

## **APPENDIX D - RESOURCES**

### **EH&S Fact Sheets**

# Best Management Practices for Fats, Oils and Grease

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*Residual fats, oils and grease (FOG) are by-products that food service establishments must constantly manage. Typically, FOG enters 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. Severe accumulations of FOG can lead to sewer overflows that expose the public to raw sewage and the potential for infection from contact with sewage. The best way to manage FOG is to keep the material out of the plumbing systems. The following are Best Management Practices (BMPs) 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 cools, congeals and collects on the interior walls of the drainage pipes. Do not pour grease, fats or oils from cooking down the drain and, unless your sink is equipped with an effective pulverizing disposal system, 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/rinsing.

## Grease Interceptors and Traps

Grease interceptors are large underground concrete vaults that separate grease and oil from wastewater and prevent it from clogging sewer laterals. For grease interceptors 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 clog 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 the Office of Environment, Health & Safety.

- Ensure all grease-bearing drains discharge to the grease interceptor. These include mop sinks, woks, wash sinks, prep sinks, utility sinks, pulpers, dishwashers, pre-rinse 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 interceptor.
- If these suggested best management practices do not adequately reduce FOG levels, the operator may consider installing grease traps under wash sinks and dishwashers. These are smaller containers located above ground at the generation point of grease discharges. While these units must be emptied by hand, they can substantially reduce the amount of oil and grease going to the sewer.

## 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 material 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 grease traps 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 clothes 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 (in a sink that is separately trapped with its own grease trap), 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.

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- Skim/filter fryer grease daily and change oil when necessary. Use a test kit provided by your grocery distributor rather than simply a “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.
  - 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.
  - 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.
  - 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 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 food wastes accumulate from the bottom up. If sediment is allowed to accumulate in the trap, it will need to be pumped more frequently.

## Oil and Grease Collection/Recycling and Food Donations

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

- 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. However, the grease haulers contracted must be properly permitted by East Bay Municipal Utility District (EBMUD) in order to remove FOG from a facility.

*(Please note that records or manifests from your interceptor servicing must be maintained per EBMUD regulations. This allows the inspector to verify that your facility is routinely managing its FOG program on a regular basis.)*

- Use 25-gallon rendering barrels with covers for on-site 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. This 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 prior to final sanitizing.
- Make sure all drain screens are installed.

- Prior to washing and rinsing use a hot water ONLY (no detergent) pre-rinse 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.
- Instruct staff to be conservative about their use of fats, oils and grease in food preparation and serving.
- Ensure that edible food is not flushed down the drain.

*(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.)*

### Food Facility Manager Tip

Buyer beware! When choosing a product, service or technology for managing your oil and grease, ensure that it does what the vendor says it will do. Some technologies such as enzymes or biological “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 and ask for independently verified test data to show the product actually does what is claimed by the vendor.

### Contact

Office of Environment, Health & Safety  
317 University Hall #1150  
Berkeley, CA 94720  
(510) 642-3073  
ehs@berkeley.edu

## Handling Sewage and Fecal Matter Safely

University employees in many areas occasionally face exposure to human or animal fecal matter or sewage. Plumbers, custodians, groundskeepers, even the casual pedestrian can come in contact with fecal matter unexpectedly. Sewage spills, plumbing malfunctions, people relieving themselves in inappropriate places, and inconsiderate pet owners are some of the causes of this problem.

### Dangers of exposure

The greatest danger of exposure to fecal matter is the possibility of it entering your mouth and then getting into your digestive system. While most people would never knowingly ingest this matter, not using proper hygiene after contact with fecal matter or sewage can create a path for microorganisms to enter.

Hand-to-mouth exposure to fecal matter can cause illnesses such as salmonellosis and hepatitis A. Salmonellosis is a bacterial disease whose symptoms include abdominal pain, diarrhea, nausea, and sometimes vomiting. Hepatitis A symptoms include fever, malaise, anorexia, nausea, and abdominal discomfort, followed within a few days by jaundice. It can be a mild illness lasting one to two weeks or a disabling disease lasting several months.

The possibility of contracting life-threatening diseases such as hepatitis B or AIDS is extremely remote as neither hepatitis B nor HIV can be transmitted by the fecal-oral route.

### How to protect yourself

The two main ways of protecting yourself from fecal matter are following good hygiene practices and using personal protective equipment.

#### Good Hygiene

- Do not touch fecal matter with bare hands. If you need to remove it, wear waterproof gloves and use an instrument such as tongs or a spade for picking it up.
- Do not smoke, eat, drink, apply lip treatments, or chew gum while cleaning up fecal matter.
- Reduce exposure by keeping those who are not properly protected from coming in contact with the material. Close the area to any use pending clearance.
- Clean everything, including clothes, tools, and footwear, that came in contact with the fecal matter. Use a mild bleach solution made of two tablespoons of household bleach per gallon of cool water. (Chlorine is more effective in cool water.) Contaminated building floors should be scrubbed with the same solution. Be sure there is good ventilation for the chlorine fumes.
- Wash your hands thoroughly, even if you were wearing gloves the whole time. Use plenty of soap, scrub for at least 30 seconds, and rinse thoroughly with warm water. The California Department of Health Services states that "frequent, routine hand washing is the **most important safeguard** in preventing infection by agents present in sewage."



**Clearance**

Clean the site using the cleaning methods described above until all visible sewage has been removed and no sewage odor is present. The area can then be reopened for use.

**Personal Protective Equipment**

If your work duties are such that encountering fecal matter is a possibility, always be prepared by carrying waterproof gloves and washable footwear. Coveralls can also come in handy. Such work clothes should not be worn home or outside the immediate work environment.

Another way to protect yourself against illness is by keeping your tetanus-diphtheria (Td) immunization current. "Current" means a booster shot within the last ten years (for those who have completed the basic series of three immunizations, usually given in childhood).

If you have questions about how to handle fecal matter safely or about other sanitation issues, contact the Office of Environment, Health & Safety at 642-3073.



## **APPENDIX D - RESOURCES**

### **Memorandum of Understanding (MOU) – Lower Sproul**



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Environment, Health  
and Safety - UCS

## **Memorandum of Understanding between Residential & Student Service Programs and The ASUC Auxiliary**

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### **Description**

This Memorandum of Understanding (MOU) applies to the Residential & Student Service Programs (RSSP) Golden Bear restaurant and to the ASUC Auxiliary (ASUC) food court in the King Student Union. Through this MOU, RSSP and ASUC agree to maintain all grease traps in working conditions and follow best management practices to prevent fats, oils and grease from entering the sanitary sewer lines. ASUC and RSSP will also fund, on a recharge basis, a contract with an outside vendor (Roto Rooter) to provide cleaning for the sanitary sewer lines in the lower Sproul area. This contract will be maintained by Physical Plant – Campus Services (PP-CS). This will ensure the sanitary sewer lines in lower Sproul remain in working condition, preventing costly and environmentally damaging sanitary sewer overflows (SSOs).

### **Term**

This memorandum of understanding shall commence May 1, 2009 and be good through May 1, 2010. At such time the MOU will be evaluated and if agreed upon, extended for a longer period.

### **Partner Responsibilities**

To ensure a successful implementation of this Memorandum of Understanding, RSSP and ASUC will both be responsible for the following:

- Maintain all grease traps in working condition, following best management practices set up by Campus Environment, Health & Safety
- Maintain compliance with current East Bay Municipal Utility District (EBMUD) Fats Oils and Grease (FOG) permit(s)
- Have all grease traps cleaned by an EBMUD-approved food handling facility waste grease hauler at a minimum frequency of once per three-month period, or more frequently to ensure that restaurants do not cause or contribute to a grease related collection system blockage
- Retain all maintenance records for a minimum of three years with the following information for each grease trap:
  - Date of service
  - Volume of grease removed (gallons)
  - Name of EBMUD approved food handling facility waste grease hauler
  - Approved waste grease disposal location
- Submit grease trap records semi-annually to Campus EH&S
- Notify PP-CS of any and all issues or problems they have with the sanitary sewer lines in use or the Roto-Rooter cleaning service

### **Semi-Annual Sanitary Sewer Cleaning**

PP-CS shall contract with an outside vendor (Roto-Rooter) to clean the sanitary sewer lines a minimum of twice per year; this contract will be funded on a recharge basis by ASUC and RSSP. The maintenance contract will include semi-annual hydro-jetting the sanitary sewer lines in lower Sproul and annual use of a video camera to capture an accurate picture of the lines current conditions. The video camera recording will be used in determining the frequency of future cleaning.

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**Semi-Annual Reconciliation and Payment**


- PP-CS shall maintain the contract with an outside vendor (Roto-Rooter) for semi-annual sewer cleaning and provide RSSP & ASUC with semi-annual invoices detailing all services that occurred during the period.
- RSSP & ASUC shall make journal transfers to PP-CS for sanitary sewer cleaning fees and related labor charges at least semi-annually.

**Fees and Charges**

- PP-CS will recharge to ASUC and RSSP the cost for an outside vendor to perform cleaning of the sanitary sewer lines in lower Sproul and sewer line camera work. Estimated semi-annual cost is \$3800.
- RSSP agrees to pay 25% of each invoice for semi-annual service, making a journal transfer to PP-CS for the correct amount.
- ASUC agrees to pay 75% of each invoice for semi-annual service, making a journal transfer to PP-CS for the correct amount.

**Termination**

- RSSP and/or ASUC may terminate this agreement at any time for any reason. Termination shall be effective upon 90 days written notice.

Signed:  Date: 7/2/09

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Katie Solinger – Assistant Director, Campus Restaurants- Dining Services,  
Residential & Student Service Programs

Signed:  Date: 7/2/09

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Tom Spivey - Associate Director, ASUC Auxiliary

Signed:  Date: 8/3/09

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Bob Krambuhl – Sr. Associate Director, Physical Plant – Campus Services