

Washington Suburban Sanitary Commission

WSSC Customer Advisory Board Fats, Oils and Grease (FOG) Program Presentation

Wayne Ludwig FOG Unit Coordinator April 9, 2014

GENERAL OBJECTIVES

- Provide a quick overview of the general WSSC FOG (Fats, Oils and Grease) program.
- Provide a summary of the general purposes and functions of a FOG program.
- Provide a summary of the most common challenges to stakeholders affected by FOG program requirements.
- Present some observations and ideas along the way



IMPORTANT NOTE ABOUT THIS PRESENTATION

 The manufacturers, contractors, suppliers or any other vendors or commercial entities seen in this presentation are for illustrative purposes only and are not to be interpreted as recommended, allowable or otherwise approved equipment or vendor by WSSC



Similar Formal Presentations

- Montgomery County Government, Health Department, Environmental Protection and Public Schools (various groups).
- Prince Georges County Health Department, Environmental Resources (cooking oil recycling), and Public Schools (various groups).
- University of Maryland
- National Harbor Property Managers



DEP, Health Department / FOG Unit training idea: goals

- Regular (annual or bi-annual) refresher classes
 - Possibly certify training with Environmental Board
- Highlight priorities of each group
- Highlight challenges of each group
- Info exchange (war stories) among field inspectors
- Form an "e mail network" of observations
- "The eyes have it"
- Assure a new FSE gets "FOG screened" prior to opening (application, permit number etc.)





GENERAL DEFINITIONS

Sanitary Sewer Overflow (SSO)

Any unpermitted spill, release, or discharge from the Collection System (overflowing manholes, pumping stations, stream crossings, etc...)

Building Backup (BBK)

The release from the Collection System through a lateral to a building or structure (usually basement backups)

Food Service Establishment (FSE)

The business, usually defined by Code, that prepares food that may contain FOG.

Grease Abatement/Removal Device (GAD/GRD)

A device designed to physically remove FOG within given specifications.





"FOG CLOG" is comparable to another type of preventable blockage







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CLEAN SEWER PIPE



GREASE BUILD-UP FORMING IN SEWER PIPE

That "greasy" build-up









GREASE BUILD UP

SEWER PIPE CLOGGED WITH GREASE

01/26/99 12:04

SEWAGE OVERFLOW IN PARKING LOT

WSSC FOG PROGRAM HISTORY

1990's - 2005

- WSSC had an active FOG Program with various procedures
- 2005 Consent Decree, Article 3 FOG Program Milestones

June 2006

- Established and submitted database of all FSEs in the sanitary District
- Prepared and submitted a Modified FOG Program Plan for EPA approval

September 2006

- Prepared and submitted Draft FSE Wastewater Discharge Permit
- May 2007
 - Received EPA approvals and began formal permitting and initial inspections of FSEs
 - Update database with new or out of business FSEs

2007 - 2012

- Proposed and adopted WSSC Code changes to better define formal FOG Program basics
- Completed 150 inspections per month, majority of systems in non-compliance with permit/Code
- Scheduling and witnessing pump-downs at volume-based units
- Prepared and issued all FSE Discharge Permits
- Completed all initial inspections

2012-Present

- Continue with the basics of the first five years of the program (permitting, inspections)
- Improve streamlining of the program through computer-based systems
- Enlist help of the hauling industry and others.



NOTE: WSSC regulates/controls FOG and Plumbing Codes



THIS OFFERS AN ADVANTAGE OVER MANY TYPES OF FOG PROGRAMS NATIONWIDE



The primary and secondary benefits of a formal FOG Program: Prevention /reduction of:



Sanitary Sewer Overflows (SSO's)



Costly and dangerous sewage pumping station grease build-up



Costly excessive pipe maintenance



Excessive FOG build-up and treatment capacity at the wastewater plants



Grease build-up at another station







"FOG" also makes its way to the wastewater treatment plant









SSOs and FOG related SSOs measured for WSSC

Table 1.1. Comparison of SSOs per Hundred Miles of Sewer Line						
Description:	WSSC FOG-related ¹	WSSC (all types) ¹	Northeast Region median ²	More than 500,000 population served median ²		
SSOs per 100 miles of sewer	1.00	3.09	5.20	6.09		

¹2006-2011

²From 2007 American Water Works Association Research Foundation Qualserve Benchmarking Survey

Table 1.2. Comparison of FOG-Related SSOs					
Description:	WSSC ¹	National Average ²			
Percent of SSOs that are FOG-related	32	47			

¹2006-2011

²From EPA Fact Sheet: EPA-833-F-12-003; September 2012

SSOs 2012 to 2013: 100 (1.85/100 mi) Grease-related: 27 (27%)



FOG "Stakeholders" (traditional)



Using the FSE as a primary stakeholder





WSSC FOG Program "by the numbers"







- About 6500 FSEs registered with Prince Georges and Montgomery County Health Departments in 2013;
- Currently 4565 active 'FOG regulated' FSEs in the WSSC district (WSSD) 1000 square mile area;
- Fiscal 2014:
 - 4900 total inspections to date (will go over 6000)
- 550-650 FSEs assigned per Investigator with staff of
- 8 FOG Investigators



FOG PROGRAM'S GOALS AND OBJECTIVES

- WSSC's plan to effectively balance the needs of the customers, regulators, mandates, environmental groups, and FSE organizations:
- EDUCATION-part of today's presentation
- ENFORCEMENT RESPONSE PLAN
- EXPERIENCED STAFF



Regulated FOG discharges from FSE's can range from the obvious to the obscure











"The usual suspects"











Not so easy

- Menu items
- Hours/days of operation
- Plumbing fixture types
- Potential menu changes
- Seasonal activity
- Customer frequency/quantities
- Utility "interpretations" differ







Crucial information

- The potential to discharge FOGcontaining wastewater of a measurable quantity can be reviewed not only from the food production standpoint, but also the cleaning methods and wastewaters produced from the serving hardware associated with the food.
- In other words-one does not even need to cook the food at a site in order to produce FOG-containing wastewater.







Most common FOG program violations related to FSEs

- GRD not being maintained properly.
- Improper tail pieces from sinks / potential for overloading the flow rating of a GRD*
- One or more kitchen fixtures not connected to GRD inside or out (flow or volume based)
- Floor drains not connected to interceptor
- Floor mop sink not connected to GRD inside or out
- No interceptor / passive GRD for amount of wastewater that can potentially be discharged
- Wrong / unapproved device for grease removal
- Garbage disposal to GRD

*GRD-Grease Recovery Device: can be categorized as flow or volume based via utility code-it is NOT just a small kitchen based unit of 50 gal. or less.



Most common FSE challenges

(in general order of expense/investment)

- Unfamiliarity with the FOG Program, their FOG permit or applicable portions of the Utility Code.
- Best Management Practices (BMP's) for grease discharge prevention.
- Unfamiliarity with maintenance requirements/needs for a GRD.
- Older/outdated/obsolete kitchen devices or plumbing needing modernized.
 - Limited kitchen space or resources
- Ability to comply with the plumbing or drainage of all related fixtures to grease abatement system(s)
 - Limited kitchen space or resources



Regulator tip: Understand the FSEs "bottom line"

- Besides having to design and maintain a place where customers want to eat, there are <u>a lot of rules</u>, regulations and government entities overseeing FSE operations.
- Be aware of costs but do not delay enforcement solely because of them.
- The Health Department is usually at the top of an FSEs list for knowing every step necessary for compliance.
 - Partnering with the Health
 Department can be helpful



Photo via www.hahastop.com



Regulator tip: Be clear in your requirements and be aware of conflicts (such as other Codes)

- Be sure your FOG inspection requirements and enforcement activities are consistent with local or State Plumbing and Health Codes.
- If they are not, work with the other regulatory officials to get them consistent.





True for the general customer and food service industries...



- Train/educate in 'best management practices' for grease disposal and the impacts of grease accumulation in the sewer.
- Provide regular refresher training/discussion for proper disposal of fats, oils, and grease for businesses and the public.



Waste (Grease) haulers

- Haulers and utility officials have various types of "relationships"
- Haulers have the potential to be your eyes and ears out in the utility's service area.
- If a "hauler's association" exists, they are a good resource to set up a training program.





Tips for regulatory compliance



Appreciate and respect the service provided



Example Code Language: Waste (Grease) Haulers

Waste Hauler

- Waste Hauler Permit is required for all Waste Haulers cleaning interceptors.
- Pumping and disposal of the contents shall be performed in accordance with conditions of the waste hauler discharge permit cited in Section
- Waste haulers are required to submit load manifests for each job.





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Washington Suburban Sanitary Commission	25401	
(WSSC) WASTE HAULER DISPOSAL MA	NIFEST:	
SEPTAGE AND GREASE		
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COMPANY NAME TECH 24		
OWNER NAME JC VITETI TELEPHONE NUMBER S	71-435-3494	
WSSC PERMIT NUMBER Z4 VEHICLE LICENSE NUM	BER TW53641	
By signing this manifest I certify that I performed the work described below in accordance w	ith WSSC's requirements.	
Chris Wilson (this with	11-16-12	
DRIVER/CONTRACTOR NAME (PRINT) SIGNATURE	DATE OF WORK	
WASTE GENERATOR: (FOOD SERVICE ESTABLISHMENT (FSE)	(OTHER)	
NAME Starbucks # 11688		
ADDRESS 10621 Martin Luther King Ar CITY BO	Juli E	
STATE MD ZIP 20720 COUNTY PG Cty		
ESE WASTES		
COMPANY CONTACT FOR ACCOUNT LISA Burke wssc FOG PERM SITE CONTACT FOR CLEANING DATE OF LAST CLEANING/PUMPOUT JUNE NUMBER OF INTERCEP	TORS AT THIS SITE 1	
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	1 MANHOLE UNIT	
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APPROXIMATE VOLUME OF INTERCEPTOR: 2000 /60 GALLONS		
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Manifesting advantages

- Identifies responsible parties
- Helps quantify the waste
- Helps quantify the interceptor usage, characteristics
- Helps track compliance
- Can help determine interceptor condition
- Documents maintenance
- Tracks the waste
- Protects the hauler






ENVIRONMENTAL TECHNOLOGY IN THE RESTAURANT BUSINESS

KEEPING IT GREEN



Idea from N.C. Dept of Environment and Natural Resources (DENR)



THE GREEN PLAN FOR THE Food Service Industry



THE GREEN PLAN-waste reduction, recycling, pollution prevention.



OVERVIEW-the why's and how to's



FATS, OIL AND GREASE (FOG)-management



FOOD WASTE-guidelines and recommendations



SOLID WASTE-recycling



N.C. DENR: Pollution Prevention Program

Oil and Grease

Residual fats, oils and grease (FOG) are byproducts that food service operators must constantly manage. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of municipal sewer collection system pipes. FOG can lead to costly and dangerous sewer backups in a facility and overflows out in the community. Learn how to better manage FOG by keeping the material out of the plumbing system.



GREASE GOBLIN



Electricity from used fryer oil





Mix them up in a predetermined quantity and----wala!



- Did the reaction reach completion? Did the layers separate?
- Top layer ought to be entirely biodiesel, though some amount of mono-, di- and triglycerides and perhaps soap will remain suspended.
- The bottom layer is mostly glycerin suspended in methanol. Heavy impurities, soap, and sodium sulfate (a salt that is present if esterification was used) is also in this layer.





A Totally Green Institutional Food Waste Disposal Solution



Orca Green decomposes food waste, and transforms it into liquid effluent that is environmentally harmless.

Vegetables, meat, grains, pasta, bread, fruit, ...even compostable plates!









Education and the FOG Program Staff

- Opportunities usually exist to train and also for them to 'train' others
 - State or Region
 sponsored collection
 system, plumbing or
 specific FOG training
 - Environmental, food service, apartment/property manager expos
 - Be a "FOG Googler"





The education breakdown

Basics

- Needs to be part of any program
- Residential vs. commercial customizing
- Intermediate
 - Requires a commitment by FOG 'managers'
 - Be ready to start small but think big
 - Temper your expectations
- Advanced
 - Dedicated budget and personnel to execute
 - May include independent contractors such as video production





Pursuing other ideas: getting FOG education to the classroom

- Finding the right contacts
- Preparing and participating in planning meetings
- One on one's with teachers
- Coordinating with your office of communications
- Some excellent programs:
 - Dallas
 - Phoenix
 - London





MCPS proposed ppt excerpt:

Can the Grease!

Can it, cool it, throw it away! After grilling or frying, Don't put fats, oils or grease down the drain: "Can it, cool it, throw it away."

Other idea for staff(s)

It could be a worthwhile effort to create an "independent" organization available to all of the stakeholders in FOG production, regulation, recycling and disposal within an area for the purposes of education, training, and networking both internally and with the general public.





Sanitary Commission

Where it has worked well





Mapping and pinpointing your FOGrelated blockages can prove beneficial

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FOG accumulations and piping profiles

• Age of pipe



Pipe slope



• Pipe size and material of construction



• Pipe direction changes-such as inverted siphons





Sometimes just periodic sewer cleaning and inspection helps reduce FOG build-up without the need for additional regulations



Photo courtesy collection system team leader Gregg Hall, collection system operator with crew

Data Analyzed by WSSC Consultant

- Food Service Establishment (FSE)
- Multi-Family Dwelling Units (MFDU)
- SSO and BBK (Building Back-up)
 Period of Interest 2006 2011
- WSSC Collection System Geometric GeoDatabase
- Relationship Tables between Sewer Assets and FSE and MFDU Accounts





Multi-family dwelling units (MFDUs) in WSSC's service area

Description	Property Code	Count
Townhouse Complex (master meter)	02	135
Townhouse w/units	03	84,893
High Rise Apt	20	554
Garden Apt	30	4,130
Apartment (metered individually)	31	471
Special Housing w/units	32	11
Commercial Exempt Brf billed by other	38	27
Federal Government w/units	45	2
County Government w/units	46	7
DOD w/units flush tax exempt	48	153
State Government w/units	55	6
Mixed Use Residential w/units	82	26
55 Units, Excludes PC 03		Washing

5155

FOG-related stoppages were plotted in the WSSD and compared to customer base

- **FOG Stoppages with FSE/MFDU Upstream**
- FOG Stoppages with no FSE/MFDU Upstream

Utility study of GIS points of FOG blockages (SSO or BBK) vs. GIS location of FSE or MFDU property

- Top pie chart: representation of number of FSEs 'upstream' of a FOG blockage-5 year period
- Bottom pie chart: representation of number of MFDUs 'upstream' of a FOG blockage-5 year period





Utility study of 5 year period of FOG-related blockages

•Over 70% of the time there were no **FSEs or MFDUs** anywhere 'upstream' of the blockage (ranging from a 1-20 square mile area) Over half of the FSEs were already in full compliance of their FOG discharge permit



FSE OR MFDU upstream



Townhome community College Park, MD





True FOG "Stakeholders"



Enforcing residential FOG discharges?



What are some utility choices?



CAN THE GREASE













CAN THE GREASE



BMPs are not just for FSEsthey're for the home

- Scrape pots and pans prior to washing.
- Do not pour, scrape, or otherwise dispose of fats, oils, or grease into the sink or drains.





FOG strategy in the prevention of SSO's

"ABOVE GROUND" Food Service Establishment and Hauler

Regulatory authority and general public education*

- Kitchen Best Management Practices (BMPs) in the home and in the FSE
- Installed and properly maintained GRDs at the FSEs
- Assurances of "properly" flowing and "maintained" collection system in targeted "hot spots"
- Should help to prevent SSOs, maintain function of sanitary sewer system, and protect stormwater system and surrounding habitat.



TIPS FOR YOUR HOME



Few plumbing problems are more common or more frustrating than drain clogs. There is never a convenient time for this. Drains in the kitchen clog most often because of grease buildup that leads to trapping food particles.

Do not feed your garbage disposal like it's a hungry trash can. Over time food particles will build up and it will clog at THE MOST INCONVENIENT TIME. Kitchen Sinks

1.Proper removal of kitchen waste WILL keep sink drain clogs to a minimum. 2.Do not pour grease down the kitchen sink.

3.Do not pour coffee grounds down the sink.

4.Do not feed your sink food – it doesn't get hungry.

It's a common misconception that because a sink has a garbage disposal, that you can put most anything down it and the garbage disposal will take care of it. The garbage disposal is there to help break down food particles that slip down the sink accidentally.



What Food Will Clog a Garbage Disposal at home? AKA: *The garbage disposal won't be able to save you now.*



Bones and Shells

Some bones can be ground by your garbage disposal. Small bones from chicken and fish are acceptable and may actually benefit the disposal as the fragments of this type of waste create an abrasive action that will help to clean the interior of your drain. Avoid placing large animal bones such as beef, lamb or pork down your disposal. Additionally, shells such as those of clams, mussels, shrimp, crab, lobster and oysters should be avoided.



Grease

 It is not advisable to pour oil, butter, bacon fat or any type of grease down your disposal. Over time grease may build up, hindering the grinding action of the appliance. Grease may also accumulate in your drain, causing a clog.







Potato Skins

While you may grind small quantities of potato skin, it is best to avoid placing these peels down your disposal. Potato skins release starch as they are ground, which may adhere to the blades, causing them to jam.



Foods That Expand

Do not put grains such as rice, pasta, bread and quinoa down your disposal. If these foods become trapped in the mechanism, they may continue to expand, resulting in a clog.
 Additionally, as with potato skins, the starches released by these foods may result in a glue-like substance that can impede the action of the grinder.







Stringy Matter

 Fibrous material like corn husks, banana peels, poultry skin, pineapple rind, asparagus tips, onion skins, celery, carrots, leeks and artichokes may twist and knot, causing a clog or obstructing the blades of your disposal.



Coffee Grounds

Coffee grounds will not affect the mechanism of the disposal, but they may accumulate in your drain and cause a block.
 Additionally, grease can build up in coffee grounds, exacerbating clogs. For this reason, coffee grounds should be composted or put in the trash, not through your disposal and into your drain.







Fruit Pits

As with bones, small quantities of fruit pits, such as cherry, peach or apricot, may break down in such a way that they benefit your system with abrasive action that may help clean your pipe walls. However attempting to grind large quantities of pits can dull the blades of the mechanism, compromising the overall effectiveness of your appliance.



We need your help: Education ideas

- How else can we get the word out via
 - Website
 - Water bills
 - Social media
 - Traditional media
 - New or expanded programs
 - Funding?




Your other "homework"



NO HOME COOKIN DOWN THE DRAIN



EDUCATE THE FAMILY







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Thank you! Wayne H. Ludwig, Jr.

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