and Grease

Residual fats, oils, and grease (FOG) are by-products that food service establishments must constantly manage. Typically, FOG enter a facility's plumbing system from ware washing, floor cleaning, and equipment sanitation. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of the municipal sewer collection system pipes. Over 30% of North Carolina's 1999 sanitary sewer overflows were the result of pipe blockages from FOG accumulation from residential, institutional and commercial sources. The best way to manage FOG is to keep the material out of the plumbing systems. The following are suggestions for proper FOG management.

Dry Clean-Up

Practice dry clean-up. Remove food waste with "dry" methods such as scraping, wiping, or sweeping before using "wet" methods that use water. Wet methods typically wash the water and waste materials into the drains where it eventually collects on the interior walls of the drainage pipes. Do not pour grease, fats or oils from cooking down the drain and do not use the sinks to dispose of food scraps. Likewise it is important to educate kitchen staff not to remove drain screens as this may allow paper or plastic cups, straws, and other utensils to enter the plumbing system during clean up. The success of dry clean up is dependent upon the behavior of the employee and availability of the tools for removal of food waste before washing. To practice dry clean up:

- Use rubber scrapers to remove fats, oils and grease from cookware, utensils, chafing dishes, and serving ware.
- Use food grade paper to soak up oil and grease under fryer baskets.
- Use paper towels to wipe down work areas. Cloth towels will accumulate grease that will eventually end up in your drains from towel washing/drying.
- Skim/filter fryer grease daily and change oil when necessary. Use a test kit provided by your grocery distributor rather than simply "guess" to determine when to change oil. This extends the life of both the fryer and the oil. Build-up of carbon deposits on the bottom of the fryer act as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner.

Spill Prevention

Preventing spills reduces the amounts of waste on food preparation and serving areas that will require clean-up. A dry workplace is safer for employees in avoiding slip, trips, and falls. For spill prevention:

- Empty containers before they are full to avoid spills.
- Use a cover to transport interceptor contents to rendering barrel.
- Provide employees with the proper tools (ladles, ample containers, etc.) to transport materials without spilling.

Maintenance

Maintenance is key to avoiding FOG blockages. For whatever method or technology is used to collect, filter and store FOG, ensure that equipment is regularly maintained. All staff should be aware of and trained to perform correct cleaning procedures, particularly for under-sink interceptors that are prone to break down due to improper maintenance. A daily and weekly maintenance schedule is highly recommended.

- Contract with a management company to professionally clean large hood filters. Small hoods can be hand-cleaned with spray detergents and wiped down with cloths for cleaning. Hood filters can be effectively cleaned by routinely spraying with hot water with little or no detergents over the mop sink that should be connected to a grease trap. After hot water rinse (separately trapped), filter panels can go into the dishwasher. For hoods to operate properly in the removal of grease-laden vapors, the ventilation system will also need to be balanced with sufficient make-up air.
- Make sure all drain screens are installed.
- Prior to washing and rinsing use a hot water ONLY (no detergent) prerinse that is separately trapped to remove non-emulsified oils and greases from ware washing. Wash and rinse steps should also be trapped.
- Empty grill top scrap baskets or scrap boxes and hoods into the rendering barrel.
- Easy does it! Instruct staff to be conservative about their use of fats, oils and grease in food preparation and serving.
- Collect fryer oil in an oil rendering tank for disposal or transport it to a bulk oil rendering tank instead of discharging it into a grease interceptor or waste drain.
- Cleaning intervals depend upon the type of food establishment involved. Some facilities require monthly or once every two months cleaning. Establishments that operate a large number of fryers or handle a large amount of fried foods such as chicken, along with ethnic food establishments may need at least monthly cleanings. Full-cleaning of grease traps (removing all liquids and solids and scraping the walls) is a worthwhile investment. Remember, sugars, starches and other organics accumulate from the bottom up. If sediment is allowed to accumulate in the trap, it will need to be pumped more frequently.
- Develop a rotation system if multiple fryers are in use. Designate a single fryer for products that are particularly high in deposits, and change that one more often.

Oil & Grease Collection/Recycling & Food Donations

FOG are commodities that if handled properly can be treated as a valuable source.

- Begin thinking of oil and grease as a valuable commodity. Some rendering companies will offer services free-of-charge and others will give a rebate on the materials collected. Note that these companies must be properly permitted by the Division of Waste Management, Solid Waste Section at 919-733-0692, in order to remove FOG from a facility. A list of grease collectors can be found in the Directory of Markets of Recyclable Materials at www.p2pays.org/DMRM or by calling DPPEA at 1-800-763-0136.
- Use 25-gallon rendering barrels with covers for onsite collection of oil and grease other than from fryers. Educate kitchen staff on the importance of keeping outside barrels covered at all times. During storms, uncovered or partially covered barrels allow storm water to enter the barrel resulting in oil running onto the ground and possibly into storm drains, and can "contaminate" an otherwise useful by-product.
- Use a 3-compartment sink for ware washing. Begin with a hot pre-wash, then a scouring sink with detergent, then a rinse sink.
- Ensure that edible food is not flushed down your drains. Edible food waste may be donated to a local food bank. Inedible food waste can be collected by a local garbage feeder who will use food discards for feeding livestock. Food donation is a win-win situation. It helps restaurants reduce disposal costs and it puts the food in the hands of those who can use it. Check the Directory of Markets for Recyclable Materials for a list of food waste collectors.

Grease Traps

- For grease traps to be effective, the units must be properly sized, constructed, and installed in a location to provide an adequate retention time for settling and accumulation of the FOG. If the units are too close to the FOG discharge and do not have enough volume to allow amassing of the FOG, the emulsified oils will pass through the unit without being captured. For information on properly locating, constructing, and sizing grease traps, contact your local county and city representatives and examine EPA guidance documents.
- Ensure all grease-bearing drains discharge to the grease trap. These include mop sinks, woks, wash sinks, prep sinks, utility sinks, pulpers, dishwashers, prerinse sinks, can washes, and floor drains in food preparation areas such as those near a fryer or tilt/steam kettle. No toilet wastes should be plumbed to the grease trap.
- If these suggested best management practices do not adequately reduce FOG levels, the operator may consider installing a second grease trap with flow-through venting. This system should help reduce grease effluent substantially.

Consumer Tip

Buyer beware! When choosing a method of managing your oil and grease, ensure that it does what the vendor says it will do. Some technologies or "miracle cures" don't eliminate the problem but result in grease accumulations further down the sewer line. "Out of sight" is not "out of mind." Check the vendor's references.

Leak Chart		
A continuous leak from different sizes of drips, at an average household water pressure of 50 pounds per square inch, will waste the following amounts of water:		
Size of Drip (approx)	Wasted Water Gallons per Day	Wasted Water Gallons per Quarter
1/8" 	180	16,200
1/4" 	360	32,400
1/2" 	720	64,800
2" 	2,880	259,200

Water Conservation

Save Water in the Kitchen & Laundry

- Use your automatic dishwasher only for full loads.
- Use your automatic washing machine only for full loads.
- If you wash dishes by hand, don't leave the water running to rinse.
- Don't let the faucet run while you clean vegetables.
- Keep a bottle of drinking water in the refrigerator.
- Check faucets and pipes for leaks.

Save Water in the Bathroom

- Check your toilet for leaks.
- Do not use the toilet to flush a cigarette butt, facial tissue or other small bits of trash.
- Use a toilet tank displacement device to save a gallon each time you flush.
- Install water-saving showerheads.
- When shaving, rinse your razor in a filled sink.
- Check faucets and pipes for leaks.

Save Water Outside

- Observe lawn watering restrictions of odd/even day according to your address and no watering between 10:00am and 4:00pm any day.
- Water your lawn only when it needs it – not just because it's your day.
- Use a broom, not a hose to clean driveways and sidewalks.
- Water during the cool parts of the day. Early morning is best since it helps prevent growth of fungus.
- Check for leaks in pipes, hoses, faucets, and couplings and lawn sprinkler systems.