
Fats, Oil, and Grease (FOG) Management Program

Prepared for

**City of Tuscaloosa, Alabama
Water Works and Sewer Department**

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CH2MHILL®

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Acronyms and Abbreviations

ADEM	Alabama Department of Environmental Management
ADPH	Alabama Department of Public Health
ADS	Automatic Dumping Station
AOWB	Alabama Onsite Wastewater Board
AWPCA	Alabama Water Pollution Control Act
BMP	Best Management Practice
CCTV	Closed Circuit Television
CE	Continuing Education
CMOM	Capacity, Management, Operations, and Maintenance
CWA	Clean Water Act
DMR	Discharge Monitoring Report
FOG	Fats, Oil, and Grease
FSE	Food Service Establishment
GIS	Geographical Information System
GLPMP	Gravity Line Preventative Maintenance Program
GPS	Global Positioning System
GRD	Grease Removal Device
IMS	Information Management System
mg/L	Milligram per Liter
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PIN	Personal Identification Number
PM	Preventive Maintenance
POTW	Publicly Owned Treatment Works
S.A.S.E.	Self-Addressed, Stamped Envelope
SID	State Indirect Discharge
SOP	Standard Operating Procedure
SORP	Sewer Overflow Response Plan
SSD	Sanitary Sewer Discharge
SSO	Sanitary Sewer Overflow
THD	Tuscaloosa Health Department
USEPA	U.S. Environmental Protection Agency
WWTP	Waste Water Treatment Plant

1 Introduction

A leading cause of sewer blockages across the U.S. is the Fats, Oil, and Grease (FOG) build-up in the sanitary sewers. Usually in conjunction with the tree roots growth and the accumulation of other sediment and debris, grease deposits (Figure 1, Figure 2) are responsible for creating bottlenecks in the sewer collection system in the form of partial or complete pipe blockages. The blockages may cause or contribute to sanitary sewer overflows (SSOs) into local waterways and backups into homes and businesses (Figure 3), and thus can cause significant damage to properties and be a risk to public health and the environment. Municipalities experience a direct cost burden for responding to blockages, relieving the blockage, cleaning damage done, or paying regulatory fines and penalties for violating their NPDES Permits because of FOG related problems.



Figure 1: FOG deposit clogging the sewer pipe.



Figure 2: FOG accumulated on the wall of sewer pipe.



Figure 3: A FOG related SSO in a parking lot.

The maintenance costs associated with the blockages are ultimately passed along to sewer rate payers. SSOs and basement backups also present various levels of public health hazards and pollution of the environment. In addition, there are potentially advert impacts from FOG on the performance of the wastewater treatment plants (WWTPs).

State and local regulating agencies include FOG management programs as a key activity in their regulatory toolbox. The City of Tuscaloosa has been implementing grease pollution prevention measures for over five years by requiring large commercial or public kitchens to install and properly maintain grease removal devices (GRDs) in the drain line but a comprehensive FOG program has not been formulated and initiated until 2012.

This report presents the FOG Management Program that has been developed to avoid potential conveyance and treatment performance problems. The program development involved the following steps:

- Understanding the regulatory requirements – This step involved identifying regulatory requirements that establish the legal framework for program development and implementation.
- Characterizing FOG sources – This step involved identifying the sources of FOG to be inventoried and evaluating where FOG may be affecting the conveyance or treatment system.
- Establishing program administration – This step involved identifying staff requirements and funding sources for supporting the FOG management program.
- Selecting a FOG management program implementation approach – This step entailed selection of an approach for regulating the FSEs and establishing FOG handling and disposal practices.

2 Regulatory Requirements and Legal Authority

2.1 Federal Regulations

2.1.1 U.S. EPA

In 1972, Congress passed the Clean Water Act (CWA) to restore and maintain the integrity of the nation's waters. Under this law, U.S. EPA established the National Pollutant Discharge Elimination System (NPDES) Permitting Program, which requires that all point source wastewater discharges to waters of the U.S. must be permitted. Title 40, Code of Federal Regulations (Protection of Environment) includes the following parts relevant for FOG programs:

- CFR 40, Part 122 (EPA Administered Permit Programs: The National Pollutant Discharge Elimination System),
- CFR 40, Part 123 (State Program Requirements), and
- CFR 40, Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution) establish responsibilities among federal, state and local government, industry and public, to implement pretreatment standards to all non-domestic sources which are directly discharged into a sewer connected to a Publicly Owned Treatment Works (POTW) or transported by truck or otherwise introduced into the POTW.

2.2 State Regulations

2.2.1 Alabama Department of Environmental Management (ADEM)

While the General Pretreatment Regulations establish the minimum requirements for POTWs to implement pretreatment programs, it is the state laws that confer the required minimum legal authority on POTWs to carry out these programs. EPA has delegated the NPDES program in Alabama to Alabama Department of Environmental Management (ADEM). Division 6 of the ADEM Administrative Code 335-6 (Water quality) specifies rules and regulations for the water quality program as follows:

- Chapter 335-6-5 sets out indirect discharge permit and pretreatment rules, and
- Chapter 335-6-6 covers wastewater permitting under the National Pollutant Discharge Elimination System (NPDES).

The City's NPDES Permit No AL0022713 requires that the City submits to ADEM monthly Discharge Monitoring Reports (DMRs) (Figure 4) and reports all unpermitted discharges in the form of Sanitary Sewer Overflows (SSOs) within five days of each event, and that occurrences of SSOs may result in sanctions to include water quality monitoring, active remediation, monetary fines, etc. to alleviate harmful effects of contamination of public water bodies.

The Alabama Water Pollution Control Act (AWPCA), as amended (Title 22, Section 22-22-1 et seq., Code of Alabama 1975) declares any and all pollution to be a

The image shows a screenshot of the ADEM E2 Reporting System Facility User Guide. The form is titled 'Permit: Biscuiton Program' and contains several sections for data entry. At the top, there are fields for Permit Number (AL0022713), Reporting Period (03/01/2014 - 03/31/2014), Facility Name (REEQ-REG-Care Center Site), and Address (north of Liberty and west of Main Street, Huebner Heights, TN 40001). Below this, there are sections for 'Discharge Design' with a list of parameters like pH, Total Suspended Solids, and Ammonia Nitrogen, each with a 'Quantity or Loading' field. There is also a 'Concentration' section with fields for Reporting Date, Permit Expiration, and Concentration. The 'Monitoring/Analysis Information' section includes fields for Reporting Date, Sample Type (Grab or Flow), Frequency of Analysis (Monthly), and Enclosures. The form has a 'Save Changes' button at the bottom right.

Figure 4: Electronic DMR submittal (ADEM: E2 Reporting System Facility User Guide).

public nuisance, and requires that anyone discharging pollutants into waters of the state must obtain a permit to discharge and to maintain and provide to the Department certain records about the discharge. Anyone who willfully or with gross negligence violates the AWPCA is subject to a criminal penalty of \$2,500 to \$25,000 per day of violation or imprisonment for not more than one year, or both. A second conviction carries a fine of \$5,000 to \$50,000 per day of violation and/or imprisonment of 1 or 2 years.

2.2.2 Alabama Department of Public Health (ADPH)

Alabama Department of Public Health (ADPH) regulates FOG collection, transportation and disposal through inspection and permitting of FOG hauler trucks (Figure 5) which are used for cleaning of grease traps and grease interceptors at the commercial establishments and subsequent transport of the collected grease to the wastewater treatment plant (WWTP) where it is disposed.



Figure 5: ADPH does permitting of FOG hauler trucks.

The regulations are included in ADPH *Onsite Sewage Treatment and Disposal Rules* Chapter 420-3-1-.34, which specifies that ADPH has delegated the inspection and permitting to the local health department, namely Tuscaloosa Health Department (THD).

2.2.3 Alabama Onsite Wastewater Board (AOWB)

Alabama Onsite Wastewater Board¹ (AOWB) regulates FOG collection, transportation and discharging through education and licensing of FOG haulers (Figure 6) who perform cleaning of grease interceptors at the commercial establishments and disposing of the collected grease at the WWTP. The regulations are included in AOWB Administrative Code, Chapter 628-X-3 (Licensing).



Figure 6: AOWB does licensing of FOG hauler drivers.

2.3 Local Regulations

2.3.1 City of Tuscaloosa

The codified ordinances of the City of Tuscaloosa, enacted in Ordinance No. 2255, adopted on 09/01/83 and effective 09/06/83, are available online at:

<http://library.municode.com/index.aspx?clientId=10302>

¹ The Alabama Legislature created the AOWB in 1999. The board consists of nine appointed members: three are appointed by the governor, three by the lieutenant governor, and three by the speaker of the House of Representatives.

Selected sections in the City’s Ordinance establish the basic framework for the FOG Management Program (Figure 7). Different sections in Chapter 16, *Municipal Utilities and Services Ordinances*, Article III, *Sewers*, provide the legal authority to require installation and maintenance of grease control devices at commercial establishments, and to inspect the FOG handling practices used by FSEs and to enforce their compliance with the FOG management program. Additional sections in Chapter 1, *General Provisions*, and Chapter 7, Article II, *Business Licenses, Taxes and Regulations*, further regulate the program implementation (Table 1). (The Ordinance, Sec. 16-40, defines “user” as any person, firm, or corporation, in charge, custody or control of a dwelling unit, establishment and/or premises or an industrial user, which contributes, causes, or permits the contribution or discharge of wastewater into the City’s system.)

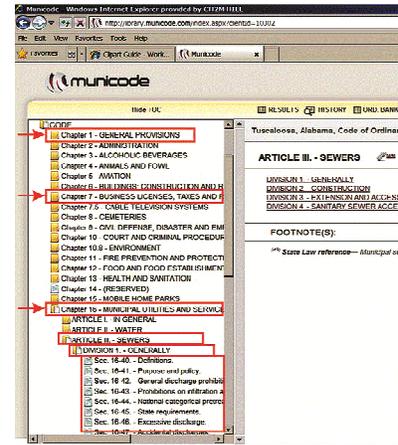


Figure 7: Tuscaloosa ordinances online with marked location of sections relevant to the FOG program.

Table 1: A summary of the City of Tuscaloosa enabling authority to implement the FOG program.

Chapter	Article	Division	Section	Regulatory Issues
16	III	1	16-40	Definitions.
16	III	1	16-42 (3)(9)	Specific discharge prohibitions: solids or viscous materials, oil and grease. Discharge prohibitions which may cause violation of the NPDES permit.
16	III	1	16-44	Federal pretreatment requirements for industrial users.
16	III	1	16-45	State pretreatment requirements, if more stringent than federal requirements.
16	III	1	16-46	The City prohibits diluting of discharges for purpose of obtaining compliance with discharge requirements.
16	III	1	16-54	The City requires that users obtain State Indirect Discharge (SID) Permits (wastewater discharge permits) for non-domestic wastewater discharges less than 5,000 gpd.
16	III	1	16-56	The City requires that users obtain Sanitary Sewer Discharge (SSD) Permits for non-domestic wastewater discharges in excess of 5,000 gpd.
16	III	1	16-55 (a)	City authorization to conduct inspection, surveillance, and monitoring procedures necessary to assure compliance with discharge requirements.
16	III	1	16-55 (c)	The City requires food service establishments (FSEs) to install grease removal devices.
16	III	1	16-52	The City may file claims with users causing damages to the City by discharging pollutants.
16	III	1	16-53	The City may petition the state or EPA to seek criminal or penalties, injunctive relief, to insure compliance by industrial users of applicable pretreatment standards.
16	III	1	16-58	Permit fees for haulers to discharge into the City’s WWTP. Service fees for haulers’ discharges based on quantities discharged.
16	III	1	16-48	Criminal penalties for enforcing compliance with the ordinance.
16	III	1	16-49	Penalties for enforcing compliance with the ordinance.
16	III	1	16-50	City authorization to terminate water and/or sewer service to users for enforcing compliance with the ordinance.
1	-	-	1-8	City has authority to enforce obedience to ordinances by fine and/or imprisonment.

Table 1: A summary of the City of Tuscaloosa enabling authority to implement the FOG program.

Chapter	Article	Division	Section	Regulatory Issues
7	II	-	7-24	Code Compliance Procedure.

Sections from Chapter 16, Article III, Division 1

Sec. 16-42 (General discharge prohibitions). Sec. 16-42 (3) says that no user may contribute to any POTW “any water or waste which contains more than one hundred (100) ppm (by weight) of animal or mineral fats, oil, grease, or any water or waste which contains a substance that will solidify or become viscous at temperatures between thirty-two (32) degrees Fahrenheit and ninety (90) degrees Fahrenheit”. Sec. 16-42 (9) says that no user may contribute to any POTW any substance which will cause the POTW to violate its NPDES or the receiving water quality standards.

Sec. 16-44 (National Categorical Pretreatment Standards) says that certain industrial users are subject to national categorical pretreatment standards promulgated by the EPA, which specify quantities or concentrations of pollutants or pollutant properties which may be discharged into the POTW. All industrial users subject to a national categorical pretreatment standard shall comply with all requirements of such standards.

Sec. 16-45 (State requirements) says that in cases where state requirements and limitations on discharges are more stringent than federal requirements, state requirements and limitation shall apply.

Sec. 16-46 (Excessive discharge) says that no industrial user may use processed water to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in the national categorical pretreatment standards, or in any other pollutant specific limitation developed by the City and/or ADEM.

Sec. 16-52 (Assessment of damages to users) says that when a user makes a discharge or contributes a pollutant or any substance into the system that causes an obstruction, damage, SSO or any other impairment to the system or POTW, the director (the general manager of the water and sewer department) shall assess the expenses incurred by the City. The City shall file a claim with the user seeking reimbursement for expenses or damages suffered by the City. If the claim is ignored or denied, the City attorney shall be notified to take such measures as shall be appropriate to recover for any expense or other damage suffered by the City.

Sec. 16-53 (Petition for federal or state enforcement) says that the City may petition the state or the US EPA, as appropriate, to exercise methods or remedies to seek criminal or penalties, in order to insure compliance by industrial users of applicable pretreatment standards, to prevent the introduction of toxic pollutants or other regulated pollutants into the POTW, or to prevent such other water pollution as may be regulated by state or federal laws.

Sec. 16-54 (SID permit) says that industrial users discharging nondomestic wastewater to the POTW in amount less than five thousand (5,000) gpd must have an SID permit issued by the ADEM. All users that contribute wastewater other than normal domestic sewage in excess of 5,000 gpd shall comply with the provisions of Sec. 16-56.

Sec. 16-55 (Entry, inspection, monitoring, and appurtenant structures). Sec. 16-55 (a) says that the City, ADEM, and EPA have a right of entry to all properties for inspection, observation, measurement, sampling and testing in accordance with the provisions of this division, and may at reasonable times have access to and copy any records, inspect any monitoring equipment or method required, inspect sources of wastewater, treatment facilities, and sample any effluents which the owner or operator is required to sample under section 16-54. Sec. 16-55 (c) orders that food service establishments must

install, operate and maintain such device (i.e., greasetrap²) on the premises of the establishment so as to prevent the discharge into the POTW of solid or viscous substances as enumerated in Sec. 16-42 (3).

Sec. 16-56 (Sanitary sewer discharge permit) says that all users who discharge into the POTW nondomestic wastewater in excess of five thousand (5,000) gallons per day must obtain a sanitary sewer discharge permit.

Sec. 16-58 (Fees, charges, penalties). Sec. 16-58 (D) says that vehicles used for septage hauling may discharge only at the designated facilities located at the City's wastewater treatment plant and that each vehicle requires a permit obtained through the City water and sewer department. Every vehicle must have its own individual access pass card or barcode pass. Sec. 16-58 (D-1) specifies that application fee for each access pass card or bar code sticker is two hundred (\$200.00). Sec. 16-58 (D-7) specifies treatment fees that every vehicle must pay based upon the quantities hauled and discharged, which are 7.5 cents per gallon for grease hauled from FSEs within the City and 10 cents per gallon for grease hauled from outside the City.

Sec. 16-48 (Enforcement of division—Criminal) says that violating of any provisions in this division of the municipal code or any requirements of issued permits is unlawful and punishable as a misdemeanor, and pursuant to the provisions of Sec. 1-8. Each day a violation continues to exist makes up an independent and separate offense.

Sec. 16-49 (Enforcement of division—Civil) says that the discharge of wastewater or any other pollutant in violation of this division of the municipal code is a public nuisance and that the City may file a suit, in the circuit court or any other court of competent jurisdiction, seeking an order issued by a court that would end the said nuisance.

Sec. 16-50 (Enforcement of division—Revocation of permit or termination of services) says that in order to enforce obedience to ordinances the City has in certain circumstances authority to recall the user's City permit and terminate the user's water service and/or sewer service. Some circumstances when this authority can be exercised are when:

- User is in violation of any term or condition of the SID permit issued by the state;
- User discharges wastewater at an uncontrolled, variable rate in sufficient quantity to cause an imbalance in the POTW;
- User repeats a discharge of prohibited waste to the POTW;
- City has reason to believe that user is discharging wastewater to the POTW that cannot be sufficiently treated or that it requires treatment not provided by the City;
- User fails to pay quarterly or monthly bills for sanitary sewer services when due, etc.

Prior to any such enforcement action, the City must notify the user in writing, either by personal service or by certified mail, of the cause of service termination and how to take immediate remedial action, typically within thirty (30) days from the date of notice. The user may request a hearing within ten (10) days from receiving the notice, and the hearing is conducted by the director within ten (10) days of receiving the user's request for the same. The director is authorized to make a decision at the hearing. The user has the right to appeal in writing to the City council, which would set a public hearing before the city council where the user may appear and the City council may request the director or any other employee of the City to also appear. The City council renders a decision within ten (10) days from the date of hearing and a copy of said resolution is mailed or served upon the user within ten (10) days from the date of the decision.

² The term "greasetrap" in the ordinance refers to grease traps and grease interceptors.

Section from Chapter 1

Sec. 1-8 (General penalty; continuing violations). Sec. 1-8 (a) says that the City has authority to enforce obedience to ordinances by fine not exceeding \$500.00 and by imprisonment or hard labor not exceeding 6 months, or both. Each day's violation of this Code or any ordinance shall constitute a separate offense.

Section from Chapter 7, Article II

Sec. 7-24 (Code compliance procedure) says that Planning & Development Services is authorized to determine whether an applicant for a business license would run the business that would conflict with the public safety, health, or welfare. Planning & Development Services may require that prior to the issuance of a business license approvals must be obtained from other departments of the City and the health department for compliance with any law, code, ordinance, rule, or regulation over which such other department has administrative or enforcement responsibilities. Thus, FSEs are required to obtain approvals for properly installed grease traps before the code compliance certificate is issued to them.

2.4 Summary of Regulatory Requirements

In summary, regulations that affect development of a FOG Management Program are listed in Table 2.

Table 2: Regulatory Requirements Pertaining to FOG Management Program Development.

Regulation:	Enforcement agency:	Document:
General pretreatment regulations	U.S. EPA	CFR 40, Parts 122 & 123 & 403
Clean Water Act	U.S. EPA and ADEM	NPDES Permit AL0022713
FOG hauler trucks permitting regulations	ADPH and THD	ADPH Onsite FOG Treatment and Disposal Rules
FOG hauler drivers licensing regulations	AOWB	AOWB Administrative Code, Chapter 628-X-3
Regulations for implementing FOG Management Program	City of Tuscaloosa	Municipal Code

3 FOG Management Program

3.1 Purpose and Goals

The Fats, Oil, and Grease (FOG) Management Program is a formal program by the City of Tuscaloosa that incorporates applicable guidance, policies, and regulations governing FOG generators and haulers in order to manage grease waste generated by customers that discharge to the City’s sanitary sewer system or treatment system.

The primary goal and purpose of the Tuscaloosa FOG Management Program is to prevent grease related pipe blockages and subsequent overflows from happening and thus avoid property damages, environmental problems in nearby surface waters, and public health hazards. By controlling the discharge of FOG to the wastewater collection system, FOG buildup in sewer lines and lift stations will

be lessened, thereby increasing the wastewater collection system's operating efficiency and minimizing system maintenance expenditures. In addition, an effective FOG Management Program will minimize potential revenue losses associated with enforcement FOG related actions.

Another important purpose of the program is to prevent FOG discharges at the City's wastewater treatment plan (WWTP) from containing concentrations of pollutants or pollutant properties that might interfere with the operation of the plant or cause the treatment plant to exceed the NPDES permit effluent limits or cause pass-through of pollutants to the receiving stream or atmosphere.

Goals of the FOG Management Program to reduce FOG related expenditures and protect the environment and the public health will be achieved by:

- Minimizing FOG entering the City's sanitary sewer infrastructure and keeping it in concentrations or rates allowed, and
- Public Education and Outreach
- Establishing control over FOG discharges at the City's wastewater treatment plan and keeping discharged FOG in concentrations within allowed limits.

3.2 Program Components and Approach

Overall, the FOG Management Program consists of the following components:

- FOG characterization study
- FOG program resources requirements
- FOG related permitting requirements
- FOG recommended practices for FSEs including:
 - Kitchen best management practices (BMPs)
 - Grease removal device (GRD) maintenance
- FOG collecting and disposal proper practices including:
 - GRD cleaning
 - FOG disposal at WWTP
- FOG program implementation including:
 - Public FOG education and outreach
 - Achieving compliance with the FOG program from FSEs, including education and inspection of FSEs and enforcement measures if needed
 - Internal training within the City about FOG program
- FOG program effectiveness measures

While achieving goals of the FOG Management Program is important, it is in the City's best interest to keep residents and businesses affected by the program encouraged and willing to participate. Educating the public about FOG and the consequences of releasing it into the sewers usually makes people change their mindset and helps adopting new kitchen management practices. The program approach emphasizing education and public relations while minimizing enforcement through fines and penalties is thus set to motivate rather than enforce the compliance with program requirements. Every effort has been made to make compliance as easy as possible by providing clear guidelines for implementing kitchen best management practices and by creating easy to follow routine procedures for permitting and maintenance of grease removal devices.

4 FOG Characterization Study

4.1 Purpose of a FOG Characterization Study

An effective and efficient FOG Management Program must be based on a good understanding and knowledge of FOG sources and the extent of FOG related problems. It is an annual process. The purpose of a FOG characterization study is to determine problem maintenance areas in the sanitary sewer system and the root causes of the problems; particularly if there is a pattern of higher than expected system surcharging or sanitary sewer overflows (SSOs). The characterization study thus evaluates the root causes and determines which ones appear to be related to FOG and which FOG sources are the primary contributors to the problems.

4.2 High Frequency Maintenance Locations

Each year the City cleans approximately 5 to 15 percent of its 550-mile long sewer collection system through the Gravity Line Preventative Maintenance Program (GLPMP) and it takes approximately 10 years to clean the whole system at least once at current resource levels. Specific lines in the system are cleaned more frequently than others.

Approximately 271 sewer segments³ are cleaned at a higher frequency than others. A monthly preventive maintenance (PM) cleaning/inspection schedule has been created for 89 sewer segments which experienced overflow conditions in the past. A 6 month siphon and 6 month problem line preventive maintenance cleaning schedule was created for 61 sewer segments. A yearly preventive maintenance cleaning schedule was created for 114 sewer segments. Additional 7 sewer segments are “pre-game” cleaned on the basis that full hydraulic capacity of these sewers is required during the University of Alabama football games when wastewater flow is known to significantly increase. A listing of these segments is included in Appendix O.

The City utilizes hydraulic jet cleaning, which utilizes high pressure water jets to scour the walls of sewer pipes. The City uses a vacuum truck to remove debris and other material resulting from the cleaning operation from the manhole, which is afterwards disposed at the WWTP. Mechanical cleaning methods utilizing root cutters or rodding machines are used when roots or other blockages are encountered that cannot be cleaned with hydraulic methods.

The City crews keep a sewer cleaning log form which contains the sub-basin number and the upstream and downstream manhole number for each line cleaned. A standardized cleaning form which documents the type and estimated amount of material removed during cleaning has been developed (see Appendix A.4).

4.3 Pipe Blockages and SSOs

Historical records of collection system maintenance activities were reviewed to ascertain any useful information on the causes of pipe blockages and SSOs, in order to determine locations of FOG related hotspots. The City has been tracking locations and causes of blockages and SSOs (“SSOTrackingLog.xls”) and keeping the record of these occurrences in its database.

³ The numbers shown refer to the City’s 2014 preventive maintenance cleaning schedule.

Figure 9 depicts the number of SSOs reported between 2011 thru 2013, caused by sewer blockages (grease, roots, debris, or unknown) and “all other causes”.

Overall grease is reported to be a factor in approximately 30% of reported SSOs each year.

City	2011	2012	2013
Grease	10	12	15
Roots	8	10	12
Debris	5	6	8
Unknown	3	4	5
All other causes	2	3	4

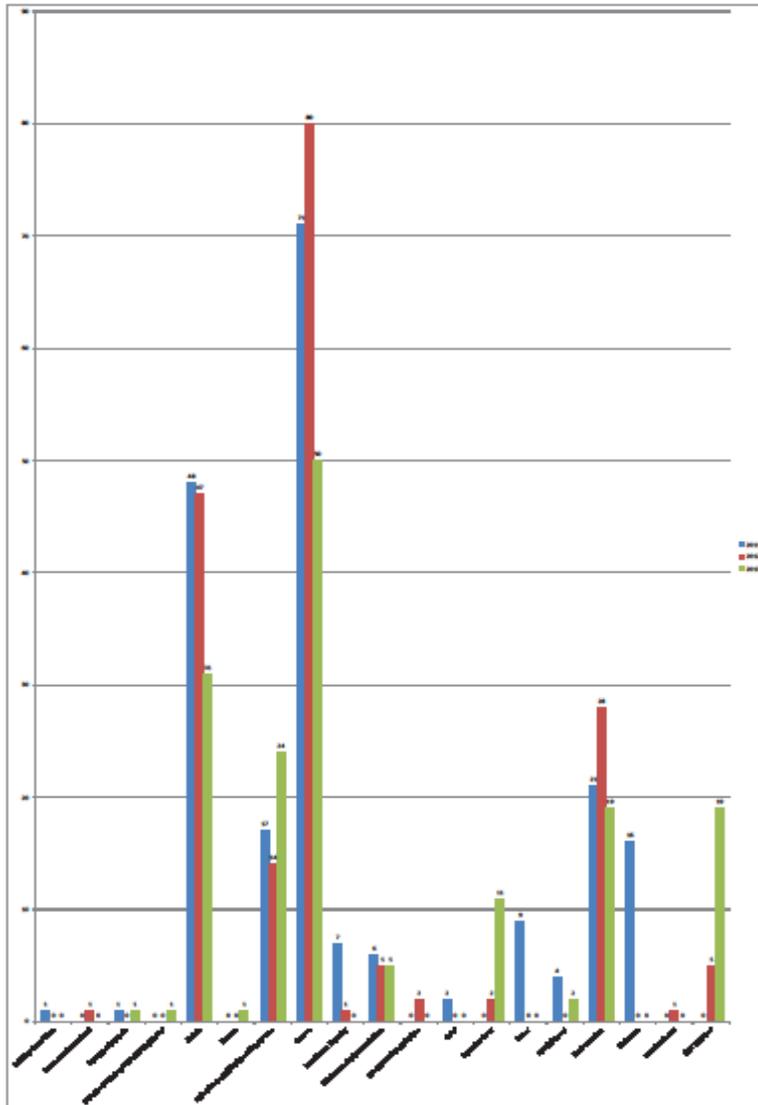
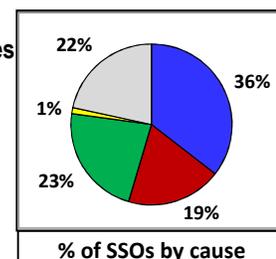


Figure 8: Number of SSOs in 2011 thru 2013, caused by sewer blockages (grease, roots, debris, or unknown) and “all other causes”.

Figure 9: Number of SSOs between 07/03/2005 and 08/12/2010, caused by sewer blockages (grease, roots, debris, unknown) and “all other causes”.



% of SSOs by cause

4.4 FOG Sources

Major contributors to FOG in the Tuscaloosa sewer collection system are commercial establishments involved in food processing. Residential areas, especially locations of high density housing and apartments, can also be significant FOG sources.

There are approximately 398 active food service establishments (FSEs) in Tuscaloosa, of which 240 are compliant with the current FOG Codes. 158 of the active FSEs are not compliant to today's standards however FSEs will have to comply with current codes upon any modification to the facility that requires a building permit. A sample list of FSEs is shown in Appendix A.

Another type of commercial establishments that generates wastewater with significant FOG content is carwash establishments. Wash water from commercial car wash facilities contains beside grease and oil other substances such as engine cleaner chemicals, sludge, heavy metals, salt and sand mixed with soaps, waxes, and detergents. These facilities require sand and oil interceptors which are similar in construction and purpose to grease removal devices used in FSEs (in these devices oil and dirt are removed from the carwash wastewater before it is released into the sanitary sewer system). There are over 50 car wash facilities in Tuscaloosa most of them, excluding older facilities, have sand and oil interceptors installed and maintained. All facilities without sand and oil interceptors will have to comply with car wash pretreatment standards upon any modification to the facility that requires a building permit.

4.5 Evaluate FOG Locations Potentially Contributing to SSOs

As part of the City's Sewer Overflow Response Plan (SORP), the City has a formal process to assess sanitary sewer backups and overflows in order to identify FOG locations potentially contributing to backups and overflows. This process includes the identification of pipeline segments with increased cleaning frequencies, and looking into the historical records of pipe blockages and SSOs to make it possible to identify potential grease problem areas.

All FSEs located upstream of the identified problem areas that discharge their wastewater into the "problem" lines are potential contributors to the grease build-up. A work order will be issued to conduct inspections of FSE upstream of problem areas. Inspections of these FSEs evaluate the following:

- GRD maintenance (FSE inspection records, FOG hauler manifests).
- GRD location, design and size.
- Kitchen equipment (deep fryer, wok, grill, etc.)
- Kitchen drains (sinks, food grinder, dishwasher, etc.)
- FOG disposal practices
- Evidence of kitchen best management practices (BMPs) (employee training, drain screens, yellow grease collection, spill prevention/clean-up practices, signage, etc.)
- The menu and quantity of FOG production (oil, grease, shortening, fat, beef, poultry, seafood, etc.)

FSE inspections also look for evidence of any grease congealing and build up in a mainline downstream of the GRD. A pole camera can be used to inspect manholes and pipe sections close to the manholes for the possible congealing of grease. Grease could congeal up to about 1,500 ft from the FOG producer.

4.6 Evaluate FOG Impacts on the WWTP

The problems at WWTPs caused by the presence of FOG in the influent are typically related to grease congealing on the surface of settling tanks, digesters, and the interior of pipes and other surfaces, and in extreme cases they may cause a shutdown of wastewater treatment units. Congealed FOG also combines with debris and can affect mechanical equipment such as pumps and screens. Excessive FOG entering the wastewater treatment plant with the influent may impose a significant oxygen demand on aerobic wastewater treatment processes, driving up the cost to supply oxygen to these processes. Additionally, the FOG laden influent can stimulate the growth of undesirable and harmful filamentous microorganisms in the activated sludge process where they potentially can cause filamentous bulking conditions.

Operators of the Hilliard Fletcher Wastewater Treatment Plant in Tuscaloosa have not reported any serious FOG related problems as of 2012, but grease impacts on the solids/rags handling equipment have been detected and some small ports have been water jetted to keep them from clogging. Some treatment inefficiencies are also suspected to be a result of specific discharges. There have been issues in the pipelines conveying wastewater from the FOG/Septage Receiving Station adjacent to the WWTPs Influent Lift station, namely screenings compactor had problems related to FOG discharges at the plant. Low pH materials caused the bottom of the pipe to be corroded and had to be repaired with a pipe liner. A septic hauler let its hose escape into the pipe which eventually caused a blockage in a return line that contributed to a spill of untreated wastewater on site.

5 Grease Removal Devices (GRDs) and Disposal Options

5.1 Grease Removal Devices (GRDs)

While an aggressive program of Best Management Practices (BMPs) for kitchens by the food service establishment (FSE) community, as described in Chapter 8, will improve FOG control efforts to lower operation and maintenance (O&M) costs and reduce sewer systems overflows (SSOs), BMPs alone are unlikely to be sufficient. Grease abatement involves installing grease removal devices (GRDs). The City of Tuscaloosa requires that all FSEs install GRDs (see 2.3.1).

Grease interceptors are large grease removal devices installed outdoors in-ground. They are “volume” based, with typically 1,000 gallons minimum capacity, and a rated flow greater than 50 gpm or generally no flow restriction requirements. Grease traps are small devices installed indoors, typically under a sink in the kitchen. They are “flow rated”, with a rated flow of 50 gpm or less, and capacity up to 100 pounds.

GRDs operate by slowing down the flow passing through the device and retaining it long enough to allow solids and particulates with specific gravities different than water to separate out by gravity flotation and settling. Grease interceptors (Figure 10) installed in the City of Tuscaloosa after 2012 shall have two compartments separated by a midwall baffle, the first compartment usually having 2/3 of the total volume and the second 1/3 of the total volume. The kitchen wastewater enters the GRD through the inlet pipe, passes through the opening on the baffle into the second compartment and flows out of the GRD into the sanitary sewer lateral through the outlet pipe. An inlet tee is installed to prevent clogging of inlet pipe with the floating grease that accumulates in the device. To prevent floating FOG to be carried away with a flow out of the interceptor, an outlet tee is installed at the outlet pipe. The depth between the invert of the outlet pipe and the bottom of the tank is called an operating depth of interceptor. The inlet and outlet Tees are usually installed to the half of interceptor’s operating depth because of solids that accumulate at the bottom of the tank. A tee like the one in Figure 10 or similar

may be installed at the opening in the baffle to prevent floating FOG to pass from the first into the second compartment. When the combined depth of floating grease and solids is about $\frac{1}{4}$ of the operating depth, the interceptor must be cleaned (pumped out dry) as described in Section 8.2. Each compartment must have an access point (a manhole) for checking the thickness of accumulated floating FOG and solids in the interceptor, and cleaning of compartments.

Grease traps (Figure 11) may have one or more baffle plates which separate the trap into two or more compartments. The FOG content in the wastewater decreases as it flows between compartments and in the last compartment it should be practically eliminated. If a grease trap is not properly maintained, the last compartment may contain increasingly grease laden wastewater and grease may start to flow into the wastewater drain, which may result in a blocked drain and that can be expensive to clear.

When the water flowing into the GRD has high temperature, turbulence or presence of soaps, surfactants or detergents, the free floating fat in the kitchen generated wastewater breaks up into tiny particles and mixes with water (emulsifies), which makes the device less effective or ineffective. The high pH in influent indicates cleaning products and these chemicals are generally powerful degreasers. The low pH within the grease interceptor suggests the occurrence of anaerobic microbial activity, and the acidic nature of the interceptor may lead to increased deterioration of the concrete walls.

The effective grease separation from wastewater in GRDs requires:

- Sufficient retention time, based on water flow.
- Water temperature, must be less than 140°F
- pH, must be between 5 and 9.
- Controlled turbulence.

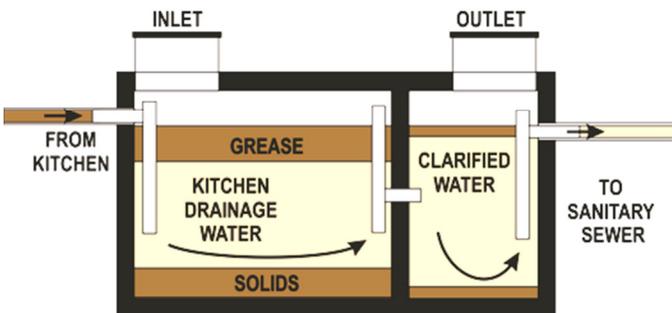


Figure 10: Grease interceptor

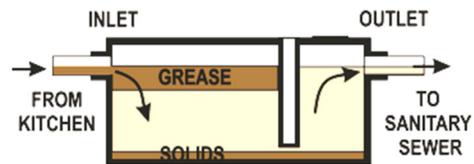


Figure 11: Grease trap

Plumbing fixtures in FSEs that potentially discharge FOG should be connected to GRDs, including sink drains and floor drains. Sanitary fixtures that produce black water other than kitchen waste, such as toilets and urinals should not be connected to GRDs.

5.2 Disposal Options

Grease collected at FSEs can be recycled. There are two types of grease, yellow and brown. Yellow grease is removed from fryers and similar cooking equipment and stored in special yellow grease containers at the FSEs (see Section 8.1.5). The FOG haulers sell the yellow grease to rendering companies to turn into cosmetics, soaps, fertilizers and animal feed. Brown grease is the material removed from GRDs and is typically disposed at WWTPs although it can be used to make paints and polymers or used as a co-fuel in incinerators.

One advantage for an FSE to collect yellow grease is that the FOG haulers either collect yellow grease for free or pay the FSEs for pumping out and hauling of yellow grease, whereas FSEs pay the haulers for collecting the brown grease.

Disposal and recycle options for FSEs are shown in Figure 12.

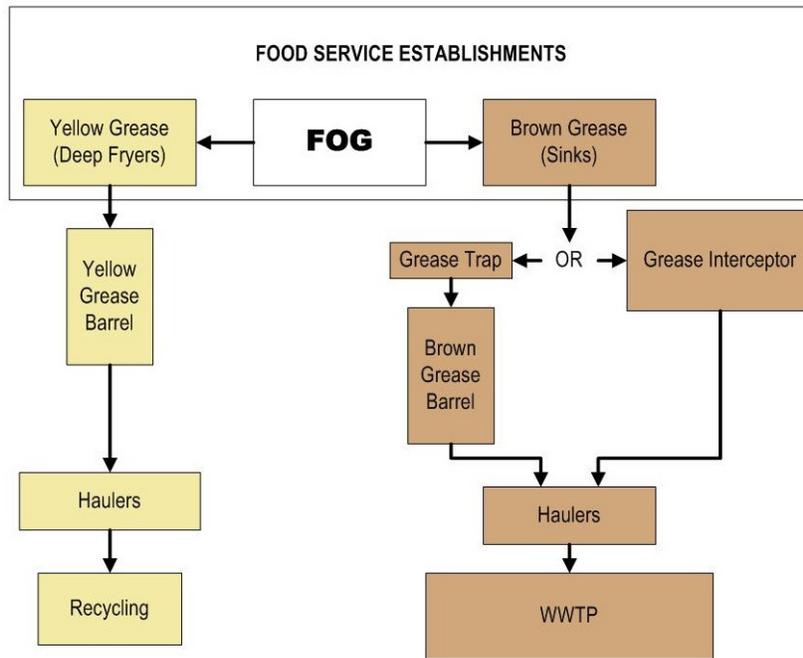


Figure 12: Disposal and recycle options for FOG collected from FSEs.

6 Program Resource Requirements

6.1 Introduction

The implementation, administration, monitoring, and enforcement of the FOG Management Program requires adequate funding support each year for staff, tools and equipment, and software/hardware resources. This section discusses how the City is or needs to address each of these resources.

6.2 Staff

FOG related staffing requirements based on the City’s updated FOG Management Program activities are shown in Table 3. The following are general job descriptions of the staff positions:

- Water and Sewer Department Director: Manages the overall Department Operations.
- Linear Assets Director: Responsible for assisting the Director in general and regulatory oversight of treatment plants and in advising the Mayor and the City Council on matters pertaining to the needs of these facilities such as upgrades, rehabilitation, regulatory matters, etc.
- Linear Assets Manager: Manages water and wastewater staff responsible for the operation and maintenance of the City’s linear assets.

- Wastewater Collection Systems Program Coordinator: Manages wastewater system programs (CMOM) and responsible for data management of wastewater assets and work orders specific to CMOM program activities
- Data Application Specialist(s): Management of wastewater asset data, work orders, and GIS.
- OTS Supervisor: Oversees SSO/FOG Inspectors. Works with the Linear Asset Manager in coordinating work within the Wastewater Collection System Division. Communicates with ADEM and responsible for regulatory activity.
- SSO/FOG Investigator(s): Inspection of FOG facilities, when constructed and during operation, for compliance with City’s regulations. Documents deficiencies and coordinates appropriate enforcement action. Leads investigations of SSOs to document source and ensure that ADEM documentation is accurately collected.
- Sewer Collection System Supervisor: Managers Sewer Equipment Operators, Assessment Crew, and Repair/Construction Crew.
- CCTV Assessment Team: Performs preventative maintenance on wastewater system, clean/inspect wastewater system in response to SSO and Backups.
- Repair/Construction Crew: Assist response teams to make repairs on damaged sewer systems as necessary to restore flow.
- Wastewater Treatment Plant – Operator on Duty: Manages Septic/FOG Hauler dumping at WWTP and manifest documentation submitted by Hauler.
- Office of City Engineer – Wastewater Engineer: Oversees plan submittal and review process for facilities requiring wastewater system needs including FOG management facilities.
- Revenue Department: Check records for active business licenses with FOG facilities. FOG haulers are required to have City of Tuscaloosa Business License.
- Municipal Judge: Codes Enforcement issues citation that has to be resolved in Municipal Court.

Table 3: Staffing organizational assignments for FOG related activities.

Staff	Abbr.	Assignments* and % Time Allocated to FOG						
		(1)	(2)	(3)	(4)	(5)	(6)	%
Water and Sewer Department Director.....	WS Dir							
Linear Assets Director	LA Dir							
Linear Assets Manager.....	LA Mgr	■			■	■	■	
Wastewater Collection Systems Program Coordinator ...	WWCS PC	■		■	■			
Data Application Specialists	DA Spec	■	■	■				
SSO/FOG Investigators (2)	SF Inv	■	■	■	■	■		
Operations Technical Services Supervisor	OTS Supr	■	■	■	■	■		
Sewer Collection System Supervisor.....	SCS Supr						■	
CCTV Assessment Team	CCTV Tm				■		■	
Repair/Construction Crew	RC Crew						■	
WWTP – Operator on Duty	WWTPO			■				
Office of City Engineer – Wastewater Engineer.....	WW Eng	■						
Revenue Department.....		■						
Municipal Judge					■			
*Assignments:	(1) FOG Facility Plan Review and Permitting	(4) Enforcement						
	(2) FSE Inspection and Documentation Management	(5) Public Outreach						
	(3) Manifest Tracking and Documentation	(6) Maintenance and Assessment						

A more detailed description of staff assignments related to this program is given in herein.

FG Plan Reviews and Permitting of FSEs

FOG facility plan reviews are performed as a first step in permitting new FSEs with kitchen facilities or when existing facilities apply for a business license. The facility plan of the new FSE is created by an engineer or architect that has been contracted by the applicant FSE owner/manager and it includes the site plan showing location of grease removal devices (GRDs) and their calculated required size.

The Wastewater Collection Systems Program Coordinator (WWCS Program Coordinator) reviews the plan to ensure that the GRD has been properly designed. The WWCS Program Coordinator recommends adjustments to the location if not appropriate and using the standard GRD calculation method checks the size of the GRD on the plan. The WWCS Program Coordinator may request changes to the FOG facility plan which requires re-submittal. The WWCS Program Coordinator then sends a letter of approval, by fax or email, to Planning & Development Services, and the FSE owner/manager can obtain the building permit.

Planning & Development Services is the presiding department over the plan submittal and review process. It confirms that the applicant has appropriate approvals to accommodate the request for the building construction or development. Planning & Development Services issues the building permit for the FOG facility once the FOG Facility Plan is approved.

The SSO/FOG Investigator performs an inspection of the GRD once it has been installed, to confirm that the installation is in accordance with the approved plan. If the inspection passes, the inspector informs Planning & Development Services where a Certificate of Occupancy is issued to the FSE owner/operator.

The inspector's approval is also forwarded to the Data Application Specialists who create a file for the GRD and include the information of the new installation into the database.

The final step in FOG facility permitting is issuing of a Code Compliance Certificate by the Revenue Department which allows issuing the business license to the applicant.

FSE Inspection and Documentation Management

For the purpose of scheduling and conducting inspections of FSEs, a GRD Inspection List has been created that includes the known FSE GRDs in the collection system. The collection system is divided into 16 sectors with geographical routing as the primary criterion.

The OTS Supervisor prepares an updated routine list of GRDs that should be inspected by the SSO/FOG Investigator. The list is prepared in a way to allow inspection of each of 16 sectors on a semi-annually basis with an allowance for additional inspections of any sector or FSE at the discretion of the OTS Supervisor. Annually the WWCS Program Coordinator compares the inventory of FSEs in the GRD database against the list of FSEs from Revenue Department to see if any has been missed. Additionally, the WWCS Program Coordinator schedules inspection of all FSEs that don't have GRDs installed to see if there have been any changes at the FSEs that would be grounds for requesting GRD.

The SSO/FOG Investigator performs inspection of GRDs and returns the completed inspection forms (Appendix F.1) to the OTS Supervisor when each sector has been completed. The forms include any changes in FSE business status (e.g., closed establishment) or name or any change in the GRD size.

In the case of FSE non-compliance with the GRD maintenance requirements, both the SSO/FOG Investigator and the OTS Supervisor are involved with getting the FSE back into compliance, as described in Section 10.2.3. After any needed review of the completed inspection, by the OTS Supervisor, the SSO/FOG Investigator will input the information into the Lucity database. Any issued Courtesy Letters

are recorded in Lucity database. Follow-up inspections are entered by changing the value for “Does it need cleaning?” field from “Yes” to “No”.

FOG Collection and Disposal Tracking and Documentation

The purpose of FOG Hauler Manifest forms (Appendix D.9) is to track FOG removed from FSEs. The form is partially completed by the FSE owner/operator and the FOG hauler (each completes a part of the form), as described in Section 9.2. After the FOG hauler leaves the original of the form in the drop box at the WWTP, it is collected and forwarded to Database Specialists who enter the information from the form into Lucity FOG database.

During the inspection of FSEs, the SSO/FOG Investigator makes a request to see past FOG Hauler Manifest forms at the FSE checking the dates of GRDs cleaning and reported FOG quantities removed from the GRDs.

The WWTP Operator on Duty is the person who performs spot checks of FOG hauler’s load discharging at the plant, as described in Section 9.3.

Enforcement

Enforcement actions may be needed if the FSE remains non-compliant after receiving both the courtesy letter (issued by the SSO/FOG Investigator) and the certified letter (issued by the OTS Supervisor). The SSO/FOG Technical Investigators can issue a summons to FSEs for non-compliance.

A Municipal Judge can rule the ordinance violation as a misdemeanor (criminal offense; each day a violation continues to exist shall be a separate offense) or a public nuisance (civil offense). In addition to any other action, the City may terminate the user's water service and/or sewer service, and the City may also revoke, amend or suspend the user's City permit and/or terminate the user's connection to the system.

Assessment Crew Supervisor and the CCTV Assessment Team provide support to the SSO/FOG Investigator as needed in assessing the cause of FOG related SSOs or backup events.

Public Outreach

Public outreach to Tuscaloosa residents will help reduce the amount of FOG entering the sanitary sewer system by educating them of the proper home kitchen grease disposal techniques and practices. The City can conduct public outreach through participation in local exhibitions, meetings and public events, distribution and mailing of posters, door hangers and fliers, dissemination of information through electronic media, and free presentations and trainings to apartment residents, school children, FSEs and FOG haulers. Staff working on these activities includes the Linear Assets Manager, the WWCS Program Coordinator, OTS Supervisor and the SSO/FOG Investigators.

Maintenance and Assessment

As described in Section 4.2 of this FOG Management Program, the City’s Gravity Line Preventative Maintenance Program (GLPMP) is responsible for the inspection and cleaning of the wastewater collection system. The SSO/FOG Investigator provides input to Lucity through the Data Application Specialists to identify areas that require more frequent cleaning and inspection.

The OTS Supervisor coordinates with the Collection System Supervisor as these records are updated to plan for the inspection program to include wastewater collection system pipe segments.

For more frequent inspections of the areas identified for high frequency inspection and cleaning, the SSO/FOG Investigator can use a pole camera and digital camera to assess manholes and entry/exit pipe

segments to estimate the FOG accumulation severity.

6.3 Tools and Equipment

FSE Inspections

Table 4 shows tools/equipment and documentation needed by the SSO/FOG Investigator for performing FSE inspections.

Table 4: Tools/equipment and documentation needed for FSE inspections.

Tools per vehicle		Documentation
12-in. adjustable wrench	5-gallon bucket	City Identification (ID)
Two 12-in. standard head screwdrivers	Shovel	Business cards
Two 8-in. standard head screwdrivers	Thermometer	Waterproof pens and clipboard
One 12-in. Phillips head screwdriver	City truck/vehicle safety cones	Inspection forms
One 8-in. Phillips head screwdriver	Steel-toed shoes	Assigned FSE list
One Allen wrench	Safety glasses	GIS maps
One 8-in. pliers	Safety vests	BMPs brochures
One ratchet and socket set, metric & standard	Construction hardhat	GRD Manufacturer Drawings
One power drill set, with attachments	Back-braces	Sewer Use Ordinance (for reference)
One sledgehammer	Work gloves	FOG Management Program
Manhole cover lift/hook	Latex gloves	List of permitted FOG Haulers (contact names & phone numbers)
Pole/digital camera	Disinfectant/hand sanitizer	
Cell phone/radio	Rags/paper towels	
Sludge judge and/or depth probe	Rain gear	
Mirror on a pole and flashlight (to see inside manholes and interceptors)	Ruler Camera	

Conveyance System Inspections

The City’s Gravity Line Preventative Maintenance Program (GLPMP) provides the specific tools and equipment required for cleaning and inspecting the sanitary sewer system for FOG related items. In general, the tools and equipment needed for FOG related inspections include CCTV camera and transporter, VAC truck, Jet Washer with hydraulic driven root cutter, and rodding equipment.

6.4 Information Management System

Introduction

The City has been using Lucity data management software for asset management and maintenance. The software integrates maintenance management, asset inventory and inspection, and GIS data and can generate work orders and create standard or custom reports for work and performance analysis.

Tracking FOG Management Program Implementation

The Lucity FOG module (one of the two Environmental Compliance modules built in Lucity 7.3) is used for tracking FOG Management Program implementation. The module enables performing activities such as:

- Scheduling and tracking of facility inspections.
- Scheduling and tracking of facility pumpouts.
- Tracking of maintenance log submittals.
- Tracking of conversations to/from facility and/or hauler.
- Comparing pickup volumes with disposal volumes.
- Tracking of notices, warning and violations as well as corrective activities.
- Tracking of permits for facilities, haulers and receiving stations.
- Tracking of compliant and noncompliant FSEs.

The module has three main menu items (Facilities, Waste Hauler Info, and Receiving Station) which open related tab-bar menus. The Facilities tab-bar contains the following tabs:

(1) General (see Figure 13) – includes general information about facilities, e.g., facility number and name, address, property ID tag (ID number of each GRD in the facility), classification (car wash, restaurant, coffee shop, etc.), subclass (i.e., light, moderate, heavy or very heavy user), etc. A FOG hauler and the SSO/FOG Investigator can be assigned to the

(2) FSE – includes additional fields that describe the facility, e.g., type of food prepared (Asian, bakery, burgers, etc.), number of features in the FSE (deep fryers, grills, etc), yellow grease hauler, onsite yellow grease container, water usage, etc.

(3) Contacts – includes contact information for FSE owner and other contact people in the FSE.

(4) Conversations – includes fields for tracking who made calls to the FSE, who they talked and what was discussed.

(5) Maintenance Logs (Figure 14) – contains information about maintenance logs submitted to the City, when each log was submitted and when the next one is due, etc.

(6) Inspection/Notifications – contains information about performed GRD inspections, for example, measured thickness of FOG layer and sediment, (a percentage of GRD filled with FOG and whether the violation occurred are calculated automatically, see Figure 15). The screen also includes an inspection checklist of the facility (BMPs implementation) which can be adjusted if needed. The Notifications screen specifies corrective actions needed, notification date, due date for corrections, and if the corrections have been completed as required. Corrective actions can be different, for example, install GRD, pump interceptor, remove obstruction, etc.

(7) Tracking – specifies different notifications sent out (e.g., initial maintenance log reminder, second maintenance log reminder, third maintenance log reminder, initial pumpout results reminder, etc.) and toolkit used (emailed notification to the contact person, to the FSE owner, etc.)

(8) Violations/Enforcement – specifies violations identified during inspections (e.g., excessive FOG in the sample, initial floating FOG and settlement thickness, etc.) Enforcement screen specifies type of enforcement (notice, fine, etc.), data when it applied, and if applicable amount of fine, date it was paid, etc.

(9) Codes – specifies codes that apply for the FSE, namely North American Industry Classification System (NAICS, e.g., 7221 for Food Services Restaurants) and Standard Industrial Classification (SIC, e.g. 5812 for Retail/Eating Place) code.

(10) WO/PM/Requirements – is used for creating work orders and preventive maintenance tasks.

(11) Comments – includes unlimited comments screen.

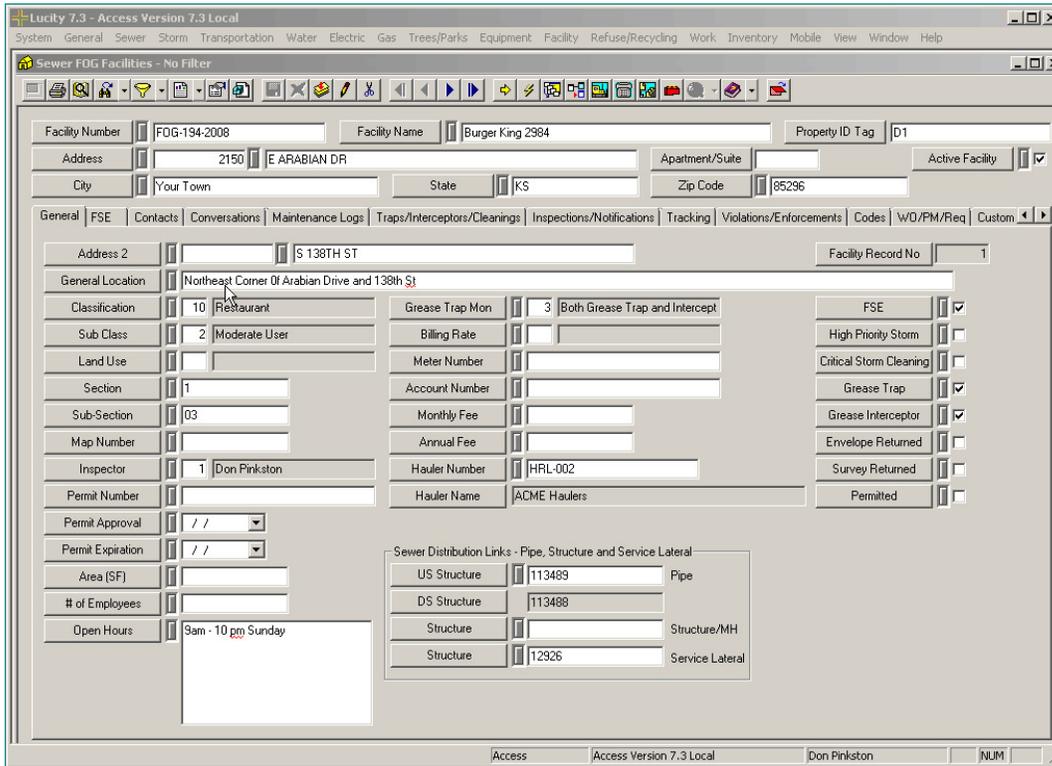


Figure 13: General Screen.

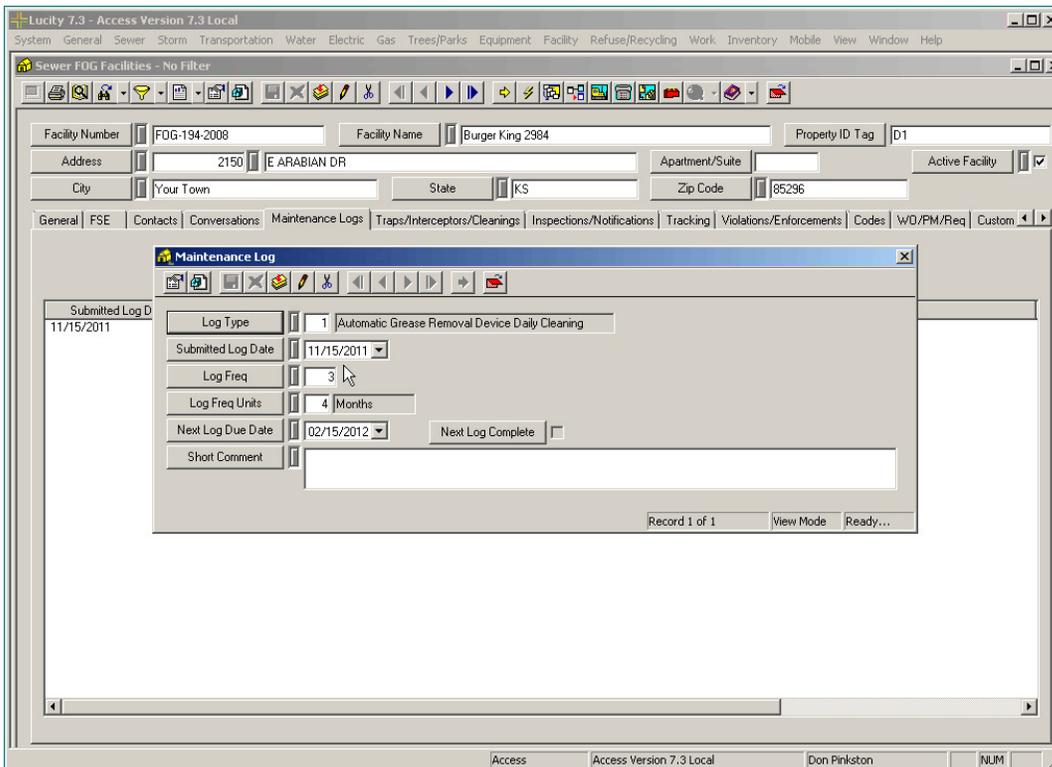


Figure 14: Maintenance Log Screen.

The screenshot shows a web-based form titled "Grease Traps and Interceptors" within a "WebEx Player" window. The form is organized into several sections:

- Header/Navigation:** Includes fields for "Address" (2150 E ARABIAN DR), "Apartment/Suite", "Active Facility", "City", "State" (IL), "Zip Code" (60506), and "Near To" (with a dropdown).
- Unit Information:**
 - Unit ID: 194-2008-2
 - Description: Outside unit in Northwest corner of parking lot
 - Extractor Type: 2 Grease Interceptor
 - Manuf: (empty)
 - Trap Size: 250
 - Size UOM: 1 Gallons
 - Trap Depth: 25
 - Depth UOM: 1 Inches
 - Additives: (empty)
 - Short Comment: (empty text area)
- Installation and Compliance:**
 - Mandatory Install?:
 - Install Date: 01/06/2006
 - Retire Date: / /
 - % Full Violation - 1: 75
 - % Full Violation - 2: 70
 - Discharge Limit: 2
- Cleaning Schedule:**
 - Last Cleaning Date: 12/14/2011
 - Cleaning Freq: 3
 - Cleaning Freq Units: 4 Months
 - Next Cleaning Date: 03/14/2012

At the bottom of the form, it indicates "Record 2 of 2" and "View Mode Ready...". The footer of the application window shows "Access", "Access Version 7.3 Local", "Don Pinkston", and "NUM".

Figure 15: Grease Traps and Interceptor Inspections Screen.

The Waste Hauler Information tab-bar contains the following tabs:

- (1) General – includes general information about FOG haulers (e.g., address, phone/fax, etc.) and specifies approved waste discharge types (e.g., grease traps, commercial/residential septic tanks, etc.)
- (2) Vehicles/Drivers – specifies vehicle number, manufacturer’s name, model, permit status, etc.
- (3) Pumpouts (Figure 16) – includes facility number and name, action (e.g., interceptor pumping out), date, manifest number, waste type (e.g., brown grease), pump method (e.g., vacuum), vehicle number, driver’s name, receiving station number and name, representatives from FSE, etc.
- (4) Comments – unlimited comments screen.

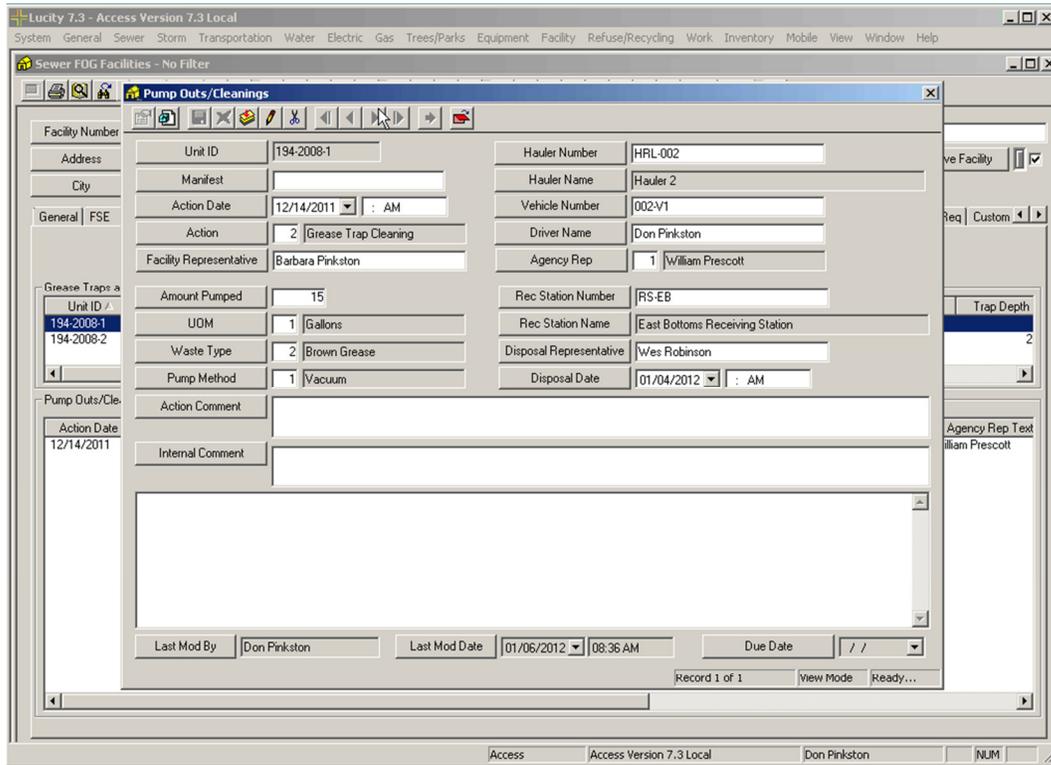


Figure 16: Pumpouts Screen.

The FOG Receiving Station tab-bar contains the following tabs:

- (1) General (Figure 17) – includes general information about the receiving station, i.e., the WWTP (e.g., number, name, address, NPDES number, etc.)
- (2) Received hauler waste (Figure 18) – links FOG haulers (vehicle number, driver name, etc.) with the disposed FOG load (quantity, associated facility pumpouts, etc.)
- (3) Comments – unlimited comments screen.

Lucy 7.3 - Access Version 7.3 Local

System General Sewer Storm Transportation Water Electric Gas Trees/Parks Equipment Facility Refuse/Recycling Work Inventory Mobile View Window Help

Sewer FOG Receiving Station - No Filter

Rec Station Number: RS-2008-01
 Rec Station Name: West Bottoms Station
 Active Rec Station: Rec Station Record No: 2
 Address 1: 10561 Barkley
 Address 2: Overland Park, KS 66213
 Address 3:

General | Received Hauled Waste | Custom | Comments

General Location: 103rd and Metcalf
 County:
 EPD Permit #:
 NPDES #:
 LAS #:
 Solid Waste Handling #:
 Indus PreTreat Permit #:

Contacts

Name	Title Text	Phone	Cell Phone	Fax Phone	Email
Fred Pinkston	Owner	913-341-3105	913-732-5628	913-341-3128	fpinkston@lucity.com

Access | Access Version 7.3 Local | Don Pinkston | NUM

Figure 17: FOG Receiving Station Screen.

Lucy 7.3 - Access Version 7.3 Local

System General Sewer Storm Transportation Water Electric Gas Trees/Parks Equipment Facility Refuse/Recycling Work Inventory Mobile View Window Help

Sewer FOG Waste Disposal - Unnamed Filter Set

Rec Station Number: RS-2008-01
 Rec Station Name: West Bottoms Station
 Hauler Number: HLR-001
 Hauler Name: Pinkston Septic
 Vehicle Number: FOGV-10324
 Disposal Date: 08/08/2011 02:26 PM
 Driver Name: Barbara Pinkston
 Operator Name: fel

General | Comment

Disposal Amount: 500
 UOM: 1 Gallons
 Amount Collected: 400
 Disposal Fee:
 Sample Number: 1
 Sample pH: 6.6
 Sample Results:
 Chain of Custody:

Facility Pumpouts Associated to this Truck's Load

Action Date	Vehicle Number	Manifest	Facility Number	Facility Name	Address
-------------	----------------	----------	-----------------	---------------	---------

Short Comment:
 Disposal Amount: 500

Record 1 of 1 | View Mode | Ready...

Access | Access Version 7.3 Local | Don Pinkston | NUM

Figure 18: FOG Waste Disposal Screen.

6.5 Funding

Estimating Program Budget

The overall required budget for the FOG Management Program is estimated based on staff time, materials and equipment costs, and the cost of FSE inspections and other services provided as part of the program. The costs for implementing the FOG Program should consider the additional associated labor of data management and software upgrades.

Required budget for the outreach program can be calculated based on estimated staff time to conduct workshops and distribute the advertisement materials, and design/production costs of the materials themselves. The City could plan initially a budget between \$6,000 and \$10,000 per year depending on the type and quantity of materials produced and distributed.

Funding Sources

The FOG Management Program is funded through several mechanisms as shown in Table 5.

Table 5: Funding Sources for the FOG Program.

Mechanism	Fund Type	Source of Income
Water/Wastewater General Operating Budget	Wastewater Revenue	Sewer use fees paid by all users
FSE Building Application Fee	General Funds	FSE Applicant for individual establishment
Contract Haulers Permit Fee	Wastewater Funds	Haulers pay a fee to obtain a permit to discharge (one time)
Hauler Load Fees	Wastewater Revenue	Haulers pay a fee based on the volume of discharge, which is allocated to the FOG Management Program (for each discharge)
Penalties	General Funds	Penalties for violations to City Codes by FSE and/or Haulers

7 Permitting Requirements

7.1 Commercial Food Service Establishments (FSEs)

7.1.1 Permitting Authority and Purpose

All commercial food service establishments (FSEs) doing business in Tuscaloosa require a business license issued by the City. A business license is initially issued after a Code Compliance Certificate is complete for the remainder of the calendar year and then renewed every year. One of requirements for FSEs in obtaining the Code Compliance Certificate is to have a grease removal device (GRD) installed and approved by the City. The requirement is based on the City Ordinance No. 2255, Sec. 16-55, which specifies that all FSEs must install, operate and maintain grease control devices on the premises of the establishment which prevent the discharge into the sanitary sewer of solid or viscous substances in

amounts which may cause obstruction to the flow in a sewer or other interference with the operation of the WWTP.

Permitting process for obtaining Business License is slightly different for new FSEs trying to open for business (regardless if building a new structure or converting an existing structure without GRD into a FSE) and existing FSEs that are undergoing remodeling or changing ownership. Existing FSEs have GRDs already installed but the devices need to be checked to determine if they are still up to City standards in changed conditions. This includes size and configuration of GRD.

7.1.2 Permitting Process for New FSEs

Before construction of a new FSE begins, the permit applicant for new FSE submits an application for a Building Permit with a FOG Facility Plan enclosed.

As part of review and approval process, the WWCS Program Coordinator reviews the FOG Facility Plan. If the plan is not made to the City requirements, the permit applicant needs to revise and resubmit the plan. Upon approval of the plan from the WWCS Program Coordinator, Planning & Development Services issues a Building Permit.

The construction of new FSE follows including the installation of GRD. Once the GRD is installed, the FSE gives a notice to the City and the SSO/FOG Investigator performs inspection. If the installed GRD is not approved (for example, it has not been installed in accordance with the approved facility plan), the FSE need to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected.

If the GRD inspection passed, Planning & Development Services issues a Certificate of Occupancy to the FSE and the City's database (Lucity FOG Module) is updated with the new FSE and GRD records.

For final clearance, the permit applicant must submit application for grease trap permit (Appendix O), with the Certificate of Occupancy enclosed, to Tuscaloosa Health Department (THD). The THD makes another inspection of the GRD.

The City's Revenue Department next issues a Code Compliance Certificate and the Business License, with cost determined on case-by-case basis.

A flow chart showing the permitting process for new FSEs is included in Figure 19 (the permit applicant for a new FSE is referred to as "FSE").

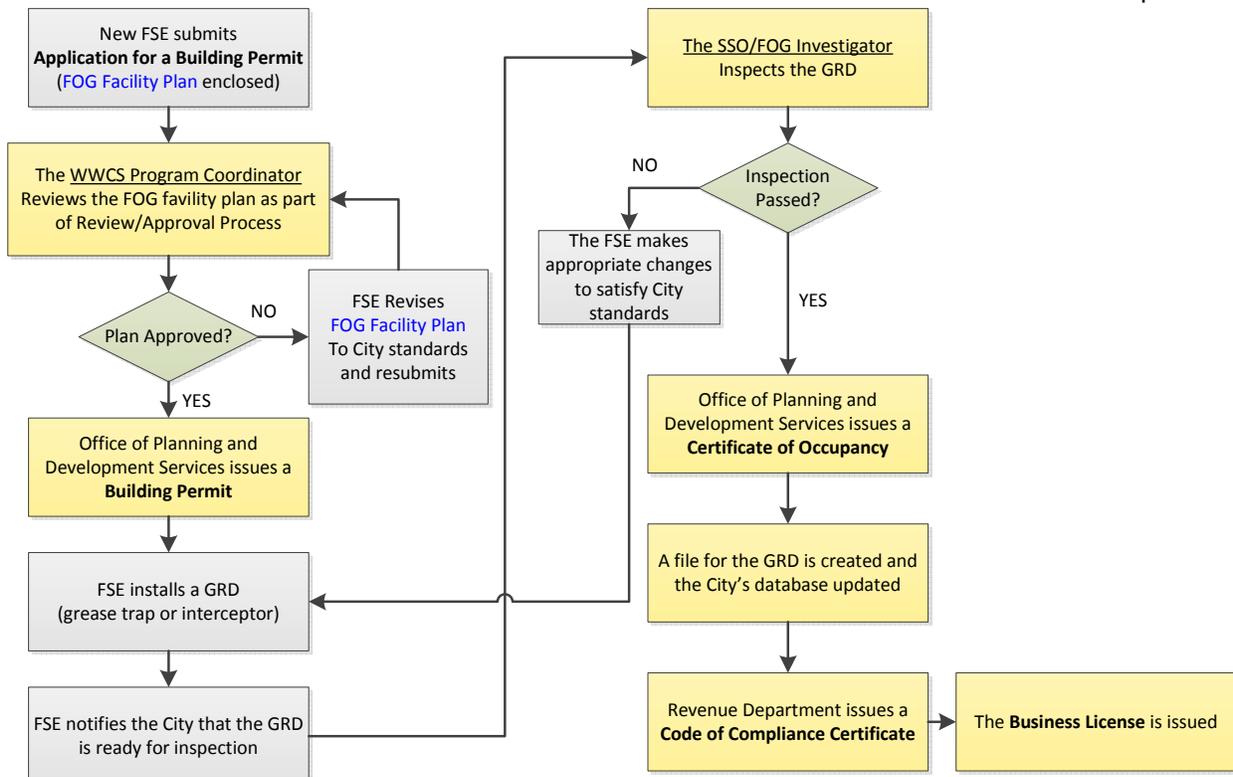


Figure 19: Permitting process for new FSEs.

7.1.3 Permitting Process for Remodeled FSEs

Before work on remodeling of an existing FSE begins, the FSE owner submits an application for a Building Permit. A new FOG Facility Plan is not required but the permit applicant has to schedule inspection of existing GRD with the City.

The SSO/FOG Investigator performs inspection. If the existing GRD is approved, a Letter of Approval is forwarded to Planning & Development Services where a Certificate of Occupancy will be issued when the planned remodeling work is completed and passed inspection.

If the existing GRD is not approved, the FSE needs to make a new FOG Facility Plan and submit to the City for review. The WWCS Program Coordinator reviews the plan and if it is not made to the City standards, the permit applicant needs to revise and re-submit the plan. Upon approval of the plan from the WWCS Program Coordinator, Planning & Development Services issues a Building Permit.

The remodeling of new FSE follows including the installation of new GRD. Once the new GRD is installed, the FSE gives a notice to the City and the SSO/FOG Investigator performs inspection. If the installed GRD is not approved (for example, it has not been installed in accordance with the approved FOG Facility Plan), the FSE need to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected.

If the GRD inspection passed, Planning & Development Services issues a Certificate of Occupancy to the FSE. The FSE and GRD records in the City's database (Lucity FOG Module) are updated.

The City's Revenue Department next issues a Code Compliance Certificate and the Business License, with cost determined on case-by-case basis.

A flow chart showing the permitting process for remodeled FSEs is included in Figure 20.

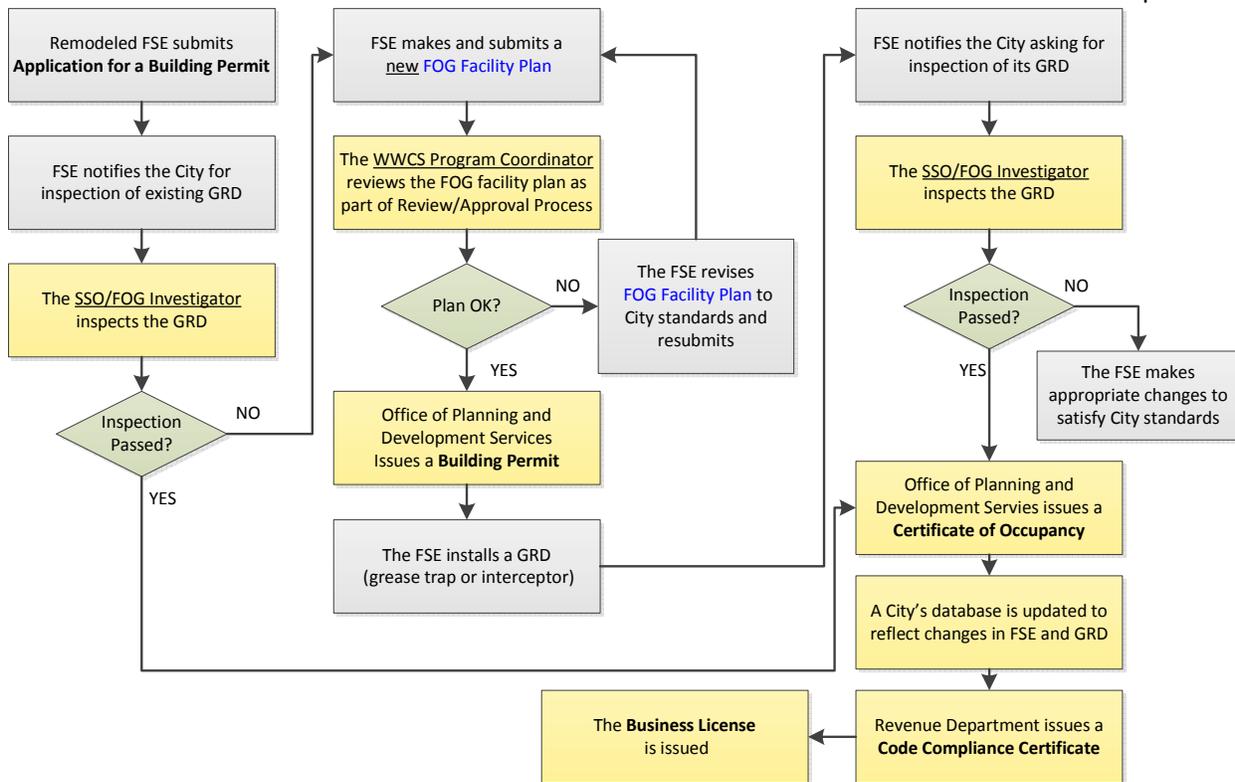


Figure 20: Permitting process for remodeled FSEs.

7.1.4 Permitting Process for FSEs with Changed Ownership

A change of FSE ownership affects an existing FSE Business License because it is non-transferable and therefore the new FSE owner is required to obtain a new one.

The new FSE owner applies for a new business license. The City’s Water/Wastewater Department is notified to determine if the existing GRD needs inspection at this time.

The SSO/FOG Investigator performs inspection. If the existing GRD is approved, a Certificate of Occupancy will be signed by the SSO/FOG Investigator when the planned remodeling work is completed and passed inspection.

If the existing GRD is not approved, the FSE needs to make a new FOG Facility Plan and submit to the City for review. The WWCS Program Coordinator reviews the plan and if it is not made to the City standards, the permit applicant needs to revise and re-submit the plan. Upon approval of the plan from the WWCS Program Coordinator, Planning & Development Services issues a Building Permit.

The installation of new GRD follows and when completed, the FSE gives a notice to the City and the SSO/FOG Investigator performs inspection. If the installed GRD is not approved (for example, it has not been installed in accordance with the approved FOG Facility Plan), the FSE needs to make appropriate changes to the installed GRD or reinstall the device, and then have the device re-inspected. If the GRD inspection passed, Planning & Development Services issues a Certificate of Occupancy to the FSE.

The FSE and GRD records in the City’s database (Lucity FOG Module) are updated.

The City’s Revenue Department next issues a Code Compliance Certificate and the Business License, with cost determined on case-by-case basis.

A flow chart showing the permitting process for FSEs with changed ownership is included in Figure 21.

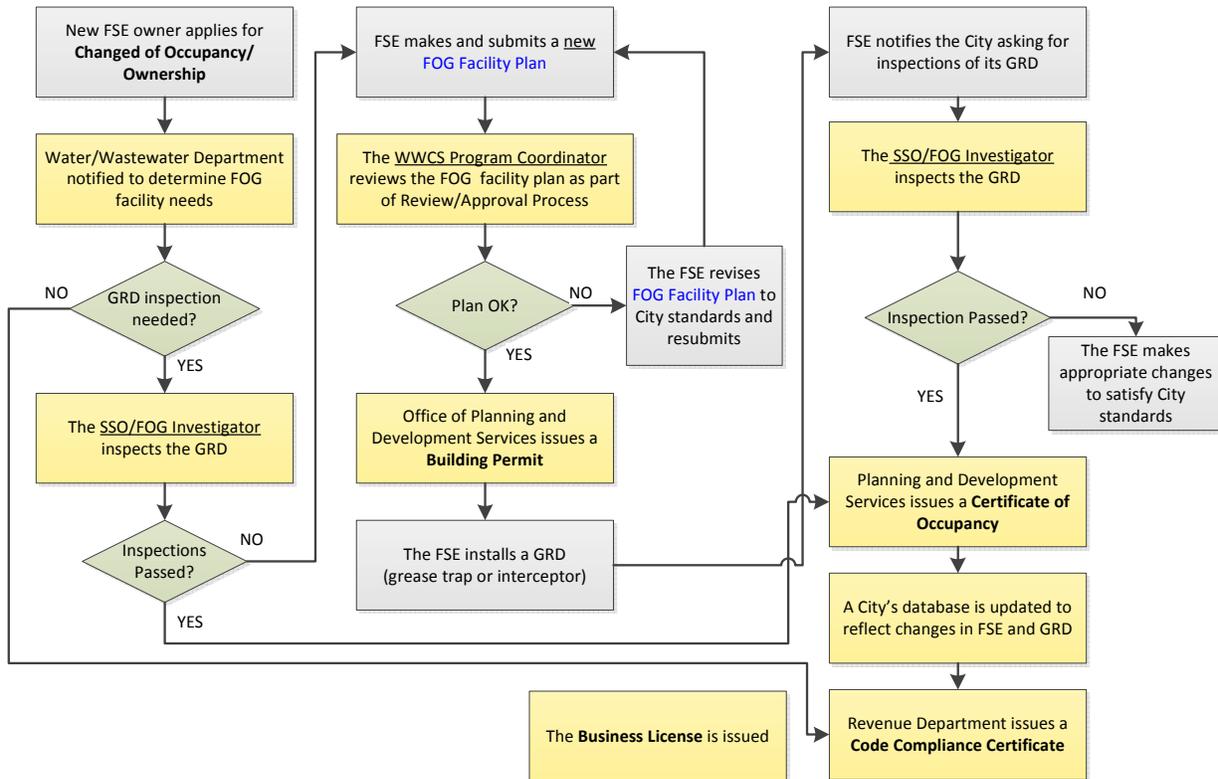


Figure 21: Permitting process for FSEs with changed ownership

7.1.5 FOG Facility Plan (GRD Design)

The City of Tuscaloosa’s Manual for the Design of Sanitary Sewers (last revised in February 2010) is under revision to incorporate the updated GRD design guidelines. Until this revision is completed, the review of FOG Facility Plans in the FSE permitting process is based on design methodology (design approach and GRD sizing formulas) (see Appendix G).

7.2 FOG Haulers

7.2.1 Permitting Authority and Purpose

Alabama Onsite Wastewater Board (AOWB) Administrative Code, Chapter 628-X-3 Licensing, requires that any individual, business, partnership or corporation performing “pumping, servicing, replacing lids, repairing, replacing or maintaining the component parts of a septic tank; sewage tanks and grease traps” must have a Pumper’s License. Obtaining this license from AOWB involves initial training and examination, and continuing education thereafter. This assures that the FOG hauler truck drivers are experienced and understand the correct procedures.

Alabama Department of Public Health (ADPH), in *Onsite Sewage Treatment and Disposal Rules* Chapter 420-3-1-.34, requires that a person proposing to be a sewage-tank pumper obtains a permit from the Local Health Department (LHD), in this case Tuscaloosa Health Department (THD). THD issues a Septic Tank Pumper Permit for each hauler truck after performing truck inspection.

Any persons owning a septic pump truck or other liquid transport truck desiring to discharge contents of the truck at the Hilliard Fletcher Wastewater Treatment Plant has to obtain an Access Pass Card (or Bar Code Sticker) from City of Tuscaloosa, as defined by the City's Sewer Use Ordinance Section 16-58.

7.2.2 Initial Permitting Process

The applicant for a FOG hauling Business License in Tuscaloosa has to obtain a Pumper's License from AOWA first.

After submitting application to AOWB, it is necessary to register and complete the training – a 1.5 day course offered by AOWB and the University of West Alabama (UWA) in the AOWA Training Center in Livingston, AL (Figure 22), and take written exam with AOWB on the last day of training. Persons failing the examination may re-test three times with a minimum of fourteen days lapsing between each test. If a passing score is not achieved with the third re-test, the applicant must begin the licensing anew.



Figure 22: AOWB Training Center in Livingston, AL.

The applicant also needs to post a \$15,000 performance bond to an insurance company where a Certificate of Insurance is issued.

With successfully passed exam and evidence of posted bond, the AOWB issues a Pumper's License (additional requirement is that the applicant is of legal age).

The next step is obtaining a Septic Tank Pumper Permit from the Tuscaloosa Health Department (THD) for each truck that will be used in FOG collection and delivery to the WWTP. After an application is submitted (included in Appendix 0), the THD performs inspection of a hauler's truck and issues the permit.

The FOG hauler next submits an application for a Business License, with Pumper's License and Septic Tank Pumper Permit enclosed. The City's Revenue Department issues a Business License.

The last step is purchasing an Access Pass Card (or Bar Code Sticker) for each FOG haulers truck from the City's Sewer and Water Department for the applicable fee.

A flow chart showing the permitting process for FOG haulers is included in Figure 23 (the fees shown in the chart are subject to change).

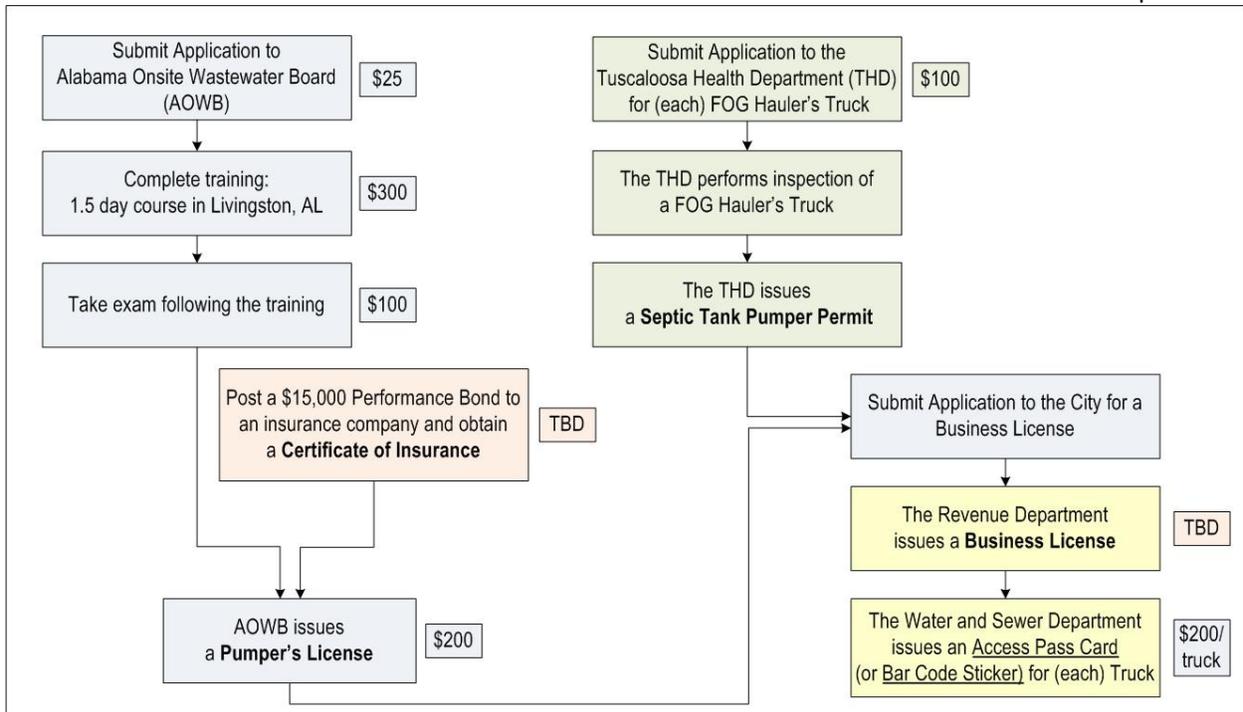


Figure 23: Permitting process for FOG Haulers.

7.2.3 Permits Renewal

A Pumper’s License and Septic Tank Pumper Permits must be renewed annually.

A Pumper’s License expires at the end of each calendar year. If not renewed within a year of expiration, a new license must be obtained. To renew a license, licensees must submit appropriate fee with the application, proof of continuing education and evidence of required \$15,000 bond.

A licensee is required to obtain six (6) credit hours annually. A license which has expired for failure to renew may only be restored within one year from the date of expiration. Any license which has not been restored within one year following its expiration may not be renewed or reissued, and the holder need to apply for a new license.

Continuing education units required for renewing a license are offered at the AOWB Training Center in Livingston, AL at cost of \$170 but they may be obtained from other in-state or out-of-state providers approved by AOWB. Training schedule and locations of CE classes can be found on AOWB Training Center’s web site <http://www.aowainfo.org/Training-Schedule.html>.

A Septic Tank Pumper Permit expires on October 31 and the renewal is required each year between November 1 and December 31. To renew Septic Tank Pumper Permit, an application need to be submitted to the THD and the hauler truck re-inspected. If the inspection is satisfactory, the permit is renewed.

An Access Pass Card (or Bar Code Sticker) is valid for as long as Business License is in good standing and all City’s invoices for disposing of FOG at the plant to the FOG Hauler are paid in timely manner.

A flow chart showing the license and permits renewal timing, requirements and fees for FOG Haulers is included in Figure 24 (the fees shown in the chart are subject to change).

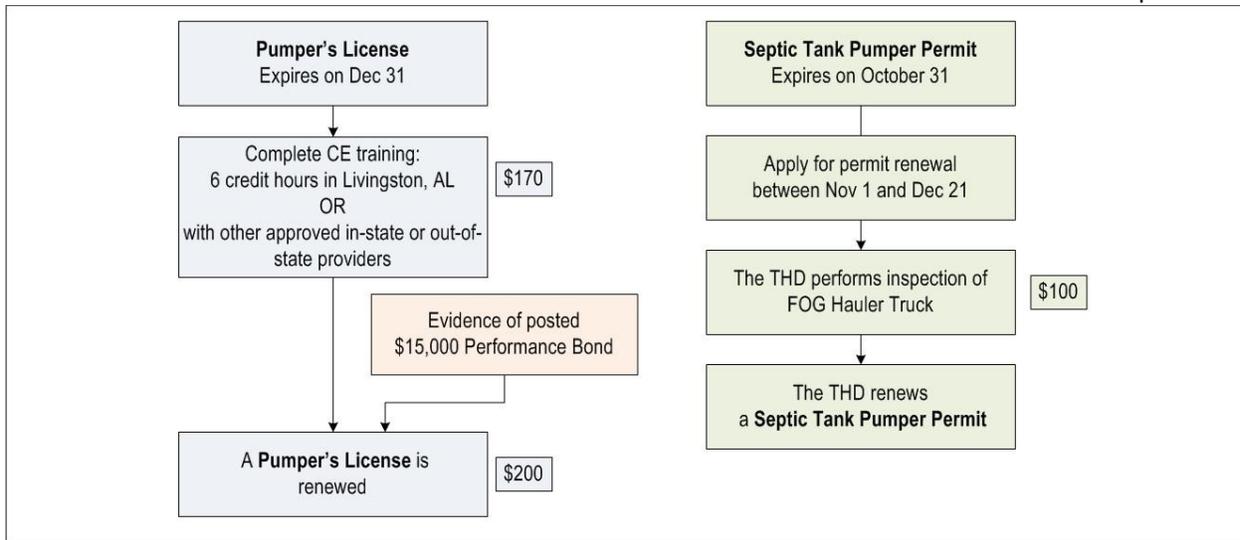


Figure 24: License and permits renewal for FOG Haulers.

8 FOG Best Management Practices (BMPs) for FSEs

8.1 Introduction

Proper FOG handling at FSEs will reduce the amount of FOG that enters the sewer system. Kitchen Best Management Practices (BMPs) include kitchen's daily activities and measures to keep FOG from being discharged to the sanitary sewer. Proper GRDs maintenance practices relate to their cleaning frequencies, effective cleaning methods, and retaining pump-out records for a specified amount of time.

The regulations require that the amount of FOG in the wastewater discharged to the sewer system be less than 100 mg/L (ppm) (see 2.3.1 about City Ord. No. 2255, Sec. 16-42, General discharge prohibitions). FSEs that implement BMPs described in this chapter and properly maintain Grease Removal Devices (GRDs) should be able to satisfy the limit prescribed in the Ordinance.

8.1.1 Equipment and Plumbing

Most kitchen-generated FOG is introduced to the sewer system via the sink. BMPs recommend installing a three-sink dishwashing system which has the first sink used to wash plates; the second sink rinse plates and the third sink to sanitize with a 50-100 ppm bleach solution (Figure 25). Such system saves energy and cost.

Drain screens should be installed on all sink drains and floor drains. Sink drains screens (Figure 26) are an absolute necessity. They should have openings between 1/8-in. and 3/16-in., be removable for ease of cleaning, and be frequently cleaned (the screened solids disposed of to the trash). They should also be large enough to capture food scraps, solids, and other materials from entering the sewer system, and when a lot of food solids are being dumped into the sinks drain baskets are recommended. Double screens can also be installed to prevent solids from entering the drain while the first screen is being cleaned. Floor drain screens (Figure 27) prevent solids on the floor from entering the sewer system. They must be effectively secured to the floor and cleaned frequently by placing the collected material in the garbage.



Figure 25: Three-sink dishwashing system.



Figure 26: Sink drain screen.



Figure 27: Floor drain screen.

All FOG bearing drains in a FSE should discharge to the GRD. These include mop sinks, wash sinks, prep sinks, utility sinks, pulpers, pre-rinse sinks, can washes, and floor drains in food preparation areas such as those near a fryer or tilt/steam kettle.

Sanitary fixtures that produce black water other than kitchen waste, such as toilets and urinals, are not to be connected to GRDs.

8.1.2 Proper Dishwashing Practices

Proper dishwashing can reduce significantly entry of FOG and other waste material to the sewer system. The BMPs include recommendations for proper food waste disposal and rinse/wash water temperature monitoring. Prior to washing, solid food waste and solidified FOG should be scraped and dry wiped from pots, pans, fryers, utensils, screens, and mats directly into a trash container (Figure 28). Rubber scrapers, squeegees, or towels to remove food should be used. Used oil should never be poured down a drain or a toilet and should instead be collected in small grease containers (Figure 29) which are emptied to outdoor grease bins for recycle (Figure 30).



Figure 28: Dry wipe pots and utensils prior to washing.



Figure 29: Pouring oil into a small grease container.



Figure 30: Emptying small grease container into an outdoor grease bin.

Before the wash sink is drained, the free floating FOG or food solids should be removed. Additionally any utensils, including knives, forks, spoons, cups, straws, etc. must be prevented from entering the sewer system.

It is essential not to discharge wastewater with temperatures above 140°F therefore if a dishwasher is connected to a GRD it must have a chiller in place to reduce water temperatures.

8.1.3 Kitchen Cleaning Practices

BMPs require that counter tops and food preparation areas are properly cleaned. Food solids must be wiped thoroughly and placed into the trash container or food recycling bin and not dumped down the sink or floor drain. Food grade paper should be used to soak up oil and grease under fryer baskets and

paper towels to wipe down work areas (if towels are used, they accumulate grease that eventually ends up in the drain from towel washing/rinsing).

Kitchen exhaust system filters and floor mats should be cleaned in utility sinks or designated areas connected to a GRD and not in an area where wastewater can flow to the gutter, storm drain, or street and thus enter storm sewer system.

8.1.4 Spills Prevention and Cleanup

Every effort should be made to prevent spills in kitchens but when they occur, the risk of FOG entering a drain can be minimized by proper spill clean-up procedures.

Spill prevention BMPs include emptying containers before they are full to avoid accidental spills, using a cover to transport grease materials to a recycling barrel, and providing proper conveyance devices to transport grease containing equipment without spilling (e.g., portable fryer grease transfer container). Employees should be provided with the proper tools (ladles, ample containers, etc.) to transport materials without spilling. Spill cleanup kits should be available including, for example, a container (a 5 gallon pail with a standard tear tab lid or screw-on/off lid), universal pads (e.g., 15 in. × 19 in.), absorbent socks (3 in. × 4 ft) to block spreading of contaminated liquid, a temporary disposal bag, a plastic zip tie (12 in.), and a pair of gloves.

Spill clean-up BMPs include blocking off sink and floor drains near the spill, clean spills with towels and absorbent material, and using wet cleanup methods only to remove trace residues. Spills of dry ingredients should be swept up or vacuumed to prevent them from being washed into floor drains.

8.1.5 FOG Collecting and Proper Storage

When changing oil in fryers, the oil should be drained into a bucket (Figure 31) and discarded into a container kept behind the facility (an oil rendering tank for disposal) before it is hauled away. It should never be discharged into a grease interceptor or waste drain. Grill top scrap baskets should be emptied or scrapped into the rendering barrel as well.

Proper storage practices include use of outdoor grease bins (Figure 32) and barrels (Figure 33) where grease is stored until picked up FOG grease haulers for discharging at the WWTP but preferably by grease recycling companies in the area.

Grease containers stored outdoors must be covered to prevent rainwater from entering. This prevents FOG which floats from flowing with rainwater overflowing from the bin or barrel onto the ground where it can reach the stormwater system. FOG containers should be located away from storm drains to give more time to clean up any spills if they happen. Any FOG dripping out of containers must be cleaned up quickly.



Figure 31: Draining used grease from a fryer into a bucket.



Figure 32: Grease bin.



Figure 33: Grease barrels.

8.1.6 Prohibitions Related to FOG Discharges

Certain FOG discharges would interfere with the proper operation of GRDs. The following prohibitions apply:

- DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
- DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.
- DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
- DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant.
- DO NOT connect a garbage disposal to the GRD unless a solid separator is installed to remove solids prior to entering the GRD.
- ANY outside dumpster bin drain shall be plumbed to go through the GRD. The bin area shall be enclosed as to not allow rain water to enter the drain. The site should also be graded as to not allow any storm water to drain into the dumpster bin area.

8.1.7 Kitchen Signage

Kitchen signage serves as reminder for employees to follow proper kitchen BMPs and procedures. “No Grease” signs should be posted in food preparation and dishwashing areas (above sinks and on the front of dishwashers). They emphasize the importance of keeping FOG out of sinks and drains. The signs should be produced in several languages, so that non-English speaking employees are aware of the BMPs.



Figure 34: “No Grease” sign.

8.2 Grease Removal Devices (GRD) Maintenance

8.2.1 Interior GRDs Monitoring and Cleaning

Interior GRDs (grease traps) can be installed above ground (Figure 35) or flush with the floor (Figure 36). They operate by retaining wastewater long enough to allow contaminants with specific gravities different than water to separate out by gravity flotation and settling. However, these small devices are flow based (have flow restrictions) and FSE owners/managers need to learn, from the plumber or the FOG Investigator, the maximum flow rate allowable through the unit and not exceed it.

Grease traps they are typically maintained by selected FSE employees. The traps come with instruction manuals which provide directions about their care and maintenance. All safety precaution and manufacturer labels must be kept in good care and shown on the equipment as provided (Figure 37) and a copy of the exact information should be kept in a separate maintenance book.



Figure 35: Grease trap installed above ground.



Figure 36: Grease trap installed flush with the floor (an in-floor trap).



Figure 37: Labels displayed on the trap.

The necessary cleaning frequency of grease traps depends on the following:

- The capacity of the device.
- The amount of grease the FSE generates.
- BMPs the facility is implementing to reduce the amount of FOG discharged.

A grease trap should be cleaned out when about a quarter of its volume is filled with FOG and solids (see a "25% Rule" described in Appendix D.8) however the trap should be checked regularly (initially on a daily basis to establish the required maintenance frequency and then proceed at that frequency). For example, if it is determined that a 35 gpm trap accumulates about 5 gallons of grease every 4 days it can be assumed that the interceptor should be cleaned no less than once a week. In FSEs where food specialty is high in FOG, and especially if food grinder is discharging into the grease trap, cleaning may be needed on a daily basis.

Regardless of the required cleaning cycle, field experience shows that one of the biggest obstacles to regular maintenance is odors usually associated with grease traps. The easiest way to eliminate that problem is frequent cleaning. If cleaning the grease trap becomes a part of the daily routine, it usually requires only about 15 minutes and there will be limited or no objectionable odors.

Grease traps should be placed so that it is easy to open them and clean. The baffle should be removed, the baffle and inside walls of the tank scraped removing the FOG buildup, and the grease removed (Figure 38). The device should be dry wiped rather than washed with water and cleaning chemicals. The grease removed from the device should be placed into a container and disposed of in the trash (Figure 39). Frequent skimming of the device makes it easier to clean later.



Figure 38: Removing grease from the grease trap.



Figure 39: Disposing removed grease into the trash.



Figure 40: Automatic GRD.

In addition to manual grease traps described so far in this chapter, automatic GRDs are also available (Figure 40) – these are generally more expensive and designed for the interception of large quantities of FOG. Automatic GRD have mechanical components including an external collection container for removal of grease, and timers and sensors that should be maintained at intervals recommended by the manufacturer.

FSEs should document monitoring and cleaning of grease traps. The date and approximate volume of FOG waste removed should be entered into the maintenance log (Appendix D.7) each time the trap is cleaned. Maintenance documents must be kept on site at the FSE for at least three (3) years.

8.2.2 Exterior GRDs Monitoring and Cleanup

Exterior GRDs (grease interceptors) are installed outside of the facility. These devices are volume based and have no flow restrictions.

They must be cleaned out by permitted grease disposal contractors but is the responsibility of FSEs to monitor their condition and schedule their cleaning as needed.

The necessary cleaning frequency of grease interceptors depends, like with the grease traps, on the following:

- Capacity of the device,
- Volume of wastewater being placed into the GRD daily,
- Amount of FOG in wastewater coming to the GRD.

A “25% Rule” described in Appendix D.8 is used as a criterion to determine when the time for GRD cleaning has come, which is based on periodic checking of:

- Scum layer thickness (the floating scum layer in the GRD tank), and
- Solids layer thickness (solids accumulated on the bottom of the GRD tank).

It is the FSE’s responsibility to verify that the accumulation of solids, grease and oils does not exceed 25% of the liquid retention capacity of the device. In other words, the thickness of both layers combined must not exceed 25% of the operating depth of the device, which is the internal depth from invert of outlet pipe to the bottom of tank. For example, a 4-ft deep interceptor (4-ft operating depth) must not have more than 1 ft of combined floating FOG and settled FOG/solids.

Grease interceptors should be checked regularly (initially it is recommended to check them on a weekly or bi-weekly basis to establish the required maintenance frequency and then proceed at that frequency). Field experience indicates that the cleaning frequency for large interceptors is usually in the range of 2 to 4 weeks.

An example of a GRD severe condition where the device was left to fill up to the top with grease is shown in Figure 41, which is completely unacceptable. This condition is referred to as “severe GRD non-compliance” in Section 10.2.3 and is subject to immediate penalty.

There should be an adequate number of access manholes, namely one manhole cover directly above each inlet and outlet on the interceptor tank, to provide access for inspection and cleaning all areas of an interceptor. The FSE personnel should learn to visually inspect the interceptor:

- The influent (or entry) side usually has the heavier amounts of grease (Figure 42). A baffle or elbow should be showing.
- The effluent side has less amounts of grease and the person doing the inspection should be able to see the outlet tee discharge (Figure 43).



Figure 41: Interceptor filled with grease to the top.



Figure 42: View into a manhole on the interceptor inlet.



Figure 43: View into a manhole on the interceptor outlet.

The FSE operator should use a measurement tool which offers accurate readings and requires very minimal training for correct use (Figure 44).

The Standard Operating Procedure (SOP) for interceptor inspection in Appendix D.8 should be followed every time a grease interceptor is inspected. Form 0 is an inspection checklist that a facility operator needs to fill in for each inspection and keep the record on file. FSE owners/operators can usually find out by experience how often grease interceptors at their facilities need to be cleaned.

As FSEs are responsible for the condition of grease interceptors, it is recommended that an FSE representative witnesses and monitors how the grease haulers perform the interceptor cleaning. The FSE is responsible for the proper procedures to be followed (see 9.1) and that the hauler does not take any shortcuts. The FSE representative can use “Checklist for Monitoring of FOG Hauler” form included in Appendix D.10.



Figure 44: An employee inspecting the interceptor.

FSEs should document maintenance of grease interceptors. Each time the grease interceptor is inspected, the date and results of inspection should be entered in the inspection log (Appendix 0). The date and approximate volume of removed FOG waste should be recorded in the FOG Hauler Manifest form (Appendix D.9) each time the interceptor is cleaned. A copy of this form should be put into the maintenance log and kept on site at the FSE for at least three (3) years. Maintenance documents must be kept on site at the FSE for at least three (3) years.

8.3 Getting in Compliance with FOG Management Program

In order to get in compliance with the FOG Management Program, FSEs may use the following checklist for implementing BMPS:

1. Make sure drain screens are installed in all FOG bearing sink and floor drains.
2. Make sure employees scrape solid food from pots, pans, fryers, utensils, and dishes into a trash container and that there is no waste food in the sink. Make sure employees dry wipe pots and utensils prior to washing.
3. Make sure employees sweep the floor before mopping and there they don't attempt to remove floor drains to sweep in debris from the sweeping floors.
4. Make sure temperature of faucet water is not over 140°F and set water heaters temperature accordingly.
5. Make sure employees promptly clean any grease spills on the floor using towels and absorbent material and using wet mops only to remove trace residues.

6. Make sure proper spill cleanup kits are available in the facility.
7. Make sure small grease waste containers are available and used for collecting used oil and grease, and that these containers have lids.
8. Place proper signage about grease control and listing of BMPs on the wall.

In facility outside areas, FSEs should apply the following measures:

9. Make sure outside grease containers are covered and closed.
10. Make sure there are no grease spills on the pavement or other surfaces from transporting grease to outside containers.
11. Make sure that outside grease containers are not leaking and replace any damaged one promptly.
12. Make sure that employees do not dump oil and grease into storm sewer.
13. Make sure that employees do not cleaning equipment (degrease) outside. The equipment should be scraped and dry wiped indoors and any washing done in utility sinks connected to a GRD.
14. Make sure that employees do not wash mats outdoors. The mats should be vacuumed and washed in utility sinks connected to a GRD.

The FOG Management Program also includes requirements to keep proper documentation about employee training and GRD maintenance. The FSE's checklist continues as follows:

15. Make sure that the employee training log is complete, i.e. that employees get training about proper FOG handling and learn requirements of the FOG Management Program (see 8.4). Keep training log current and provide training to new employees, as well as periodically do refreshment training to already trained employees.
16. Make sure that the GRD inspection/cleaning log is complete. Employees in charge of inspection and cleaning of grease traps and grease interceptors need to do these assignments regularly and keep the GRDs in good operating condition. Learn the required frequency of inspection and cleaning of a GRD in the facility and adopt the routine to inspect and clean accordingly.
17. Make sure that the FOG Hauler manifests are complete.

FSEs may use the following checklist for requirements of the FOG Management Program related to condition and performance of GRDs:

1. Make sure that a GRD functions. The device should contain wastewater with grease layer floating on the top and be filled below the invert of the outlet pipe.
2. Make sure that the 25% rule is met, i.e., that the thickness of the layer of floating grease and solids combined does not exceed 25% of the operating depth of the device (depth between the invert of the outlet pipe and the bottom of the device).
3. Make sure that the inlet pipe of the GRD is visible during inspection.
4. Make sure that the outlet pipe of the GRD is visible during inspection.
5. Make sure that there are no roots growing in the interceptor and have them cleaned if necessary.
6. Make sure that there is no corrosion damage to the GRD. If metal traps are corroded replace with new ones and consider grease traps made of plastic. Make sure to repair corrosion damage to the interceptor promptly and do not wait for severe damage to develop (for example, rebar to get exposed in a concrete grease interceptor).
7. Make sure to correct any broken parts or replace missing parts, especially missing outlet T.

If a GRD is not cleaned on time, the device keeps filling with grease and the level of grease may reach surface. Heavy cast iron manhole covers can be moved under pressure from grease built-up and grease can overflow from the GRD. This represents the "GRD severe condition" and is subject to immediate penalty (see 10.2.3.4). FSEs should make sure that such condition does never develop.

The FSE is ultimately responsible that the wastewater discharged to the sewer lateral contains less than 100 mg/L (ppm) of FOG. If a FSE is following the requirements of the FOG Management Program and despite best efforts the effluent from a GRD still contains unacceptable FOG content level, the installed GRD is most likely undersized. The connections to the device should be checked and the existing GRD may need to be modified or replaced accordingly.

8.4 Employee Training

Employee education is the key to the implementation of kitchen BMPs and proper maintenance of GRDs. Employees who know and understand the problem, procedures, and benefits will be more willing to support and be able to implement the FOG Management Program requirements. Employee education should emphasize:

- Problems created by FOG discharge to the sewer system.
- Kitchen BMP procedures.
- Benefits to following the kitchen BMP procedures.

Employee education includes new employee training program, frequent refresher training program, employee award program for following BMPs and employee idea/suggestion program. PowerPoint presentations have been prepared to educate FSE employees about the BMPs (Figure 45), those selected to perform maintenance of GRDs about proper inspection and cleaning of these devices (Figure 46), etc.

The SSO/FOG Investigators are the principal means for delivering the necessary education to the FSEs and they instruct the FSE owners/managers how to develop and carry on training of their staff (see 10.2.2).



Figure 45: Staff training presentation for all employees in the FSE



Figure 46: Staff training presentation for employees responsible for GRD maintenance

9 FOG Collecting and Disposal Proper Practices

9.1 Introduction

Grease interceptor cleaning is performed by permitted grease haulers (see FOG haulers' permitting in 7.2 and a list of permitted FOG haulers in Tuscaloosa in Appendix D.10). The cleaning entails pumping the interceptors completely dry and having all liquids, solids and grease removed from the interceptor. FOG haulers also collect the grease stored in grease bins and barrels. All collected FOG is

transported to the WWTP where it is disposed off, with the exception of yellow grease which is used for recycling.

9.2 Grease Interceptor Cleaning

The interceptor cleaning begins with cleaning of the top grease layer. Using the truck suction hose, the top layer of FOG is vacuumed up first. The bottom layer consisting of the heavier sludge and FOG is vacuumed up next. In the last step, the remaining “water” or liquid is pumped out to leave the interceptor completely empty (Figure 47). This may be followed by high-pressure water scrubbing (Figure 48). “Definition of clean” means the tank is entirely pumped out (Figure 49).

Decanting is a practice of returning wastewater from a grease hauler truck back into the grease interceptor after it is vacuumed out. Decanting is not allowed. This wastewater has high grease and solids content and low pH, may be contaminated from the hauler’s previous load and cause odors.



Figure 47: Vacuuming out the contents of the interceptor.



Figure 48: Use of high pressure water and suction hose.



Figure 49: Cleaned interceptor.

FOG haulers are required to keep a complete record of facilities cleaned and submit such records (manifests) to the Tuscaloosa Health Department (THD) when requested, as per ADPH’s Onsite Sewage Treatment and Disposal Rules. The form used for this purpose in a FOG Hauler Manifest included in Appendix D.9. It is a standard form that enables FSEs recording the times and volumes of FOG pumped and removed from their facility, and gives FOG haulers proof that they have properly discharged the collected FOG loads. It serves the City tracking the grease after it has been collected until it has been disposed and enables the City to charge the FOG haulers for the FOG quantities disposed at the plant.

The form has three parts that are filled in as follows:

Top portion is filled in by the FSE representative who signs and dates the form when the waste is removed, specifies the number of GRDs cleaned and estimates quantity of FOG removed in gallons.

Middle portion is filled in by the FOG hauler who before leaving the FSE fills in details about hauler business, driver and truck’s Access Pass Card (City’s truck permit), and after discharging FOG at the plant dates the form to indicate date of discharge.

Bottom portion is filled in by the Database Specialists after entering information into the database (Lucity FOG, see 6.4).

The Manifest is printed on a carbonless white/canary/pink form (Figure 50).



Figure 50: FOG Hauler Manifest printed on a carbonless 3-sheet form (white/canary/pink).

The steps in filling and processing the Manifest are shown in Figure 51. (Instructions how to fill in the form are written on the back page of the form, Appendix D.9). The FSE keeps a pink copy of this manifest after the hauler has accepted the waste. After collecting FOG loads from one or more FSEs, the FOG driver discharged the FOG load at the WWTP (the procedure described in Section 9.3). At that time, the driver dates the forms from each FSE and leaves them in the drop box at the plant. The forms are forwarded to the City’s Database Specialist who enters the information into the City’s database. It is the FSE’s responsibility to keep the original at the FSE and make it available to the SSO/FOG Investigator upon request at inspection.

The City Water and Sewer Department is issuing invoices to FOG haulers based on quantities of FOG discharged at the WWTP, at cost included in the City Ord. Sec. 16-58 (D) (7): which are 7.5 cents per gallon for grease hauled from FSEs within the City and 10 cents per gallon for grease hauled from outside the City.

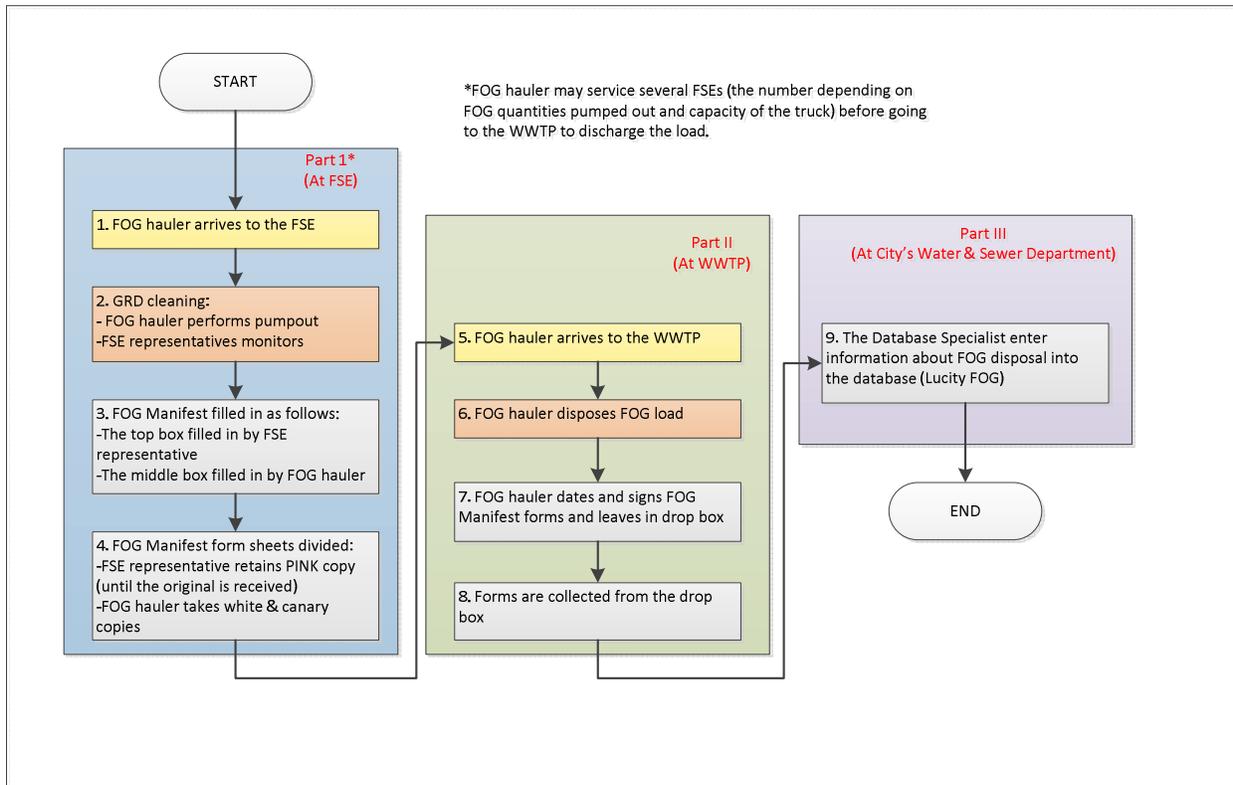


Figure 51: FOG Manifest form lifecycle.

9.3 FOG Disposal at WWTP

FOG haulers discharge their grease loads at the WWTP’s FOG/Septage Receiving Station adjacent to the WWTPs Influent Pump Station. There are a total of six receiving holes located in the receiving area adjacent to the plant’s influent pump station (Figure 52), which convey the trucks’ discharge directly to the plant’s influent pump station.

The receiving station area also contains three subsurface holding basins that can receive questionable or more toxic hauler loads (Figure 53). Separate discharge holes are used when haulers trucks are discharging to the holding basins, i.e., the discharge flow from the “regular” receiving holes cannot be redirected to the holding basins.

Only permitted FOG haulers should access the plant using the issued gate access device provided by the City when the FOG hauler permit is issued. The City may monitor and record the arrival of FOG haulers at the WWTP receiving area using CCTV equipment. Each hauler should leave FOG Hauler Manifest form at the drop box provided by the City at the FOG/Septage receiving area. The manifest provides a listing of the locations where they collected the grease loads and the FOG quantities that were collected at each of these locations (Appendix D.9). Once the dumping begins, it takes about 10 min to empty the truck. After dumping, the driver washes down the area.



Figure 52: A hauler truck discharging into a receiving hole in a receiving area adjacent to the plant's influent pump station.



Figure 53: Three subsurface holding basins for questionable or more toxic hauler loads.

10 FOG Program Implementation

10.1 Public FOG Education and Outreach

Educating public about FOG issues and problems and the importance of FOG program implementation is essential. The City's program is considering education and outreach activities and materials such as:

- Distribution and mailing of water/sewer bill inserts, posters, door hangers and fliers, especially to residential areas impacted by FOG related blockages and SSOs – these materials were created with specific tips on keeping pipes and sewers clear at home.
- Dissemination of information through electronic media. A web site is planned that provides information about the FOG Management Program and related issues.
- Participation in local exhibitions, meetings and public events.
- Presentations to apartment residents, school children, restaurants and FOG haulers.
- City truck stickers placed on City vehicles promoting the “Don't Clog With FOG” message allowing the clarity and simplicity of the message to speak to residents while front line workers are out dealing with the FOG. The stickers allow both residential and commercial customers to connect the trucks and work crews to the materials they see/receive at home and work, therefore maximizing the opportunity for outreach.
- Collaboration with local organizations including Alabama Restaurant Association (ARA). The City plans to work closely with ARA to become a partner in the program and participate in efforts to promote it.

Public outreach to Tuscaloosa residents will help reduce the amount of FOG entering the sanitary sewer system by educating them of the proper home kitchen grease disposal techniques and practices. Private

residents are often contributors to FOG related blockages in wastewater collection systems. Initial FOG characterization for the City of Tuscaloosa indicated two general examples of residential sources where FOG related SSOs have been recorded over the past 5 years. The City inspected sewers where these occurrences happened and determined that there were signs of significant grease blockages.

10.2 Achieving Compliance from FSEs

10.2.1 Introduction

In order to achieve compliance with the FOG Management Program from all FSEs while maintaining good public relations, the following compliance enforcement consequences are designed to directly vary with the degree of the FSE compliance cooperation and resolutions:

- Educate FSEs about the program and requirements through training provided at the program onset (see 10.2.2).
- Perform FSE inspections periodically for checking compliance with the program (10.2.3).
- Give compliance recognition (10.2.3.3).
- Encourage compliance through notices of non-compliance and warnings of potential fines and stringent enforcement measures that would follow for persistent non-compliance (10.2.3.4).
- Issue non-compliance court summons following determination that the FSE is in a violation, as established by the **Wastewater Collection Systems Program Coordinator** (WWCS Program Coordinator) (10.2.3.4).
- Terminate water and sewer service to the FSE if all other measures have been tried and proved unsuccessful (10.2.3.4).

10.2.2 Training to FSEs

Educating FSE owners and managers about the FOG Maintenance Program, specifically in implementing BMPs and performing proper GRDs maintenance, is essential for achieving their compliance with the program. The OTS Supervisor and SSO/FOG Investigators are the principal means for delivering the FOG Management Program requirements and necessary education to the FSE community.

At the onset of the FOG program, FSE's knowledge and awareness of the program may vary greatly. A letter introducing the FOG program and the FSE permitting process, such as one included in Appendix F.2, should be sent to the FSE owners/managers. (The same should thereafter be done whenever any new or remodeled FSE, or FSE under new ownership, has a Business License issued.) The SSO/FOG Investigator will visit the facility and provide training to instruct the FSE owner/manager (who will instruct all other employees) of how the FOG program should be implemented and how it affects their business.

During the visit, the SSO/FOG Investigator gives the following forms to the FSE owner/manager:

- Initial Training Checklist (Appendix 0) – This form is listing other forms that the FOG inspector will show and explain to the FSE owner/manager during this initial visit. The form must be kept in the FSE as a record of completed initial training.
- Training Development Form (Appendix D.3) – This form is instructing the FSE owner/manager how to develop a FOG training program for the employees of the FSE.

The FSE owner/manager is also instructed about other forms that the FSE is required to use, which all will remain in the FSE and be shown to the SSO/FOG Investigator during future FSE inspections upon request:

- Tracking of Employee Training (Appendix 0) – This form will list employees working at the FSE and show the dates when they received the training in kitchen BMPs.
- Tracking of GRD Maintenance Training (Appendix 0) – This form will list selected employees that received training in GRD inspection/cleaning and the dates when they were trained.
- Inspection Form for Grease Interceptors (Appendix 0) – This form will be used to keep record of how often grease interceptors are inspected by the FSE personnel.
- Inspection/Cleaning Form for Grease Traps (Appendix D.7) – This form will be used to keep record of how often grease traps are inspected and cleaned by the FSE personnel.
- Standard Operating Procedure (SOP) for “25% Rule” Form (Appendix D.8) – This form explains the procedure for checking grease and solids accumulation in GRDs (both grease traps and grease interceptors). Each employee of the FSE who will be trained to inspect the GRDs will be shown this SOP and will be given all necessary explanations.
- FOG Hauler Manifest Form (Appendix D.9) – This form will be used to document the cleaning of GRDs (mainly grease interceptors) performed by the professional FOG haulers.
- Checklist for Hauler Monitoring (Appendix D.10) – This form will be used by FSE personnel to monitor grease interceptor pump outs to ensure proper cleaning and maintenance procedures are followed and that the FOG hauler does not take any shortcuts.

Training of new FSEs begins at the time they apply for Building permit to get Business License issued. The applicants are given educational materials to get familiar with the FOG Management Program and learn how to get in compliance.

10.2.3 FSE Inspections

10.2.3.1 Scheduling Inspections

Routine inspections of all permitted FSEs are performed as random and unannounced inspections to observe their daily business operations and routines and check their compliance with the FOG Management Program. All FSEs will be inspected approximately twice per year but eventually will be prioritized and inspected based on criteria such as:

- Type and method of food preparation.
- Size and grade of sewer mainline pipe to which the FSE discharges.
- History of grease related pipe blockages and SSOs downstream of the FSE.
- Compliance history.

In addition to routine inspections, some FSEs will be inspected following complaints such as sewer backups or SSOs. These triggered inspections will be performed to identify facilities possibly responsible for the blockage. Triggered inspections will occur regardless of any prior and perhaps recent routine inspection of these facilities.

10.2.3.2 Performing FSE Inspections

Introduction

A typical routine FSE inspection includes checking the implementation of BMPs, including FSE maintained logs, and the condition and performance of GRDs. In some cases it may also include sampling and laboratory testing of effluent wastewater from GRDs.

Right of Entry

The SSO/FOG Investigator has a right of entry (City Ord. No. 2225, Sec. 16-55a) to inspect food preparation and other areas of the facility where FOG is generated or stored, logs maintained by the facility, all grease traps/interceptors and wastewater lines from the establishment to the sanitary sewer system. Failure to permit the investigator entry in accordance with the specified conditions constitutes a misdemeanor punishable by fine up to \$500 for each day of violation, or confinement in the City jail or to hard labor for the City for a period not exceeding six (6) months, or both (Ord. No. 2114, Sec. 1-8a).

If the Investigator is refused access to inspect the facilities, he will notify the OTS Supervisor and the two will approach the FSE explaining the purpose of the compliance inspection and fines associated with violations with City Code requirements. If the access to the facility is still refused, the OTS Supervisor shall contact the Tuscaloosa Health Department official for a joint inspection of the facility and issue a summons to Municipal Court.

Inspecting BMPs Implementation

When checking the BMPs implementation, a total of seventeen deficiencies have been identified as a BMP violation (see Appendix F.1). The SSO/FOG inspector performs activities such as the following to determine how well the FSE is complying with the BMPs

- Inspect sink and floor drain screens.
- Look for evidence of proper dishwashing (there is a scraper for dishes) or improper dishwashing (evidence of food in the sink, as shown in Figure 54).
- Check for evidence of illicit dumping such as debris or loose screws in floor drains (Figure 55).
- Look for evidence of proper spill prevention/cleanup practices (there is a spill kit).
- Check that the BMP signage is posted on the wall.
- Check for evidence of equipment cleaning (degreasing) or mats washing in outside area.
- Inspect employee training log.
- Inspect FSE's inspection/cleaning log to confirm that GRDs are maintained properly. Check for missing or altered log entries.
- Inspect copies of FOG Hauler Manifest forms to see FOG pickup dates and volumes collected and verify FOG discharge at the WWTP.

Inspecting GRDs Condition and Performance

For assessing the condition and performance of GRDs, a total of seven GRD deficiencies have been identified as a GRD violation (see Appendix F.1). The SSO/FOG inspector performs activities such as:

- Check that GRDs function (Figure 58).
- Check grease/sediment depths (the 25% rule, as described in Appendix D.8).
- Check if inlet pipe and outlet pipe are visible (Figure 59).
- Check for root intrusion (Figure 60).

- Check for evidence of extensive corrosion in metal grease traps (Figure 61) and concrete interceptors (Figure 62).
- Check for any broken or missing parts (Figure 63, Figure 64) or damages such as cracks or big chips in the lids.



Figure 54: Food in the sink (dishes were not wiped before washing).



Figure 55: Debris in the floor drain (floor was not swept before mopping).



Figure 56: Spills on and around grease recycle bin.



Figure 57: Waste leaks in the garbage and grease recycle storage area.



Figure 58: Grease interceptor not working.



Figure 59: Too short outlet tee allows short-circuiting.



Figure 60: Roots removed from the grease interceptor (root intrusion can completely clog the interceptor).



Figure 61: Severely corroded metal grease trap (these traps are highly prone to corrosion).



Figure 62: Exposed re-bar in a corroded concrete interceptor.



Figure 63: Missing inlet tee allows FOG buildup in front of discharge pipe.



Figure 64: Missing outlet tee allows floating FOG to escape into the sewer system.

GRDs usually smell offensive when the top is disturbed. When the lid is down the smell should not be overly offensive. If the smell is offensive or strong with the lid down, the device has probably not been cleaned on time, or there may be a break in the integrity of the GRD structure, or a plumbing fitting may be cracked or broken.

Additional Activities in Triggered FSE inspections

Triggered FSE inspections are performed in the same manner as routine inspections but they also may include CCTV or zoom camera inspection of the pipes and inspection of manholes up to 1,500 feet downstream of the facility and several manholes upstream of the facility.

Documenting Findings

For documenting findings of the FSE inspection, the SSO/FOG Investigator uses a form included in Appendix F.1.

Any change in the FSE business status (e.g., closed establishment), business name, facility ownership, or size of GRDs is entered into the form. The form contains checklist of possible deficiencies in BMPs implementation and in GRDs maintenance (if these devices are not found properly functioning or in good condition).

If no deficiencies are found, the FSE is given the Certificate of Compliance recognition as described in 10.2.3.3. If deficiencies are found, the FSE is in violation and steps described in 10.2.3.4 are followed until compliance with the program is achieved.

10.2.3.3 Compliance Recognition Certificates

Compliance recognition certificates are issued to the FSEs that implement proper FOG control measures and meet program requirements. Examples are shown in Figure 65 and Figure 66, and included in Appendix F.4. FSEs can display these certificates so that customers can see and recognize their efforts to support the community.



Figure 65: Certificate of Compliance.



Figure 66: Certificate of Acknowledgement.

10.2.3.4 Steps to Change Non-Compliance into Compliance

Introduction

The flowchart in Figure 70 shows steps in achieving compliance after unsatisfactory FSE inspection, which includes repeated FSE inspections and gradually increased enforcement on FSEs. Non-compliant FSEs may be inspected up to four times and each time the compliance is not met, a new tier of

enforcement is reached (for example, Enforcement Tier I is reached after the first unsatisfactory inspection, Enforcement Tier II after the second unsatisfactory inspection, etc.)

Detailed explanation of criteria for enforcement measures in each enforcement tier is provided in this section.

Definitions

Definition of selected terms used in this chapter is given herein.

- First FSE inspection – a routine or triggered FSE inspection performed for the “first time” after a period of several weeks or months as opposed to a FSE re-inspection which is usually scheduled within several days of an unsatisfactory first inspection. Re-inspections can be scheduled with longer time periods between the two inspections if necessary.
- FSE previous inspection – the last routine or triggered FSE inspection performed prior to the current “first FSE inspection”, typically six to 12 months before the current one.
- FSE re-inspection – a repeated FSE inspection which is scheduled if a FSE inspection identifies a GRD deficiency or severe GRD non-compliance. Re-inspection is scheduled within five days from the unsatisfactory inspection, typically five working days, with the purpose to check and verify that the deficiencies are corrected between the two inspections.
- Deficiency – a requirement of the FOG Management Program related to either BMPs implementation or GRD maintenance which is not met by a FSE. (See program requirements for FSEs in 8.3.)
- Violation – a failure to meet requirements of the FOG Management Program. A “BMP violation” refers to one or more deficiencies in BMPs implementation or a “GRD violation” of one or more deficiencies in GRD maintenance.
- Non-compliance – same as violation.
- Severe GRD non-compliance – a deficiency in form of grease overflowing from a GRD onto the street, parking lot, or ground surface, or a GRD filled with grease to within a few inches of the upper rim of the manhole frame.
- Verbal warning – the first disciplinary measure for BMPs where a FSE is told by the SSO/FOG Investigator that the BMPs implementation by the FSE does not comply with the City’s standards and must be improved. Verbal warning may or may not stipulate a follow up inspection.
- Courtesy letter – a standard letter issued by the City which specifies BMP or/and GRD deficiencies identified during the FSE inspection. The courtesy letter stipulates that a follow up inspection will be performed typically within five working days for GRD deficiencies and within two weeks for BMP deficiencies.
- Certified letter – a standard letter which specifies BMP and/or GRD deficiencies identified during the inspection. The certified letter is the final warning to the FSE to correct deficiencies within a specified time frame and is followed by the FSE re-inspection. Failure to comply with FOG facility standards shall result in the issuance of a summons.

Non-Compliance at First FSE Inspection (Enforcement Tier I)

BMPs Implementation Deficiencies

If the FSE inspection determines that there are violations related to the implementation of site BMPs, the SSO/FOG Investigator issues a verbal warning. If the facility has numerous BMP deficiencies (more than 50% of BMPs fail to comply) or has failed to address deficiencies documented during a previous inspection, the City may elect to issue a certified letter requiring immediate compliance with the BMPs. With a verbal warning, the Investigator explains to the FSE representative that the results of this inspection will be documented and that all deficiencies must be corrected before the next inspection in approximately six months or sooner if the Inspector determines that a re-inspection should be performed.

If, after the next inspection, the requirements discussed in the verbal warning are not satisfied, the FSE will be issued a courtesy letter and the FSE is re-inspected typically within five working days.

GRD Maintenance Deficiencies

Any GRD deficiencies discovered during the inspection need to be promptly corrected. A FSE is given a notice of violation in the form of a courtesy letter (a standard letter completed at the time of inspection with details of found deficiencies and left with the FSE owner/operator, see Appendix O) and a warning to correct all existing problems within five (5) working days when the follow-up inspection is scheduled. Courtesy letters issued to FSEs are tracked in Lucity for future reference.

However, in cases when severe GRD non-compliance is found during the first inspection, i.e., grease interceptors and traps overflow (see Figure 67 through Figure 69), more strict disciplinary measure is required. The FSE may be issued a certified letter by the OTS Supervisor immediately after the completed inspection requiring immediate corrective measures (see Appendix F.4).



Figure 67: Grease interceptor completely full. Heavy lids can be lifted up under pressure and grease start overflowing.



Figure 68: Grease interceptor overflow.



Figure 69: Grease trap overflow is a hazard to kitchen employees.

Non-Compliance at Second FSE Inspection (Enforcement Tier II)

A follow-up FSE inspection is typically scheduled within five working days after the first inspection. The SSO/FOG Investigator checks if the problems cited by the first inspection have been properly addressed. If they have not been corrected, the OTS Supervisor issues a certified letter with written notice of violation and requesting that all deficiencies be corrected promptly and within five working days of the receipt of the letter.

Non-Compliance at Third FSE Inspection (Enforcement Tier III)

At the next (third) FSE inspection, the SSO/FOG investigator checks again if the deficiencies have been corrected. If the deficiencies are still present, the FSE is issued a summons requiring appearance in the court. The FSE owner/manager, the SSO/FOG investigator and the OTS Supervisor must appear at the court hearing. The Municipal Judge makes a decision about any applicable penalties and determines timeframe in which the FSE must correct the existing deficiencies.

Non-Compliance at Fourth FSE Inspection (Enforcement Tier IV)

The fourth FSE Inspection is the last one conducted. If the requirements and the time frame decided by the Judge are not met and the problems still persists, the City may decide to terminate water and sewer service to the FSE upon determining that all other measures have been tried and proved unsuccessful.

In accordance with the City Ord. No. 2225, the City may terminate water or sewer service when in the opinion of the City the discharge from the facility “presents or may present an imminent or substantial endangerment to the health or welfare of persons or the environment; causes stoppages, sanitary sewer overflows, or excessive maintenance to be performed to prevent stoppages in the sanitary sewer collection system; causes interference to the POTW, or causes the City to violate any condition of its NPDES Permit”.

If the service termination is deemed necessary, the SSO/FOG Investigator and the OTS Supervisor notify the Water and Sewer Department Director, the Linear Assets Associate Director and the Linear Assets Manager. The OTS Supervisor shall send a written notice of the coming termination of services to the FSE giving the reasons for termination of service and explaining administrative procedure how to contest this decision in timely manner. The OTS Supervisor shall also notify the Tuscaloosa County Health Department about the service termination.

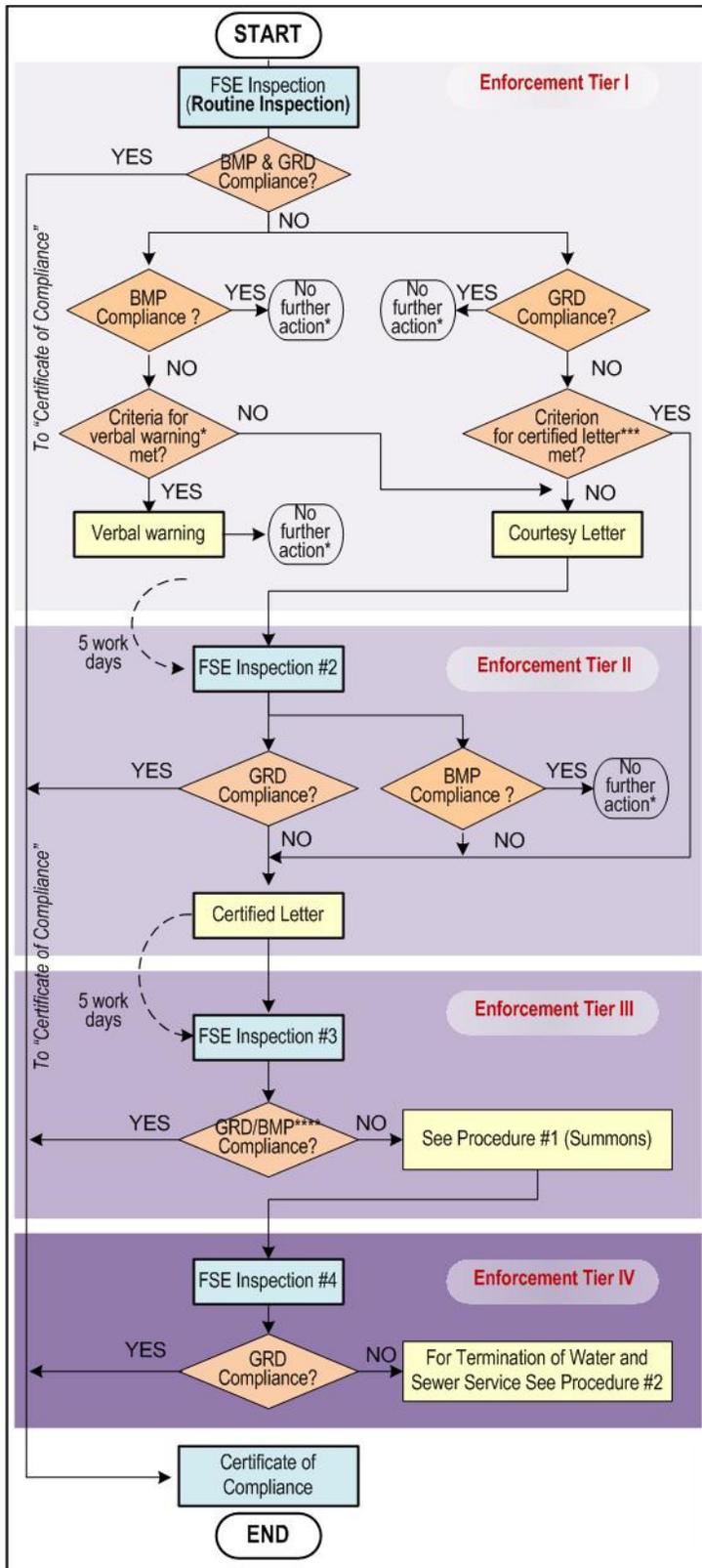
Flow chart of achieving compliance

The flowchart in Figure 70 shows on the left four tiers of enforcement (in four shades of violet color) and on the right the two procedures initiated at different times of enforcement (yellow color). Table 6 shows possible disciplinary measures at different FSE inspections.

Table 6. Disciplinary measures at different FSE inspections.

FSE Inspection	BMPs Implementation Deficiencies	GRD Maintenance Deficiencies	Severe GRD Non-Compliance
#1	Verbal warning or Courtesy letter	Courtesy letter	Certified letter
#2	Certified letter*	Certified letter	Summons
#3		Summons	Termination of water and sewer service
#4		Termination of water and sewer service	

* BMPs implementation is unlikely to ever go beyond issuing certified letter.



NOTES:

* "No further action" means that no further action is needed if this condition is true.

** Criteria for verbal warning:

- The first FSE inspection conducted ever
- No verbal warning was issued on FSE previous inspection
- Number of identified BMP deficiencies is < 50% of all deficiencies checked by the Investigator (i.e., less than 9)

*** Criterion for certified letter:

- Severe GRD non-compliance identified

**** BMPs implementation is unlikely to ever go beyond issuing certified letter.

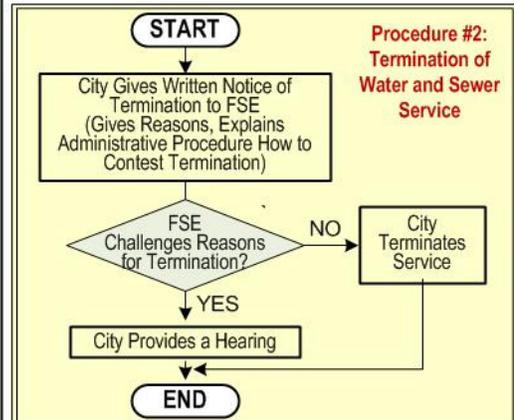
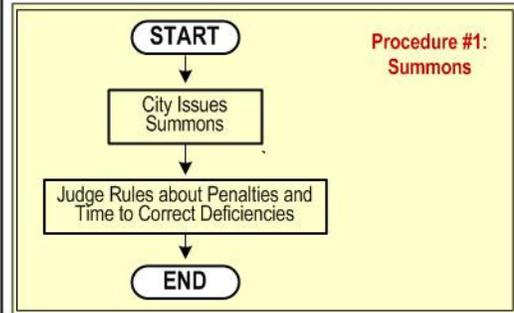


Figure 70: Flow chart of achieving compliance through repeated FSE inspections and gradually increased enforcement.

10.3 Internal Training within the City about FOG Program

Comprehensive training of SSO/FOG investigators must be undertaken to provide a consistent approach during inspections. The investigators need to know how to properly use the FSE Inspection Form (Appendix F.1), and be familiar with the enforcement procedure (they need to know how to calculate fines, penalties, and fees, and when they apply). It is important to understand how to deliver educational material to FSE owners/managers during initial visits at the onset of the program and train them about their role in developing FOG education programs in the FSEs.

The subject of interpersonal communication should also be addressed as part of training program. The new Investigators should be prepared for difficult exchanges with the FSE employees and how to behave in situations when their authority may be challenged.

The OTS Supervisor should also be instructed about scheduling of FSE inspections and enforcement procedure, and how to monitor the performance and effectiveness of the FOG Management Program.

11 FOG Program Performance Monitoring

Performance measures are important management tools that allow for continuous measurement and evaluation of program activities. Performance measures are designed to collect information that enable the City of Tuscaloosa to determine if established goals and level of service are being met and if not, what activities need to be adjusted to meet program goals.

The following key performance measures are included in the FOG Management Program for the City to evaluate and determine which one or more provide the best performance indicators for making needed program adjustments or determining FOG Program effectiveness:

Number of FSEs inspections – The number of inspections and follow-ups re-inspection per day and month conducted by the SSO/FOG Investigator is calculated to determine appropriate resources and training. The desired number is 4 to 6 inspections per work day and 64 per month, which allows for inspections during periods other than prime FSE busy periods.

Time per inspection – Average time per inspection is calculated to ensure appropriate staffing and training (sum of actual inspection times divided by number of inspections). The desired duration is between 30 min and 60 min.

Number of FSEs in the database – This number determines required staffing for communication and inspection of FSEs.

Notices of Non-Compliance – The number of courtesy and certified letters is expected to decrease with proper education and outreach, and effective enforcement measures. The staff must have adequate training and resources for follow-up activities after FSE inspections.

Percentage SSOs due to FOG – The percentage of all SSOs correctly attributed to FOG is expected to decrease as a result of FOG Management Program.

New FSEs Permits – The number of FSEs (new or previously not identified) issued FOG Wastewater Discharge Permits.

Cost of Regulatory Fines for SSOs due to FOG – Costs should reduce over time.

The performance and effectiveness of the FOG Management Program using these or other key performance measures is tracked and documented quarterly.

**Appendix A FOG Characterization
Supplemental and Related Data and Forms**

A.1. Sample Listing of Food Service Establishments (FSEs) in Tuscaloosa as of 2012

FSEs listed in this Appendix have grease interceptors or traps installed, unless their status shows “out of business” or “exempt”. Water usage shown is derived from water/sewer billing records and it approximately corresponds to the volume of wastewater coming to the interceptors or traps.

LEGEND												
		(1) FSE Business Status	(5) Street Type			(9) Last Read Date						
		(2) Company	(6) Street Direction			(10) 1 Month Prior to Last Read Date						
		(3) House Number	(7) Avg. of Last 3 Months (Gal)			(11) 2 Month Prior to Last Read Date						
		(4) Street Name	(8) Avg. of Last 3 Months (10 Cu Ft)									
	Status	FSE name	FSE address				Water Usage at Each Facility					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1	Out	#4 Food World	1825	McFarland	BL	NE	0	0	0	0	0	
2	Active	15th Street Diner	1036	15th	ST		68267	913	960	888	890	
3	Out	Bodie's Express Café	514	Greensboro	AV		0	0	0	0	0	
4	Active	Alpha Chi Omega Sorority	801	Colonial	DR		93350	1248	1128	1314	1302	
5	Active	Alpha Delta Pi Sorority	923	Magnolia	DR		108410	1449	1251	1659	1438	
6	Active	Alpha Gamma Delta Sorority	826	Sorority	CR		69514	929	890	977	921	
7	Active	Alpha Omicron Pi Sorority	740	Colonial	DR		86294	1154	1096	1219	1146	
8	Active	Alpha Tau Omega Fraternity	415	Jefferson	AV		41888	560	608	710	362	
9	Active	Auntie Annie's (Inside Univ. Mall/Master Meter)	1701	McFarland	BL		0	0	0	0	0	
10	Active	AMF Bama Bowl	520	15	ST		35879	480	243	307	889	
11	Active	Arby's	211	University	BL		0	0	0	0	0	
12	Active	Arby's #6620	5032	Oscar Baxter	DR		0	0	0	0	0	
13	Active	Arby's #RTM Alabama	2240	McFarland	BL	E	46251	618	505	329	1021	
14	Active	Arcadia Elementary	3740	14th	ST	E	15259	204	188	211	213	
15	Out	Epiphany	519	Greensboro	AV		0	0	0	0	0	
16	Out	Arman's Coyote Café	1006	7	AV		0	0	0	0	0	
17	Active	Bottom Feeders	500	14th	ST		36527	488	473	464	528	
18	Out	Diamond Elite Café	1507	Crescent Ridge	RD	NE	0	0	0	0	0	
19	Active	Benkei Japanese Steakhouse	1223	McFarland	BL	NE	7181	96	86	101	101	
20	Active	Beta Theta Pi Fraternity	960	University	BL		76495	1023	1332	1133	603	
21	Out	Bright's Bagel Baker	700	Towncenter	BL		0	0	0	0	0	
22	Active	Bruno's Deli	2001	McFarland	BL	E	51014	682	322	1111	613	
23	Active	Buffalo Phil's	1149	University	BL		82928	1109	978	1299	1049	
24	Out	Buffalo Phil's Wings	1480	Skyland	BL	E	0	0	0	0	0	
25	exempt	Buffalo Rock	401	65th	ST		0	0	0	0	0	
26	Active	Burger King #11095	4900	Skyland	BL	E	0	0	0	0	0	
27	Abandon	Burger King #1380	1500	10th	AV		0	0	0	0	0	
28	Active	Burger King #5035	2515	Stillman	BL		0	0	0	0	0	
29	Active	Burger King #6048	1601	McFarland	BL	N	0	0	0	0	0	
30	Active	Burger King of Tuscaloosa #1483	3808	McFarland	BL	E	0	0	0	0	0	
31	Out	Café Esplande	1209	University	BL		0	0	0	0	0	
32	Out	Cajun's	1137	University	BL		0	0	0	0	0	
33	Active	La Fiesta Grande	2200	McFarland	BL		1671	22	8	0	59	

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		(4) Street Name			(8) Avg. of Last 3 Months (10 Cu Ft)						
	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
34	Active	Captain D's #103	3517	McFarland	BL	E	0	0	0	0	0
35	Out	Catering Cart	1924	7th	ST		0	0	0	0	0
36	Active	Catfish Heaven	2502	21st	ST		64004	856	946	856	765
37	Active	Central East Campus	905	15th	ST		-125	-2	0	0	-5
38	Active	Central Elementary	1510	30th	AV		0	0	0	0	0
39	Active	Westlawn School	1715	Martin Luther King Jr	BL		0	0	0	0	0
40	Active	Chang's Restaurant	1825	McFarland	BL	N	20794	278	246	242	346
41	Active	Cheap Shot	1209	University	BL		0	0	0	0	0
42	Active	Checker's Double Drive Thru	521	15th	ST		0	0	0	0	0
43	Out	Chellia's Catering	5634	Overbrook	RD		0	0	0	0	0
44	Active	Chi Omega Sorority	901	Magnolia	DR		7729	103	103	115	92
45	N/A	Chi Phi Fraternity	600	Jefferson	AV		0	0	0	0	0
46	Active	Chick-Fil-A Drive Thru	2014	McFarland	BL	E	63256	846	817	772	948
47	Active	Chili's Bar and Grill	1030	Skyland	BL	E	122099	1632	1673	1642	1582
48	Active	China Fun	2600	University	BL	E	24983	334	361	313	328
49	Out	The Hot Wok	6571	69	HW	S	0	0	0	0	0
50	Active	China Garden Restaurant	1701	McFarland	BL	E	0	0	0	0	0
51	Out	Chongwah Express	900	Skyland	BL	E	0	0	0	0	0
52	Active	Church's Fried Chicken #146	1801	Greensboro	AV		0	0	0	0	0
53	Active	Church's Fried Chicken #756	2501	University	BL	E	0	0	0	0	0
54	Out	The Station	301	Greensboro	AV		0	0	0	0	0
55	exempt	Crimson Café #2	1701	McFarland	BL	E	0	0	0	0	0
56	exempt	Crimson Café	1301	University	BL		0	0	0	0	0
57	Out	Crimson Inn (Bed and Breakfast)	1509	University	BL		0	0	0	0	0
58	Active	Cypress Inn	501	Rice Mine	RD	N	54978	735	0	1233	972
59	Active	Dairy Delite	208	Skyland	BL	E	0	0	0	0	0
60	Active	LuLu's (old downtown DQ)	800	21st	AV		12517	167	120	224	158
61	Out	Pisa Pizza	900	Skyland	BL	E	0	0	0	0	0
62	Active	DCH Hospital	809	University	BL	E	1820	24	24	24	25
63	Out	Delivery Express	1825	McFarland	BL		0	0	0	0	0
64	Active	Delta Delta Delta Sorority	846	Magnolia	DR		100357	1342	1093	1244	1688
65	Active	Delta Kappa Epsilon Fraternity	945	University	BL		36303	485	0	565	891
66	N/A	Delta Tau Delta Fraternity	425	Jefferson	AV		0	0	0	0	0
67	Active	Delta Zeta Sorority	900	Magnolia	DR		98537	1317	1081	1373	1498
68	Active	DePalma's Italian Café	2300	University	BL		49044	656	625	652	690
69	N/A	Domino's Pizza #5840	415	15th	ST		0	0	0	0	0
70	Active	Deamland Drive-In	5535	15th	AV	E	0	0	0	0	0
71	Out	Druid City Snack Bar	809	University	BL	E	0	0	0	0	0

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
72	Active	Elk's	4700	University	BL	E	11220	150	109	149	192
73	Active	Evangeline's	1653	McFarland	BL	N	28599	382	207	283	657
74	Active	KSV #2	3520	McFarland	BL	E	0	0	0	0	0
75	Out	Fast and Easy Food Store	2600	26th	AV	E	0	0	0	0	0
76	Active	Fast and Easy Food Store #6	5500	69	HW	S	14037	188	0	244	319
77	Active	Food World #234	4200	McFarland	BL	E	0	0	0	0	0
78	Active	Food World Cottondale	4614	University	BL	E	0	0	0	0	0
79	Active	Food World	641	Bear Creek	RD		0	0	0	0	0
80	Out	Four Points Hotel Tusc. Capstone	320	Paul W. Bryant	DR		0	0	0	0	0
81	Out	Gamma Phi Beta Sorority	910	Colonial	DR		0	0	0	0	0
82	Active	Ichiban Grill and Sushi	502	15th	ST		20420	273	245	309	265
83	Active	Subway	3905	McFarland	BL		0	0	0	0	0
84	Active	Hokkaido Japanese Steakhouse	528	15th	ST	E	68816	920	862	936	962
85	Active	Guthrie's II	819	Skyland	BL	E	0	0	0	0	0
86	Active	Guthrie's of Tuscaloosa	205	15th	ST	E	45079	603	141	196	1471
87	Active	El Rincon	1225	University	BL		59316	793	672	948	759
88	Active	Hardee's downtown	2515	Paul W. Bryant	DR		108759	1454	1495	1438	1429
89	Active	Hardee's Hillcrest	6718	69	HW	S	0	0	0	0	0
90	Active	Hardee's of Tuscaloosa	615	15th	ST	E	0	0	0	0	0
91	Active	Hardee's of Tuscaloosa #5 - 0371	929	Skyland	BL	E	0	0	0	0	0
92	Out	Heavenly Ham	1828	McFarland	BL		0	0	0	0	0
93	Active	Heritage Healthcare Center	1101	Snows Mill	AV		1895	25	35	25	16
94	Active	Hillcrest High School	300	Patriot	PW		35106	469	1097	229	82
95	exempt	Family Variety	911	Crescent Ridge	RD	E	0	0	0	0	0
96	Active	West End Diner	1509	30th	AV		8652	116	128	110	109
97	Out	Hong Kong King Buffet	1434	McFarland	BL	E	0	0	0	0	0
98	Active	Miller Grocery	1915	University	BL		0	0	0	0	0
99	Active	Miller Grocery	5025	Oscar Baxter	DR		0	0	0	0	0
100	Out	Marina's Hot Dog Plaza	900	Skyland	BL	E	0	0	0	0	0
101	Out	Huddle House	4124	McFarland	BL	E	0	0	0	0	0
102	Active	IHOP #4432	724	Skyland	BL		140200	1874	2054	1766	1803
103	Active	Indian Hills Country Club	1650	McFarland	BL	NE	0	0	0	0	0
104	exempt	The Legacy	1215	University	BL		0	0	0	0	0
105	Active	J & R Soul Foods	2032	4th	ST	E	0	0	0	0	0
106	exempt	Jackie's Lounge	2111	Paul W. Bryant	DR		0	0	0	0	0
107	Active	Jack's Family Restaurants #175	1200	Hackberry	LN		62259	832	809	869	819
108	Active	Carmelo Café	405	23rd	AV		0	0	0	0	0
109	exempt	Jelly Belly Day Care Center	1031	Hargrove	RD		0	0	0	0	0
110	Out	Johnny Ray's	415	15th	ST	E	0	0	0	0	0

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
111	Active	Kappa Alpha Theta Sorority	750	Colonial	DR		112624	1506	1383	1848	1286
112	Active	Kappa Delta Sorority	819	Sorority	CR		147032	1966	1704	2176	2017
113	Active	Kappa Gamma Delta Sorority	811	Colonial	DR		107513	1437	1414	1428	1470
114	Out	Kevin's Catering Service	5100	21st	ST		0	0	0	0	0
115	Active	Kentucky Fried Chicken	1101	Lurleen Wallace	BL		0	0	0	0	0
116	Active	Kentucky Fried Chicken #2	813	25th	AV	E	0	0	0	0	0
117	Active	Kentucky Fried Chicken #3	1111	Skyland	BL	E	0	0	0	0	0
118	Active	Krispy Kreme	1400	McFarland	BL	E	41165	550	502	553	596
119	Active	Krystal #2	3700	McFarland	BL		42337	566	513	593	592
120	Out	La Fiesta of Cottondale	4420	University	BL	E	0	0	0	0	0
121	Out	Cueva Bar and Grill	6521	69	HW	S	0	0	0	0	0
122	Active	Lai Lai's Chinese Restaurant	1205	University	BL		10347	138	139	149	127
123	exempt	Lakehouse BBQ	4396	Rice Mine	RD		0	0	0	0	0
124	N/A	Lamda Chi Alpha Fraternity	601	Jefferson	AV		0	0	0	0	0
125	Active	Leland Lanes	1125	26th	AV	E	24061	322	169	288	508
126	Out	Sharks	632	15th	ST		0	0	0	0	0
127	Out	Little Richard's BBQ	3702	Alabama	AV		0	0	0	0	0
128	Active	Logan's Roadhouse Restaurant	1511	Skyland	BL	E	6508	87	80	87	94
129	Out	Lone Star Steakhouse	808	Skyland	BL	E	0	0	0	0	0
130	Active	Popeye's Chicken	3710	McFarland	BL	E	48346	646	623	639	677
131	Active	Los Tarascos	1759	Skyland	BL	E	0	0	0	0	0
132	Active	Maggie's Diner	1307	27th	AV		5635	75	81	69	76
133	N/A	Magnolia By the River Retirement Center	1	Rivermont			0	0	0	0	0
134	Out	Main Event Catering	7700	Rainey	LN		0	0	0	0	0
135	exempt	Manna Grocery	2300	McFarland	BL		0	0	0	0	0
136	Active	Martin Luther King Jr. Elementary School	2430	Martin Luther King Jr	BL		52684	704	694	668	751
137	Active	McAlister's Gourmet Deli	101	15th	ST		0	0	0	0	0
138	Active	McDonald's #11133	2501	12th	ST		0	0	0	0	0
139	Active	McDonald's #4325	4711	McFarland	BL	E	56075	750	702	695	852
140	Active	McDonald's #21331	6501	Interstate	LN		0	0	0	0	0
141	Active	Mellow Mushroom	2230	University	BL		0	0	0	0	0
142	Active	Kountry Cooking Café	2408	Jemison	AV		0	0	0	0	0
143	Active	Mercedes Benz US	1	Mercedes	DR		5934	79	42	94	102
144	Active	Tuscaloosa County Jail	1614	26th	AV		0	0	0		
145	Active	Milo's	1307	McFarland	BL		23138	309	341	284	303
146	exempt	Morrison Health Care	200	University	BL		0	0	0	0	0
147	Out	New York Bagel Enterprises	1241	McFarland	BL	E	0	0	0	0	0
148	Active	North River Assisted Living	5810	Rice Mine	RD	NE	0	0	0	0	0

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
149	Active	North River Golf Club	3100	Yacht Club	WY		222405	2973	2665	3600	2655
150	Active	Oakdale Elementary	5001	25th	ST		4363	58	54	62	59
151	Out	Occasions	3518	Loop	RD	E	0	0	0		
152	Active	O'Charley's	3799	McFarland	BL	E	115591	1545	1335	1527	1774
153	Active	Olive Garden	2100	McFarland	BL	E	0	0	0		
154	Active	Outback Steakhouse and Grill	5001	Oscar Baxter	DR		163687	2188	2255	2015	2295
155	Active	Papa John's Pizza #110	1330	Hackberry	LN		0	0	0	0	0
156	exempt	Papa John's Pizza #1547	2001	Skyland	BL	E	0	0	0	0	0
157	Active	Heavenly "Q"	925	Hargrove	RD		0	0	0	0	0
158	Out	Parkview School	1103	17th	ST		0	0	0	0	0
159	Out	Parlaz's Steak and BBQ	5900	Watermelon	RD		0	0	0	0	0
160	Active	Partlow State School	1600	University	BL	E	0	0	0	0	0
161	Out	Maharaja of India	500	15th	ST		0	0	0	0	0
162	Active	Pepito's Grill	1301	McFarland	BL	NE	0	0	0	0	0
163	Active	Phi Gamma Delta Fraternity	976	University	BL		42860	573	469	620	630
164	Active	Phi Mu Sorority	911	Colonial	DR		143666	1921	1923	1644	2195
165	Active	Pi Beta Phi Sorority	847	Magnolia	DR		0	0	0	0	0
166	N/A	Pi Kappa Alpha Fraternity	435	Jefferson	AV		0	0	0	0	0
167	N/A	Pi Kappa Phi Fraternity	312	University	BL		0	0	0	0	0
168	Active	Picadilly Cafeteria #2	1701	McFarland	BL	E	0	0	0	0	0
169	Out	Picadilly Cafeteria	900	McFarland	BL	E	0	0	0	0	0
170	Active	Bama Dogs	508	13th	AV		0	0	0	0	0
171	Active	Pizza Hut #1770	702	Skyland	BL	E	24659	330	306	353	330
172	Active	Pizza Hut #1780	515	15th	ST		14611	195	189	187	210
173	Active	Pizza Hut #1790	6343	Interstate	DR		20221	270	254	217	340
174	Active	Pizza Hut #4182	5000	Oscar Baxter	DR		7081	95	93	80	111
175	Out	Pizza Hut Delivery #4183	1817	University	BL		0	0	0	0	0
176	Out	Pizza Mill	6101	University	BL	E	0	0	0	0	0
177	Active	Quik Grill	1208	University	BL		0	0	0	0	0
178	Active	Rama Jama's	1000	Paul W. Bryant	DR		24385	326	296	302	380
179	Active	Red Lobster Restaurant #298	2620	McFarland	BL	E	0	0	0	0	0
180	Active	Rock Quarry Elementary School	2000	Rock Quarry	DR		28773	385	399	442	313
181	exempt	Roly Poly Tuscaloosa	2300	4th	ST		0	0	0	0	0
182	Active	Ruby Tuesdays	6421	Interstate	DR		25	0	0	0	1
183	Active	Ruby Tuesdays	311	Merchants Walk			35106	469	390	523	495
184	Active	Ryan's Family Steakhouse East	4373	Courtney	DR		166954	2232	0	3173	3523
185	Out	S. D. Allen Facility	6901	5th	ST		0	0	0	0	0
186	Active	Salvation Army	2902	Greensboro	AV		81557	1090	1090	1103	1078
187	Active	Schlotsky's Deli	405	15th	ST	E	19298	258	252	241	281

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
188	Active	Brick House	613	Greensboro	AV		40292	539	611	736	269
189	Active	Shelton State Community College	9500	Old Greensboro	RD		399	5	16	0	0
190	Active	Sigma Alpha Epsilon Fraternity	432	University	BL		58618	784	820	722	809
191	Active	Sigma Chi Fraternity	401	Jefferson	AV		47623	637	642	580	688
192	Active	Alpha Phi Sorority	921	Colonial	DR		100431	1343	1210	1227	1591
193	N/A	Sigma Kappa Sorority	922	Magnolia	DR		0	0	0	0	0
194	Active	Sigma Nu Fraternity	990	University	BL		18825	252	207	274	274
195	Active	Sigma Phi Epsilon Fraternity	416	University	BL		42711	571	702	726	285
196	Out	Skillet's Pump and Dine	1507	Crescent Ridge	RD		0	0	0	0	0
197	Out	Sbarro Pizza	1701	McFarland	BL		0	0	0	0	0
198	Active	Sneaky Pete's	1801	Culver	RD		0	0	0	0	0
199	Active	Sonic Drive-In (Alberta)	2730	University	BL	E	63530	849	669	889	990
200	Active	Sonic Drive-In (15th Street)	3160	15th	ST		83577	1117	491	1042	1819
201	Active	Sonic Drive-In (Skyland)	4505	McFarland	BL	E	105194	1406	1261	1447	1511
202	Out	Soul Delicious	2503	M L King Jr	BL		0	0	0	0	0
203	Active	Pilot Travel Centers	4416	Skyland	BL	E	227741	3045	2146	3243	3745
204	Out	Staxx	1400	University	BL		0	0	0	0	0
205	Active	Subway	1701	McFarland	BL		0	0	0	0	0
206	Out	Stillman Cafeteria and Snack Shop	3600	15th	ST		0	0	0	0	0
207	Active	Stillman Heights Elementary	3824	21st	ST		0	0	0	0	0
208	Out	Subs-N-More	4396	Rice Mine	RD	NE	0	0	0	0	0
209	exempt	Subs-N-You	2427	University	BL		0	0	0	0	0
210	Active	Sweet Taste Drive-In	2515	Martin Luther King Jr	BL		0	0	0	0	0
211	Out	Parlaz BBQ	8607	New Watermelon	RD		0	0	0	0	0
212	Active	TA Operating Corp.	3501	Buttermilk	RD		1017205	13599	14791	12696	13310
213	Active	Taco Bell #4493	815	Skyland	BL	E	0	0	0	0	0
214	Active	Taco Bell of America	236	15th	ST		66447	888	1121	765	779
215	Active	Taco Casa #6	1015	Skyland	BL	E	114469	1530	1219	1496	1876
216	Active	Taco Casa #7	603	15th	ST	E	0	0	0	0	0
217	Active	Angeline's	6000	Old Greensboro	RD		0	0	0	0	0
218	Active	Taylorville Primary School	350	Bobby Miller	PW		2119	28	0	0	85
219	N/A	Skyland Power Mart	700	Skyland	BL		0	0	0	0	0
220	Out	Texaco Food and Deli	200	Skyland	BL		0	0	0	0	0
221	Out	Thai House	1306	University	BL		0	0	0	0	0
222	N/A	Theta Chi Fraternity	501	Jefferson	AV		0	0	0	0	0
223	Out	Three Seasons	1406	Crescent Ridge	RD	NE	0	0	0	0	0
224	Active	Thomas Rib Shack	2931	15th	st		175331	2344	1988	2158	2886
225	Active	Tokyo Japanese Steakhouse and Sushi Bar	6521	69	HW	S	29421	393	385	370	425

LEGEND											
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		(4) Street Name			(8) Avg. of Last 3 Months (10 Cu Ft)						
	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
226	Active	Tracy's Deli	3131	20th	ST		0	0	0	0	0
227	Active	Trey Yuen Chinese Restaurant	4200	McFarland	BL	E	0	0	0	0	0
228	Active	Trinity Baptist Church	2320	Martin Luther King Jr	BL		9749	130	161	110	120
229	N/A	Tuscaloosa Country Club #1	3700	6th	ST		0	0	0	0	0
230	Active	Tuscaloosa Middle School	315	McFarland	BL	E	38647	517	540	530	480
231	Active	Five Star Food Service	1207	17th	ST		2194	29	33	30	25
232	Out	BG's	900	Skyland	BL		0	0	0	0	0
233	Out	University Diner	1401	University	BL		0	0	0	0	0
234	Active	University Mall Trap#1 (Applebee's/Taco Casa/Chick-Fil-A)	1701	McFarland	BL		0	0	0	0	0
235	Active	University Mall Trap#2	1701	McFarland	BL		0	0	0	0	0
236	Active	University Mall Trap#3	1701	McFarland	BL		0	0	0	0	0
237	Active	University Place Elementary	2000	1st	AV		87616	1171	888	1250	1376
238	Active	Verner Elementary	2701	Northridge	RD		117810	1575	1118	1642	1965
239	exempt	Verner Towers	101	Hackberry	LN		403920	5400	5820	4860	5520
240	Active	Waffle House #1184	5037	Oscar Baxter	DR		25282	338	0	490	524
241	Active	Waffle House #78	3421	McFarland	BL	E	0	0	0	0	0
242	Active	Wal-Mart Supercenter #715	1501	Skyland	BL	E	0	0	0	0	0
243	Active	Waysider	1512	Greensboro	AV		0	0	0	0	0
244	Active	Wendy's #301	5018	Oscar Baxter			0	0	0	0	0
245	Active	Wendy's (15th Street)	204	15th	ST	E	14312	191	63	56	455
246	Active	Bama Wings and Fish	1101	Skyland	BL	E	12841	172	189	159	167
247	Active	Dave's Dogs	1701	McFarland	BL		0	0	0	0	0
248	Active	Wing Zone	1241	McFarland	BL		0	0	0	0	0
249	Out	Wings & Things	1011	University	BL		0	0	0	0	0
250	Out	Wings & Other Things	1141	Crescent Ridge	RD	NE	0	0	0	0	0
251	Active	Wings of Tuscaloosa	500	Harper Lee	DR		140923	1884	1976	1727	1949
252	Out	Winn Dixie #2	1500	Skyland	BL		0	0	0	0	0
253	exempt	Winn Dixie #453	1505	Culver	RD		0	0	0	0	0
254	exempt	Woodland Forest Country Club	5604	Woodland Forest	DR		0	0	0	0	0
255	Active	Woodland Forest School	6001	Hargrove	RD		0	0	0	0	0
256	Active	Wright's Restaurant	927	26th	AV	E	0	0	0	0	0
257	N/A	Zeta Beta Tau Fraternity	526	Jefferson	AV		0	0	0	0	0
258	Active	Zeta Tau Alpha Sorority	912	Magnolia	DR		129005	1725	1724	1623	1827
259	Out	Barnhills	220	15th	ST	E	0	0	0	0	0
260	Active	Bento	1306	University	BL		26230	351	359	328	365
261	Active	Carniceria Y Tienda	428	15th	ST		11270	151	157	172	123
262	Out	Catfish & More	6625	69	HW	S	0	0	0	0	0
263	Active	Fast and Easy Food Store #8	3301	Greensboro	AV		3491	47	383	360	-603

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(4) Street Name	(8) Avg. of Last 3 Months (10 Cu Ft)										

	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
264	Out	Hometown Grocery	2641	University	BL	E	0	0	0	0	0
265	Active	Miller Grocery	2015	Skyland	BL	E	12143	162	150	202	135
266	Active	Mike & Ed's	200	15th	ST	E	0	0	0	0	0
267	Active	Jupiter Bar & Grill	1307	University	BL		10696	143	115	161	153
268	Active	La Gran Fiesta	9770	69	HW	S	106465	1423	1383	1492	1395
269	Active	LaRocca Nursing Home	403	34th	AV	E	106465	1423	1383	1492	1395
270	Out	Mama Mia's #2	609	Bear Creek	RD		0	0	0	0	0
271	Active	Margaritas	1242	McFarland	BL		0	0	0	0	0
272	Active	Pepito's (on the Strip)	1203	University	BL		18675	250	215	268	266
273	Out	New Orleans Bar & Grill	6521	69	HW	S	0	0	0	0	0
274	Out	Shoney's	3429	McFarland	BL	E	0	0	0	0	0
275	Active	Bayou Seafood	823	Hargrove	RD	E	0	0	0	0	0
276	Active	Taco Casa #12	8720	69	HW	S	524	7	7	6	8
277	Active	Target	1901	13th	AV	E	134141	1793	1601	1654	2125
278	Out	University of Alabama Clubhouse	4501	Arboretum	WY		0	0	0	0	0
279	Active	Waffle House #1316	5001	Skyland	BL	E	26055	348	330	336	379
280	Active	Walton's	915	Patriot	PW		53208	711	505	770	859
281	Active	Ol' Colony Golf Course	401	Old Colony	RD		25	0	0	0	1
282	Active	Costa's BBQ	760	Skyland	BL		0	0	0	0	0
283	Out	Catfish One	501	Hargrove	RD		0	0	0	0	0
284	exempt	Subway	9730	69	HW	S	0	0	0	0	0
285	exempt	Subway	1306	University	BL		0	0	0	0	0
286	exempt	Archibald's	6601	Buttermilk	RD		0	0	0	0	0
287	Active	McDonald's (69 South)	6701	69	HW	S	53582	716	634	731	784
288	Out	Ken's Downtown Pizza	2312	4th	ST		0	0	0	0	0
289	Active	Kozy's	3510	Loop	RD		0	0	0	0	0
290	Active	McDonald's #6406	517	15th	ST	E	71883	961	903	997	983
291	Active	First Baptist Church of Tuscaloosa	721	Greensboro	AV		0	0	0	0	0
292	Active	Cook's Country Store	8200	69	HW	S	0	0	0	0	0
293	Active	Brown's Corner	2325	University	BL		60039	803	684	743	981
294	Active	Café Venice	2321	University	BL		107438	1436	1608	1862	839
295	Out	Bayou BBQ	4215	Greensboro	AV		0	0	0	0	0
296	Out	Hardee's (Alberta)	2820	University	BL	E	0	0	0	0	0
297	Out	Cornerstone Café	2601	Fosters Ferry	RD		0	0	0	0	0
298	Active	Cracker Barrel	4800	Doris Pate	DR		0	0	0	0	0
299	Active	Winn-Dixie	9750	69	HW	S	31291	418	0	615	640
300	Active	Buffet City	1747	Skyland	BL		69265	926	933	994	851
301	exempt	Jade's Restaurant	631	Skyland	BL		0	0	0	0	0
302	Out	Papa's College Custard	1383	McFarland	BL		0	0	0	0	0

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
303	Active	Qdoba Mexican	1130	University	BL		0	0	0	0	0
304	Active	Tut's Place	1306	University	BL		0	0	0	0	0
305	Out	KSV Fine Foods	2215	6th	ST		0	0	0	0	0
306	Active	Tuscaloosa Country Club	3700	6th	ST		93974	1256	450	1387	1932
307	Out	Johnny's Pub & Grub	2304	4th	ST		0	0	0	0	0
308	exempt	Express Mart	2219	Greensboro	AV		0	0	0	0	0
309	Discnnected	Quick Stop Amoco	3112	Greensboro	AV		0	0	0	0	0
310	Active	Snack Co.	3735	Skyland	BL		0	0	0	0	0
311	N/A	Tuscaloosa Moose Lodge	221	25th	AV	NE	0	0	0	0	0
312	Out	Mallisham's BBQ	507	25th	AV	NE	0	0	0	0	0
313	Out	Lou's Café	4021	21st	ST	NE	0	0	0	0	0
314	Out	Shindigs	4396	Rice Mine	RD	N	0	0	0	0	0
315	Active	New China	4851	Rice Mine	RD	NE	0	0	0	0	0
316	Out	T& H BBQ	8607	New Watermelon	RD		0	0	0	0	0
317	N/A	Milagro's Grill & Coffee House	4851	Rice Mine	RD	N	0	0	0	0	0
318	Active	Fig	1351	McFarland	BL	NE	28549	382	323	367	455
319	Active	Buck's Pizza	9730	69	HW	S	0	0	0	0	0
320	Active	Hot Wok Express	6571	69	HW	S	10572	141	152	134	138
321	Active	Lee Palace	9770	69	HW	S	0	0	0	0	0
322	N/A	Cueva Bar & Grill	6521	69	HW	S	0	0	0	0	0
323	Active	Subway (69 South)	9730	69	HW	S	9948	133	135	137	127
324	Active	Token 9 BP	8240	69	HW	S	0	0	0	0	0
325	Out	BG's Restaurant	9700	69	HW	S	0	0	0	0	0
326	Active	Courtyard by Marriott	4115	Courtney	DR		41414	554	394	725	542
327	Active	Zaxby's	4383	Courtney	DR		0	0	0	0	0
328	Out	RNR BBQ	4215	Greensboro	AV		0	0	0	0	0
329	Active	Hooters of Tuscaloosa	5025	Oscar Baxter	DR		0	0	0	0	0
330	Active	Bama Café & Sweet	900	Skyland	BL		0	0	0	0	0
331	Active	El Taci Loco	900	Skyland	BL		0	0	0	0	0
332	Active	Skyland Powermart #7	700	Skyland	BL		31890	426	576	511	192
333	Active	Skyland Blvd Texaco	2015	Skyland	BL	E	0	0	0	0	0
334	Active	Los Calientes Mexican Restaurant	3429	McFarland	BL		40616	543	602	505	522
335	Active	Checkers	4300	McFarland	BL		41539	555	723	456	487
336	Active	Grand Buffet	4126	McFarland	BL		69614	931	982	854	956
337	Out	John's	5750	University	BL		0	0	0	0	0
338	Out	L&R	809	University	BL		0	0	0	0	0
339	Active	Fast and Easy Food Store	3590	Jack Warner	PW		0	0	0	0	0
340	Active	Delta Chi Faternity	511	Jefferson	AV		49268	659	658	702	616

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
341	Active	Alpha Kappa Lamda	600	Jefferson	AV		0	0	0	0	0
342	exempt	Bama Dining Services		Paul W. Bryant	DR		0	0	0	0	0
343	Out	S&L Restaurant	2678	21st	ST		0	0	0	0	0
344	Out	Woodstock Restaurant	5101	21st	ST		0	0	0	0	0
345	Out	Ken's Downtown Pizza & Grill	2314	4th	ST		0	0	0	0	0
346	Active	Taco Bell/Long John Silver's	2610	Stillman	BL		0	0	0	0	0
347	Out	Soul Delicious #2	2820	University	BL		0	0	0	0	0
348	Active	Whilhagen's	2209	4th	ST		41215	551	686	455	512
349	Active	The Café	2770	39th	ST		0	0	0	0	0
350	Active	Epiphany Café	519	Greensboro	AV		0	0	0	0	0
351	Out	Cobblestone Deli	2314	4th	ST		0	0	0	0	0
352	Out	Magnolia By the River Retirement Center	1	River Road	DR		0	0	0	0	0
353	Out	Seven Gates Vineyard Cakes	1620	14th	AV		0	0	0	0	0
354	Out	Baraka	508	13th	AV		0	0	0	0	0
355	Active	Snappy Tomato Pizza	1110	15th	ST		2867	38	45	34	36
356	Active	Capstone Retirement Village	601	5th	ST	E	0	0	0	0	0
357	Active	Yazoo Courtyard Grille	1006	7th	AV		0	0	0	0	0
358	Out	Bama Smokehouse	1400	Paul W. Bryant	DR		0	0	0	0	0
359	Out	A Taste Above	2210	9th	ST		0	0	0	0	0
360	Active	Mugshots Bar & Grill	511	Greensboro	AV		56574	756	726	694	849
361	Out	The Café European Bakery & Coffee	514	Greensboro	AV		0	0	0	0	0
362	Active	Nick's Original Steak House	4018	Culver	RD		0	0	0	0	0
363	Active	Staci's #1	3506	29th	ST		0	0	0	0	0
364	Active	Kemp's BBQ	1018	Martin Luther King Jr	BL		0	0	0	0	0
365	Out	Cassidys	1508	30th	AV		0	0	0	0	0
366	Out	Speedmart	350	Culver	RD		0	0	0	0	0
367	Active	Chuck E Cheese	1375	McFarland	BL		0	0	0	0	0
368	Active	Cinnabon	1701	McFarland	BL		0	0	0	0	0
369	Active	Great Japan	1701	McFarland	BL		0	0	0	0	0
370	Active	Sbarro Pizza	1701	McFarland	BL		0	0	0	0	0
371	Out	Los Pancho Grill	501	Hargrove	RD	E	0	0	0	0	0
372	Active	Sitar	500	15th	ST		0	0	0	0	0
373	Active	O'Salsa Grill	528	15th	ST		0	0	0	0	0
374	N/A	Oliver's Oven	220	15th	ST		0	0	0	0	0
375	Active	Wendy's	4422	University	BL	E	0	0	0	0	0
376	Active	Winn-Dixie (5-Points)	4201	University	BL	E	0	0	0	0	0
377	N/A	Hillcrest High School	300	Patriot	PW		0	0	0	0	0
378	Active	McDonald's (5-Points)	4222	University	BL	E	55327	740	751	669	799

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	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
379	Out	Uncle Abe's	900	Skyland	BL		0	0	0	0	0
380	Out	B&G Restaurant	900	Skyland	BL		0	0	0	0	0
381	Out	Mott Oil Company	8200	69	HW	S	0	0	0	0	0
382	Active	Bama Smokehouse	8204	69	HW	S	0	0	0	0	0
383	Active	Wendy's (Wilco Truck Stop)	3201	Buttermilk	RD		45404	607	724	572	525
384	Active	Tuscaloosa Moose Lodge	221	25	AV	NE	33859	453	459	412	487
385	Out	Frank's Grill	4851	Rice Mine	RD	N	0	0	0	0	0
386	Active	Hooligan's	1915	University	BL		0	0	0	0	0
387	Out	Campus Restaurant	1400	Paul W. Bryant	DR		0	0	0	0	0
388	Out	Brenda's Hometown Deli	2731	University	BL		0	0	0	0	0
389	Active	Jimmy John's Gourmet Sandwiches	1400	University	BL		0	0	0	0	0
390	Active	El Rincon Latino Bar & Grill	1225	University	BL		59316	793	672	948	759
391	Out	University Club	421	University	BL		0	0	0	0	0
392	Out	Harbor Docks Restaurant	508	Greensboro	AV		0	0	0	0	0
393	Active	Sonic Drive-In	4505	McFarland	BL		94522	1264	1083	1261	1447
394	Active	Swen Chinese Restaurant	1130	University	BL		0	0	0	0	0
395	Active	Full Moon BBQ	1383	McFarland	BL		0	0	0	0	0
396	Active	Newk's	205	University	BL		0	0	0	0	0
397	Out	MS & J Diner	1322	Hargrove	RD		0	0	0	0	0
398	Out	Brenda's Hometown Deli	1509	30th	AV		0	0	0	0	0
399	Out	The Pantry Inc.	3409	Culver	RD		0	0	0	0	0
400	Active	Surin of Thailand	1402	University	BL		54006	722	725	711	730
401	Out	Steakem's Steak & Seafood	823	Hargrove	RD		0	0	0	0	0
402	Active	Central High School	905	15th	ST		44182	591	0	347	1425
403	Active	Buffalo Wild Wings	2710	McFarland	BL		66946	895	828	869	988
404	Active	Bryant High School	5350	Buttermilk	RD		0	0	0	0	0
405	Active	Eastwood Middle School	5000	Buttermilk	RD		0	0	0	0	0
406	Active	Arby's	3430	Buttermilk	RD		17403	233	253	226	219
407	Active	Southland Restaurant	5833	11	HW	N	36727	491	521	464	488
408	N/A	Fast & Easy Service Station	3950	River Road	DR		0	0	0	0	0
409	N/A	McDonald's (North River)		New Watermelon	RD		0	0	0	0	0
410	Active	Jalapeño's (North River)	2001	New Watermelon	RD		0	0	0	0	0
411	Active	Taco Casa (Rice Mine)	4530	Rice Mine	RD	NE	0	0	0	0	0
412	Out	Publix / Quizno's (Rice Mice)	4851	Rice Mine	RD	NE	16855	225	244	242	190
413	Active	Northridge High School	2901	Northridge	RD		0	0	0	0	0
414	Active	Zoe's Kitchen	312	Merchants Walk			0	0	0	0	0
415	Active	Quizno's (McFarland)	1530	McFarland	BL	N	0	0	0	0	0
416	Active	Desperado's Steakhouse	1530	McFarland	BL	N	0	0	0	0	0
417	Active	Jimmy John's (McFarland North)	1875	McFarland	BL	N	0	0	0	0	0

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
418	Active	Publix (Rice Mine)	4851	Rice Mine	RD	N	0	0	0	0	0
419	Active	McDonald's (Rice Mine)	4840	Rice Mine	RD	N	0	0	0	0	0
420	Active	Kangaroo Express (Rice Mine)	4801	Rice Mine	RD	NE	0	0	0	0	0
421	Out	Santa Fe Restaurant	5251	Courtney	DR		0	0	0	0	0
422	Active	Hollywood 16 Theaters	4250	Old Greensboro	RD		7979	107	106	86	128
423	Active	Hilton Garden Inn	800	Hollywood	DR		108136	1446	1050	1503	1784
424	Active	Sam's Club	1401	Skyland	BL	E	0	0	0	0	0
425	Active	Peppercorn's Catering	1911	Skyland	BL	E	0	0	0	0	0
426	Active	Pizza Buffet	2816	University	BL	E	0	0	0	0	0
427	Active	Taquerio Jaripeo	2425	University	BL	E	0	0	0	0	0
428	Active	Alberta Elementary	2700	University	BL	E	9749	130	391	0	0
429	Active	Tee's Ribs	1702	10th	AV		0	0	0	0	0
430	Active	Fast & Easy #9	3800	Black Warrior	PW		0	0	0	0	0
431	Active	Riverfish Grocery	3509	Culver	RD		19448	260	166	221	393
432	Active	Culver Texaco	3700	Culver	RD		0	0	0	0	0
433	Active	Ms. Louise Home Cooking	1735	Culver	RD		7580	101	125	118	61
434	Active	Jason's Deli	2300	McFarland	BL		0	0	0	0	0
435	Active	Moe's Southwest Grill	2330	McFarland	BL		0	0	0	0	0
436	Active	Longhorn / Panera	1800	McFarland	BL		0	0	0	0	0
437	Active	Chipotle	1800	McFarland	BL		0	0	0	0	0
438	Active	Five Guys	1800	McFarland	BL		0	0	0	0	0
439	Out	Quizno's (Midtown)	1800	McFarland	BL		0	0	0	0	0
440	Active	Iguana Grill (Midtown)	1800	McFarland	BL		0	0	0	0	0
441	Active	Kobe (Midtown)					0	0	0	0	0
442	Active	Publix (University)	1190	University	BL		0	0	0	0	0
443	Active	Pita Pit (University)	1207	University	BL		0	0	0	0	0
444	Out	Quizno's (University)	1211	University	BL		0	0	0	0	0
445	Active	Chuck's Fish	508	Greensboro	AV		0	0	0	0	0
446	Out	Paco's River Walk	101	Greensboro	AV		0	0	0	0	0
447	Active	Little Italy Pizzeria	1130	University	BL		0	0	0	0	0
448	Active	Mama Goldberg's	409	23rd	AV		33161	443	421	434	475
449	Active	Bear Trap	1137	University	BL		38048	509	357	457	712
450	Active	Oyster Bay Seafood & Steak	5400	McFarland	BL		0	0	0	0	0
451	Active	Publix #1253	1101	Southview	LN		65151	871	868	846	899
452	Active	Hungry Howie's Pizza	1102	Southview	LN		0	0	0	0	0
453	Active	Innisfree Irish Pub	1925	University	BL		0	0	0	0	0
454	Active	Center of Hope	1920	25th	AV	E	0	0	0	0	0
455	Active	Trinity Presbyterian Church	5518	Rice Mine	RD	N	1122	15	15	12	18
456	Active	Nucor Steel	1700	Holt Road	RD	NE	0	0	0	0	0

LEGEND											
		(1) FSE Business Status	(5) Street Type		(9) Last Read Date						
		(2) Company	(6) Street Direction		(10) 1 Month Prior to Last Read Date						
		(3) House Number	(7) Avg. of Last 3 Months (Gal)		(11) 2 Month Prior to Last Read Date						
		(4) Street Name	(8) Avg. of Last 3 Months (10 Cu Ft)								
	Status	FSE name	FSE address				Water Usage at Each Facility				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
457	Active	Kuk's Dog Days	500	Greensboro	AV		0	0	0	0	0
458	Active	Cottdonale Texaco	1349 5	11	HW	N	18301	245	275	230	229
459	Active	Los Portales	4396	Rice Mine	RD	NE	0	0	0	0	0
460	Active	Archibald & Woodrow's BBQ	4215	Greensboro	AV		16182	216	184	197	268
461	Discon.	Yogurt Mountain	1800	McFarland	BL		0	0	0	0	0
462	Active	Moose Lodge	201	25th	AV		0	0	0	0	0
474	Active	Bojangles Chicken	6601	69	HW	S	0	0	0	0	0
475	Active	Rachel's Burger Shack	9700	69	HW	S	0	0	0	0	0
476	Active	Don Rafa Mexican Grille	2312	4th	ST		0	0	0	0	0
477	Active	Wingate Inn	4918	Skyland	BL		0	0	0	0	0
478	Active	Davis-Emerson Middle School	1535	Prudes Mill	RD		0	0	0	0	0
479	Active	Pigg Shack	930	Hillcrest School	RD		0	0	0	0	0
480	Active	Regency Retirement Village	5001	Old Montgomery	HW		0	0	0	0	0
481	Active	Southview School	5414	Cypress Creek	AV		0	0	0	0	0
482	Active	Big Daddy's Café	514	Greensboro	AV		18575	248	254	241	250
483	Active	Ruan Thai	1407	University	BL		23113	309	332	332	263
484	Active	Moe's Original BBQ	2101	University	BL		89610	1198	1368	1189	1037
485	Active	Chloe's Cup	2117	University	BL		0	0	0	0	0
486	Active	Lloyd Hall	503	6th	AV		0	0	0	0	0
487	Active	Sweet & Savory Creations	2523	University	BL		0	0	0	0	0
488	Active	TCBY	1130	University	BL		0	0	0	0	0
489	Active	UA School of Law Dining	105	Paul W. Bryant	DR		110455	1477	760	1690	1980
490	Active	Quizno's (Oscar Baxter Drive)	5105	Oscar Baxter	DR		0	0	0	0	0

A.2. Sample Listing of Carwash Facilities in Tuscaloosa as of 2012

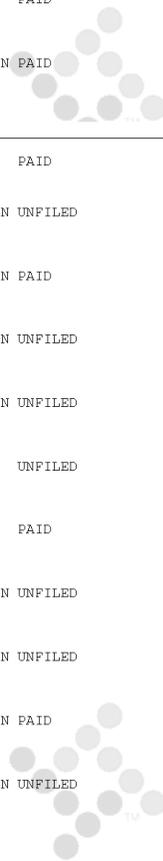
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CITY OF TUSCALOOSA
LICENSES BY NAICS

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YEAR: 2012 AREA: CITY TO FJ NAICS: 811192 TO 811192

DBA/LOCATION REFERENCE NAICS	ACCOUNT ID	CONTACT CATEGORY	TYPE	AREA	STATUS
A-1 AUTO DETAIL 5031 VIRGINIA CIRCLE TUSCALOOSA, AL 35401 101902 811192 AUTOMOBILE DETAILING & CLEANING	010981	HAMILTON, DIANA T. 205-345-1553	811 REPAIR	CITY	ACTIVE UNFILED
AFFORDABLE CAR WASH 3310 HARGROVE ROAD EAST TUSCALOOSA, AL 35405 107498 811192 AUTOMOBILE DETAILING & CLEANING	102157	CELL-205-534-0437	811 REPAIR	CITY	ACTIVE PAID
ALBERTA HAND CAR WASH 2101 UNIVERSITY BL E TUSCALOOSA, AL 35404 17521 811192 AUTOMOBILE DETAILING & CLEANING	017039	SARA BURT 205-562-0050	811 REPAIR	CITY	ACTIVE UNFILED
BAMA CAR WASH 3115 MCFARLAND BLVD E TUSCALOOSA, AL 35405 118228 811192 AUTOMOBILE DETAILING & CLEANING	106046	205-633-4020	811 REPAIR	CITY	ACTIVE UNFILED
BAMA CAR WASH MOBILE SERVICE P O BOX 664 COALING, AL 35449 113063 811192 AUTOMOBILE DETAILING & CLEANING	104155	205-535-4020	811 REPAIR	CITY	ACTIVE UNFILED
BAMA TRIM AUTO COSMETOLOGY 6219 UNIVERSITY BL E COTTONDALE, AL 35453 19160 811192 AUTOMOBILE DETAILING & CLEANING	053301	BOWMAN, GREGORY 205-556-4144	811 REPAIR	PJ	ACTIVE UNFILED
BEBO'S CAR WASH 6631 HIGHWAY 69 SOUTH TUSCALOOSA, AL 35405 121381 811192 AUTOMOBILE DETAILING & CLEANING	107459	205-409-8680	811 REPAIR	CITY	ACTIVE PAID
BEST HANDS 3014 15TH STREET TUSCALOOSA, AL 35401 116138 811192 AUTOMOBILE DETAILING & CLEANING	105236	205-454-2454	811 REPAIR	CITY	ACTIVE PAID
BLUE BEACON OF TUSCALOOSA 3301 BUTTERMILK RD COTTONDALE, AL 35453 5668 811192 AUTOMOBILE DETAILING & CLEANING	008183	MANNING, MITCH 205-462-0019	811 REPAIR	CITY	ACTIVE PAID
BUDDY'S FOOD MART #14 4551 RICE MINE RD NE TUSCALOOSA, AL 35406 114238 811192 AUTOMOBILE DETAILING & CLEANING	101860	CHRISTINE SMITH 205-759-2163	811 REPAIR	CITY	ACTIVE PAID
BUDDY'S FOOD MART #9 1051 MCFARLAND BL NE TUSCALOOSA, AL 35406 114236 811192 AUTOMOBILE DETAILING & CLEANING	101863	205-752-5555	811 REPAIR	CITY	ACTIVE PAID
CHAMPIONSHIP CARWASH & DETAILING 6635 HW 69 S TUSCALOOSA, AL 35405 116088 811192 AUTOMOBILE DETAILING & CLEANING	105209	205-765-4561	811 REPAIR	PJ	ACTIVE UNFILED
CHEVRON HWY 69 7836 HWY 69 SOUTH TUSCALOOSA, AL 35405 121268 811192 AUTOMOBILE DETAILING & CLEANING	107410	ANEEL RAJPARI 205-750-8342	811 REPAIR	PJ	ACTIVE PAID
CHUCK'S HAND CARWASH 1318 26TH STREET TUSCALOOSA, AL 35401 114342 811192 AUTOMOBILE DETAILING & CLEANING	104608	205-792-1430	811 REPAIR	CITY	ACTIVE UNFILED
CRIMSON BROTHERS PRESSURE & MOBILE WASH 3218 VETERANS MEMORIAL PIKWY 711 TUSCALOOSA, AL 35404 119882 811192 AUTOMOBILE DETAILING & CLEANING	106845	DOMANICK M MADDOX 256-227-3396	811 REPAIR	CITY	ACTIVE UNFILED
CULVER ROAD CAR WASH 1540 CULVER RD TUSCALOOSA, AL 35401 5072 811192 AUTOMOBILE DETAILING & CLEANING	007579	205-345-2699	811 REPAIR	CITY	ACTIVE UNFILED
CUSTOM ACCENTS 8600 INVERNESS LANE TUSCALOOSA, AL 35405 4687 811192 AUTOMOBILE DETAILING & CLEANING	007210	MORROW, DONNA 205-361-9868	811 REPAIR	CITY	ACTIVE PAID
DESTINY CAR CARE & DETAIL 3418 23RD ST TUSCALOOSA, AL 35401 118410 811192 AUTOMOBILE DETAILING & CLEANING	106080	PAUL W SANDERS SR 205-331-9643	811 REPAIR	CITY	ACTIVE UNFILED
DIXON CAR WASH & DETAIL 5100 UNIVERSITY BLVD EAST TUSCALOOSA, AL 35404 119328 811192 AUTOMOBILE DETAILING & CLEANING	106606	205-331-8156	811 REPAIR	CITY	ACTIVE UNFILED
DOLLAR WORTH 3416 23RD STREET TUSCALOOSA, AL 35401 121862 811192 AUTOMOBILE DETAILING & CLEANING	107570	205-523-3357	811 REPAIR	CITY	ACTIVE PAID
DROME CAR WASH 2620 14TH ST TUSCALOOSA, AL 35401 117228 811192 AUTOMOBILE DETAILING & CLEANING	105691	205-345-2696	811 REPAIR	CITY	ACTIVE UNFILED



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CITY OF TUSCALOOSA
 LICENSES BY NAICS

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YEAR: 2012 AREA: CITY TO PJ NAICS: 811192 TO 811192

DBA/LOCATION REFERENCE NAICS	ACCOUNT ID	CONTACT CATEGORY	TYPE	AREA	STATUS
PAST TRAC EXPRESS CAR WASH 3011 MCFARLAND BL E TUSCALOOSA, AL 35405	102364	MOSELEY, MICKEY 205-764-0841		CITY	ACTIVE
108172 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
FIVE POINTS CAR WASH 4419 UNIVERSITY BL E TUSCALOOSA, AL 35401	012568	MILLER, BOBBY 205-556-5434		CITY	ACTIVE
11742 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
POSTER'S TIRE SERVICE & CAR WASH 3135 20TH STREET TUSCALOOSA, AL 35401	101804			CITY	ACTIVE
106342 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE UNPAID
GO LO FOOD AND FUEL 700 SKYLAND BL TUSCALOOSA, AL 35405	104668			CITY	ACTIVE
114522 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
GOSA'S CAR WASH 338 SKYLAND BL TUSCALOOSA, AL 35405	105553			CITY	ACTIVE
116872 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
HARGROVE CAR WASH 2509 KICKER RD TUSCALOOSA, AL 35404	117960	WILLIAMSON, TINA		CITY	ACTIVE
19800 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE UNFILED
HARRIS'S DETAIL AND STYLES 624 GARDEN HILL DR TUSCALOOSA, AL 35405	016053	HARRIS, GLENDON 205-752-4716		PJ	ACTIVE
16260 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE UNFILED
JOE PHIFER CAR WASH 3808 GREENSPORO AV TUSCALOOSA, AL 35401	487600			CITY	ACTIVE
23349 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
LIKE NEW CAR WASH 500 SKYLAND BL TUSCALOOSA, AL 35405	105894			CITY	ACTIVE
117730 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
MAC HOBBIES 6509 HWY 69 S TUSCALOOSA, AL 35405	011003	DIOYOUNG, MARIE 205-247-5555		CITY	ACTIVE
119641 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
MR. DIXON'S CAR WASH & DETAIL 3605 8TH STREET TUSCALOOSA, AL 35401	105819			CITY	ACTIVE
		205-331-8156			
117569 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
NORTH RIVER CAR WASH LLC 4420 RICE MINE RD NE TUSCALOOSA, AL 35406	100252			CITY	ACTIVE
101579 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
PRO MOBILE CAR WASH 17561 OLD SANDERS PERRY ROAD RALPH, AL 35480	106956			CITY	ACTIVE
120170 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
R & G DETAILING 1712 AVALON DR TUSCALOOSA, AL 35404	106295	RICKY GLOVER 205-242-9611		PJ	ACTIVE
118743 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
SKYLAND DISCOUNT STORE 90 SKYLAND BL E TUSCALOOSA, AL 35405	104120	TAREQUE KAZI 205-343-0450		CITY	ACTIVE
114291 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
SKYLAND SUPERWASH 1600 SKYLAND BL E TUSCALOOSA, AL 35405	016100	MOORE, MICHAEL 205-799-1123		CITY	ACTIVE
16321 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
SOUTHSIDE CUTS & SUDS 1416 HARGROVE RD TUSCALOOSA, AL 35401	106852			CITY	ACTIVE
119903 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
SPIFFY'S 4220 MCFARLAND BL E TUSCALOOSA, AL 35405	103660	MCCULLUM, DANIEL 205-345-9274		CITY	ACTIVE
111825 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
STOP & GO CAR WASH 100 SKYLAND BL E TUSCALOOSA, AL 35405	596750			CITY	ACTIVE
24426 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
SUPER CLEAN CAR WASH 5300 UNIVERSITY BL E TUSCALOOSA, AL 35405	006948	BAILEY, CHRIS B. 205-454-8993		PJ	ACTIVE
4427 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	ACTIVE PAID
SUPER SUDS HAND CAR WASH 1905 GARBER STREET TUSCALOOSA, AL 35404	105177	BERNARD WILLIAMS 205-553-8808		PJ	ACTIVE
115941 811192 AUTOMOBILE DETAILING & CLEANING		811 REPAIR	811B	AUTOMOBILE	PHASE-IN UNFILED
SUPERIOR CAR WASH	105902	TERRY MCMILLER		CITY	ACTIVE

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CITY OF TUSCALOOSA
LICENSES BY NAICS

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YEAR: 2012 AREA: CITY TO PJ NAICS: 811192 TO 811192

DBA/LOCATION REFERENCE NAICS	ACCOUNT ID	CONTACT CATEGORY	TYPE	AREA	STATUS
2014 10TH AVE B TUSCALOOSA, AL 35401 117745 811192 AUTOMOBILE DETAILING & CLEANING	010566	205-292-5186 811 REPAIR	811B	AUTOMOBILE	PHASE-IN PAID
TERRELL 'S PREFERRED SERVICES 3518 CAMP ST NE TUSCALOOSA, AL 35404 8952 811192 AUTOMOBILE DETAILING & CLEANING	010566	HAMMER, KENNETH TERRELL 205-344-9323 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
TIDE CLEAN #5 1571 MCFARLAND BL TUSCALOOSA, AL 35405 24669 811192 AUTOMOBILE DETAILING & CLEANING	621100	CUSIMANO, DAVID 205-345-4514 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
TIDE CLEAN NO. 4 407 UNIVERSITY BL E TUSCALOOSA, AL 35401 2300 811192 AUTOMOBILE DETAILING & CLEANING	003973	205-752-3611 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
TRADEMARK 9900 HWY 69 S TUSCALOOSA, AL 35405 12955 811192 AUTOMOBILE DETAILING & CLEANING	013422	JUDY WHITLEY 205-330-2434 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
TRADEMARK #4 918 LURLEEN WALLACE BLVD S TUSCALOOSA, AL 35401 106869 811192 AUTOMOBILE DETAILING & CLEANING	101039	JUDI WHITLEY 392-0702 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
UNIVERSITY CHEVRON 9916 HIGHWAY 11 N COTTONDALE, AL 35453 11184 811192 AUTOMOBILE DETAILING & CLEANING	012165	NATHAN, AKEEL 205-553-3434 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
UNIVERSITY PROFESSIONAL DETAIL SHOP 2320 UNIVERSITY BL E TUSCALOOSA, AL 35405 1681 811192 AUTOMOBILE DETAILING & CLEANING	003069	GRAY, STANLEY 205-553-4795 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
WEST COAST CUSTOMS 204 HARGROVE RD E TUSCALOOSA, AL 35401 6420 811192 AUTOMOBILE DETAILING & CLEANING	008767	205-345-0236 811 REPAIR	811B	AUTOMOBILE	CITY ACTIVE
					UNFILED
					UNFILED

** END OF REPORT - Generated by Sharon Clements **



A.3. Sample Listing of Sewer Segments with Priority Cleaning in Tuscaloosa as of 2011 updated list

Sewer segments listed in this Appendix are included in high frequency priority cleaning (PM) program as of 2011.

	Location	Frequency	Upstream Manhole	Downstream Manhole	Diameter (in.)
1	2304 2nd Ave NE (Riverdale Sub)	Monthly	630	620	8
2	3624 Arcadia Dr	Monthly	3500	3500a	8
3	58 Sahama Village	Monthly	5035a	5035	8
4	Hargrove Rd & 16th Ave	Monthly	4913	4933	8
5	4420 Hays Court Apt 56	Monthly	4149	4149a	8
6	1717 25th Way E (#2 Coventry)	Monthly	6335	6333	8
7	4006 Stillman Blvd	Monthly	1306a	1306	8
8	Skyland & Old Mont Hwy	Monthly	7339	7335a	8
9	#6 Rollingwood	Monthly	531	533	8
10	3621 Arcadia Dr	Monthly	3500a	3500	8
11	3rd Ave E & 36th St E	Monthly	5631a	5631	8
12	30th Ave E & 3rd PI E	Monthly	3281	3311	8
13		Monthly	3311	3316a	8
14		Monthly	3316a	3316	8
15	Graceland Apt (Alberta/Juanita Dr)	Monthly	3258	3233	8
16		Monthly	3233	3212	8
17	3rd St NE & 33rd Ave NE	Monthly	3430	3429	8
18	13th Ave E & 14th PI E	Bi-Weekly	Unk	2686	8
19		Monthly	2686	9135	8
20	University Blvd & 12th Ave	Monthly	1992	1978	8
21		Monthly	1976	1978	8
22		Monthly	1978	9395	8
23		Monthly	8790a	8790	8
24		Monthly	8790	1975	8
25		Monthly	1975	1976	
26	Holy Spirit Church	Monthly	5762	5722	
27		Monthly	5722	5713	
28		Monthly	5738	5713	
29		Monthly	5675	5713	
30		Monthly	5713	5707	
31		Monthly	5707	5726	
32		Monthly	5726	5721	
33		Monthly	5721	5624a	
34		Monthly	5624a	5624	
35		Monthly	5622	5623	
36		Monthly	5697	5668	
37		Monthly	5668	5623	
38		Monthly	5623	5626	
39		Monthly	5656	5626	
40		Monthly	5626	5624	
41	River Rd Apts	Monthly	2607	11447	
42	1032 Kicker Rd	Monthly	2928	2938	
43		Pre-Game (UA)	11020	11016	
44		Pre-Game (UA)	11016	11032	
45		Pre-Game (UA)	11032	11035	

	Location	Frequency	Upstream Manhole	Downstream Manhole	Diameter (in.)
46		Pre-Game (UA)	11035	11038	
47		Pre-Game (UA)	11038	11041	
48		Pre-Game (UA)	11041	11044	
49		Pre-Game (UA)	11044	11052	
50		Pre-Game (UA)	11052	11053	
51		Pre-Game (UA)	11053	11065	
52		Pre-Game (UA)	11065	11067	
53		Pre-Game (UA)	1542	1551	
54		Pre-Game (UA)	1559	1577	
55		Pre-Game (UA)	8790a	8790	
56		Pre-Game (UA)	8790	1975	

A.4. Sewer Cleaning Record

WWTP CALL OUT-WORK ORDER SHEET				
Call #	Date:	Time:	A.M./P.M.	Work Request #
Customer Name:			Telephone:	
Address :				
Complaint:				
Crew Called:		Truck #	Dispatcher:	
NATURE OF CALL OUT/COMPLAINT:				
SEWER DISCHARGE INFORMATION				
<input type="checkbox"/> City Sewer Line Discharge	<input type="checkbox"/> Grease trap Inspection Request	<input type="checkbox"/> Inspection Request for Demolition	<input type="checkbox"/> Lift Station Alarm/Discharge	<input type="checkbox"/> Sewer Location Request
<input type="checkbox"/> Manhole Cover to Be Repaired/Replaced	<input type="checkbox"/> Odor Problems	<input type="checkbox"/> Manhole Discharge	<input type="checkbox"/> City Sewer Line Blockage	<input type="checkbox"/> Sewer Flooding Inside Residence
<input type="checkbox"/> Residential Lateral Line Blockage	<input type="checkbox"/> Sinkhole to Be Repaired	<input type="checkbox"/> TV Inspection Request		
<input type="checkbox"/> Call Out/Complaint not listed above:				
SOURCE OF COMPLAINT:				
<input type="checkbox"/> Broken Sewer Line	<input type="checkbox"/> Open Sewer Line	<input type="checkbox"/> Lift Station Discharge	<input type="checkbox"/> Private Lateral Line	<input type="checkbox"/> Manhole Discharge
				Manhole Number:
CAUSE OF COMPLAINT:				
<input type="checkbox"/> Damaged Sewer Line	<input type="checkbox"/> Failed/Collapsed Sewer Line	<input type="checkbox"/> Damaged Manhole	<input type="checkbox"/> Failed/ Collapsed Manhole	<input type="checkbox"/> Cause not listed above:
<input type="checkbox"/> Customer's Line	<input type="checkbox"/> Sewer Blockage-Grease	<input type="checkbox"/> Root Intrusion Into Sewer Line	<input type="checkbox"/> Sewer Blockage-Extraneous Debris	<input type="checkbox"/> Insufficient Capacity
<input type="checkbox"/> Operations	<input type="checkbox"/> Lift Station Power Failure	<input type="checkbox"/> Lift Station Equipment Failure	<input type="checkbox"/> Unknown Cause	
WAS EVIDENCE OF A DISCHARGE OBSERVED? <input type="checkbox"/> Yes <input type="checkbox"/> No				
DESTINATION OF DISCHARGE:				
<input type="checkbox"/> Onto Ground	<input type="checkbox"/> Into Storm Drain	<input type="checkbox"/> Into Ground	<input type="checkbox"/> Into Water	<input type="checkbox"/> Onto Street
				<input type="checkbox"/> Into Private Residence
WAS THERE A VISABLE DISCHARGE INTO A BODY OF WATER:				
<input type="checkbox"/> No	<input type="checkbox"/> Yes	NAME (stream, creek, lake, or river): _____		
ESTIMATED QUANTITY OF DISCHARGE:				
<input type="checkbox"/> Less than 100 gal.	<input type="checkbox"/> Less than 500 gal.	<input type="checkbox"/> Less than 1,000 gal.	Other: _____	
DURATION OF OVERFLOW (Please fill out below):				
From (Date and Time)		A.M./P.M.	To (Date and Time)	A.M./P.M.
Action Taken				
WEATHER CONDITIONS (Check One):				
<input type="checkbox"/> NO RAIN	<input type="checkbox"/> LIGHT RAIN	<input type="checkbox"/> MODERATE RAIN	<input type="checkbox"/> HEAVY RAIN	<input type="checkbox"/> PREVIOUS RAIN
MWPP REPORTABLE UNPERMITTED DISCHARGE:				
<input type="checkbox"/> REPORTABLE	<input type="checkbox"/> NON-REPORTABLE	<input type="checkbox"/> VERIFIED BY MANAGER		
I certify that this document was prepared in accordance with a system designed to assure that WWTP personnel properly gather the information submitted. Based on my inquiry of the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge, true and accurate.				
Signed: _____				

Appendix B Education/Outreach Materials

B.1. Fact Sheet #1: What Is FOG and Why Is It a Problem?



City of Tuscaloosa, AL

**FOG Management Program
WHAT IS FOG - FACT SHEET**

What is FOG?

- FOG stands for Fats, Oils or Grease.
- FOG is liquid or solid material composed primarily of fat, oil and grease from animal or vegetable sources.
- Examples of FOG include kitchen cooking grease, vegetable oil, lard, shortening, margarine, meat fats, bacon grease, food scraps, sauces, and dairy products.

Where Does FOG Come From?

- FOG is generated by everyone who prepares and cooks food.
- Industries that generate FOG include restaurants, hotels, bakeries, food preparation businesses, cafeterias in schools, hospitals, retirement centers, residential office complexes, prisons, churches, stadiums, military bases, etc.

Characteristics of FOG

- Lighter than water (floats)
- Coagulates
- Forms clogs
- Dense solidification
- Odorous (STINKS!)

What Happens with FOG in Pipes?

When FOG enters the sewer lines, it cools, solidifies and sticks to the insides of the pipes, trapping food particles and other debris. Over time, this solid mass continues to grow and creates the potential to obstruct the flow of wastewater, which may lead to pipe blockages and sanitary sewer overflows (SSOs).



Grease in the pipe. It generally accumulates from the top of the pipe down while other debris accumulates from the bottom up.

Why is FOG an issue for my business?

- FOG accumulates in sewer pipes and causes blockages. Grease blockages cause sewer overflows and basement backups.
- Restaurants and other food service establishments can be closed down due to blockages and backups.
- Restaurants and other food service establishments can also be held financially responsible for damages resulting from blockages and backups.

B.2. Fact Sheet #2: Grease Traps

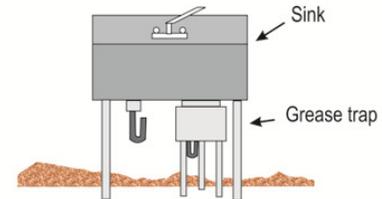


City of Tuscaloosa, AL

FOG Management Program GREASE TRAPS FACT SHEET

What Are Grease Traps?

Grease traps are small grease removal devices (usually 50 gallons or less in capacity) installed indoors, typically under a kitchen sink, with the purpose to prevent FOG in the kitchen wastewater from entering the sewer system. Grease traps operate by slowing down wastewater passing through the trap and retaining it long enough to allow contaminants with specific gravities different than water to separate out by gravity flotation (FOG) and settling (solids).



Necessary Elements for Grease Separation in the Trap

- Retention time (based on water flow)
- Water temperature less than 140°F (lard melts between 100°F and 120°F)
- pH (between 5 and 9)
- Controlled turbulence

Emulsification

Emulsification occurs when free floating fat breaks up into tiny particles and becomes one with the water in which it is suspended. Fat emulsifies under the following conditions:

- High temperature
- Turbulence
- Soaps, surfactants & detergents

Critical factors for grease trap effectiveness

- Sufficient Capacity
- Maintenance/Cleaning

Grease Trap Surges

When a grease trap is not properly maintained, it will either block up or surge:

- Sealed traps will block and back up into the kitchen or production area
- Non sealed ones will surge and contaminate the surrounding

Minimum Maintenance Standards

- DO ensure the grease trap is easily accessible for maintenance and inspection.
- Do not pour FOG waste directly into the grease interceptor.
- DO NOT use cleaning chemicals (emulsifiers or solvents).
- DO inspect the grease trap to determine when it requires cleaning.
- DO have the grease trap cleaned by an FSE employee or a licensed FOG hauler as needed.

B.3. Fact Sheet #3: Grease Interceptors

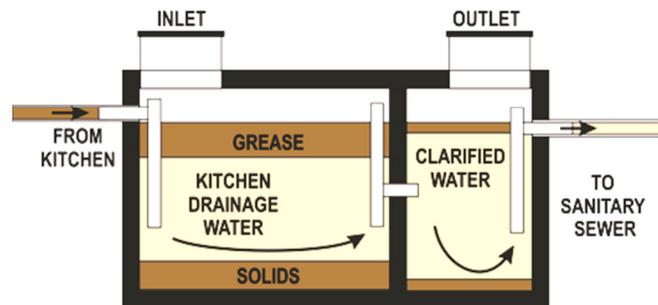


City of Tuscaloosa, AL

FOG Management Program GREASE INTERCEPTORS FACT SHEET

What Are Grease Interceptors?

Grease interceptors are large grease removal devices (typically min capacity 1000 gallons) installed outside of FSE, with purpose to prevent FOG in the kitchen wastewater from entering the sewer system. Grease interceptors operate by slowing down wastewater passing between the interceptor compartments and retaining it long enough to allow contaminants with specific gravities different than water to separate out by gravity flotation (FOG) and settling (solids).



Necessary Elements for Grease Separation in the Interceptor

- Retention time (based on water flow)
- Water temperature less than 140°F (lard melts between 100°F and 120°F)
- pH (between 5 and 9)
- Controlled turbulence

Emulsification

Emulsification occurs when free floating fat breaks up into tiny particles and becomes one with the water in which it is suspended. Fat emulsifies under the following conditions:

- High temperature
- Turbulence
- Soaps, surfactants & detergents

Critical factors for grease trap effectiveness

- Sufficient Capacity
- Maintenance/Cleaning

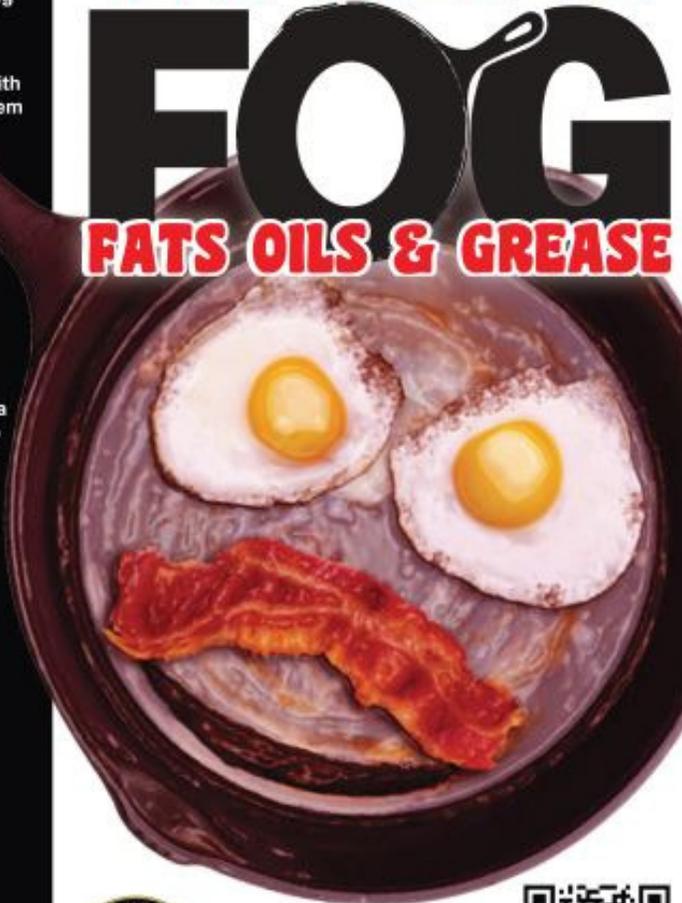
Minimum Standards

- DO ensure the interceptor has access point to each compartment for inspection & maintenance.
- Do not pour FOG waste directly into the grease interceptor.
- DO NOT use cleaning chemicals (emulsifiers or solvents).
- DO inspect the grease interceptor to determine when it requires cleaning.
- DO schedule the interceptor cleaning by a licensed grease hauler as needed.
- DO keep records of proper maintenance on-site for a minimum of 3 years.

Appendix C Residential Outreach Materials

C.1. Poster

10 EASY WAYS TO PREVENT FOG



DON'T CLOG WITH FOG

FATS OILS & GREASE

-  Put oil and grease into covered collection containers.
-  Scrape food scraps from dishes into trash cans and dispose of properly. Avoid your garbage disposal.
-  Remove oils and grease from dishes, pans, fryers, and griddles. Cool first before skimming, scraping or wiping grease.
-  Prewash dishes and pans with cold water before putting them in the dishwasher.
-  Cover floor drains with fine screen and empty into the garbage can as needed.
-  Cover the kitchen sink with a catch basket and empty into the garbage can as-needed.
-  Don't pour oils and grease down the drain.
-  Don't rinse off oils and grease with hot water.
-  Don't put food scraps down the drains.
-  Don't run water over dishes, pans, fryers, and griddle to wash oils and grease down the drain.



www.Tuscaloosa.com/FOG



C.2. Water/Sewer Bill Insert (Trifold)

Front

**The Drain Is Not A Dump
Put FOG In The Trash**

Fats, Oils and Grease (FOG), the residue left over from cooking meats, such as bacon that hardens after it cools, can cause problems when poured down the drain and clog pipes in your home. Did you know FOG can also clog the sewer pipes under the streets that take the wastewater from your house to the treatment plant? If that happens, the wastewater can back up and come to the surface and pollute the environment.

A sewer pipe clogged with FOG (Fats, Oils & Grease)

DON'T CLOG WITH FOG
FATS OILS & GREASE

City of Tusculocoma
1000 N. Main Street
400 S. Jackson Avenue
Tusculocoma, NJ 08811

Back

Why should I help prevent FOG?

Collecting Fats, Oils & Grease in a container and throwing it away prevents health hazards and environmental damage. FOG can cause untreated sewage to run into our streets and storm drains. You can help prevent damage to the sewer system by taking a few simple steps.

Taking Action will:

- ✓ Prevent grease buildup from blocking sewer lines.
- ✓ Stop sewer overflows into streets and storm drains.
- ✓ Reduce the number of times you have to clean your grease trap. (food service establishments)
- ✓ Save money spent on costly cleanups of sewage spills.
- ✓ Protect the quality of our water.

More ways I can prevent FOG

Use environmentally safe cleaning products instead of harsh detergents or cleaners that can damage sewer lines.

If you generate large amounts of used cooking oils, recycle it. To find a recycler, check the phone book under "recyclers" or "rendering companies"

If you generate small amounts of used cooking oils, pour it into a container that you can throw away into the trash.

10 simple ways you can help the environment

	Put oil and grease into covered collection containers.		Scrape food scraps from dishes into trash cans and dispose of properly. Avoid your garbage disposal.
	Remove oils and grease from dishes, pans, fryers, and griddles. Cool first before skimming, scraping or wiping grease.		Prewash dishes and pans with cold water before putting them in the dishwasher.
	Cover the kitchen sink with a catch basket and empty into the garbage can as-needed.		Cover floor drains with fine screen and empty into the garbage can as needed.
	Don't pour oils and grease down the drain.		Don't rinse off oils and grease with hot water.
	Don't run water over dishes, pans, fryers, and griddle to wash oils and grease down the drain.		Don't put food scraps down the drains.

Always Remember: NEVER pour FOG down the drain!

C.3. Door Hanger

Front

Back

DON'T CLOG WITH FOG FATS OILS & GREASE



Tuscaloosa
Wastewater
Management

www.Tuscaloosa.com/FOG



Fats, Oils and Grease (FOG), the residue left over from cooking meats, such as bacon that hardens after it cools, can cause problems when poured down the drain and clog pipes in your home. Did you know FOG can also clog the sewer pipes under the streets that take the wastewater from your house to the treatment plant? If that happens, the wastewater can back up and come to the surface and pollute the environment.

10 EASY WAYS TO PREVENT FOG



Put oil and grease into covered collection containers.



Scrape food scraps from dishes into trash cans and dispose of properly. Avoid your garbage disposal.



Remove oils and grease from dishes, pans, fryers, and griddles. Cool first before skimming, scraping or wiping grease.



Prewash dishes and pans with cold water before putting them in the dishwasher.



Cover floor drains with fine screen and empty into the garbage can as needed.



Cover the kitchen sink with a catch basket and empty into the garbage can as-needed.



Don't pour oils and grease down the drain.



Don't rinse off oils and grease with hot water.



Don't put food scraps down the drains.



Don't run water over dishes, pans, fryers, and griddle to wash oils and grease down the drain.

Appendix D Forms for FSEs

D.1. ADPH Application for Grease Trap/Interceptor Permit

CEP-11

APPLICATION FOR SEPTIC TANK/GREASE TRAP SERIES PERMIT

For Department Use Only



ALABAMA DEPARTMENT
OF PUBLIC HEALTH

Initial Application

Renewal

Approved

Disapproved

Revoked

County Health Department _____ Date Fee Paid _____

Co. Health Dept. I.D. No. _____ Fee Amount _____

Date Received _____ Fee Code _____

Date Issued/Renewed _____ Receipt No. _____

To Be Completed And Signed By The Applicant

One for Each Tank

1. Name of Business _____ Phone No _____
 Street Address _____
 City/Town _____ State _____ Zip _____
2. Name of Owner/Proprietor _____ Phone No _____
 Mailing Address _____
 City/Town _____ State _____ Zip _____
 AOWB License Number _____ Expiration Date _____
3. Type of Unit Septic Tank Grease Trap
 For Renewal Applications, Show Current Permit Number: _____
Note: If this is a renewal application, and none of the following information has changed, leave items 4 through 20 blank and sign application on reverse.

4. Number of Forms _____ (Attach drawing(s) for each form)
5. Tank Size: _____ Gallons Number of Compartments _____
6. Shape: Straight Wall Tapered Other: _____
7. Inside Dimensions: Length: Bottom _____ Length Top _____
 Width: Bottom _____ Width Top _____
8. Liquid Depth _____
9. Liquid Capacity Calculations (show calculations)

10. Is Inlet/Outlet Ratio 2/3: 1/3? Yes No

ADPH-CEP-11/Rev 6-06

1

D.2. Initial Training of FSE Owners/Managers



City of Tuscaloosa, AL

FOG Management Program:
Initial Training of FSE Owner/Manager



You, the owner/manager of the Food Service Establishment (FSE), have to develop a FOG training program for your employees!

This form certifies the material and information the SSO/FOG Investigator has reviewed with me.

Give one copy of this form to the SSO/FOG investigator and keep one copy on file in the FSE as confirmation of completed initial training.

TO BE COMPLETED BY FSE OWNER OR MANAGER

Your Name/Title: _____

Facility Name: _____

Facility Address: _____

Training Performed by the SSO/FOG investigator: _____

Date/Time of Training: _____

Fact Sheets:

- 1. What Is FOG and Why Is It a Problem?
- 2. Grease Traps Fact Sheet
- 3. Grease Interceptors Fact Sheet

Forms Checklist:

- 1. Training Development Form
- 2. Tracking of Employee Training Form
- 3. Tracking of GRD Maintenance Training Form
- 4. Inspection Form for Grease Interceptors
- 5. Inspection/Cleaning Form for Grease Traps
- 6. Standard Operating Procedure (SOP) for "25% Rule" Form
- 7. FOG Hauler Manifest Form
- 8. Checklist for Monitoring of FOG Hauler

I certify that the SSO/FOG Investigator has instructed me about the FOG Management Program and how to organize FOG training program for employees of this FSE. I certify that we have together reviewed all Fact Sheets and Forms that are listed above and checked.

FSE Owner/Manager's Signature _____ Date: _____

D.3. Training Development Form (2 pages)

	<p>City of Tuscaloosa, AL</p>	<p>FOG Management Program: 1. Training Development Form</p> <p style="text-align: right;">p.1</p>
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 15%;">  </div> <div style="width: 85%;"> <p>You, the owner/manager of the Food Service Establishment (FSE), have to develop a FOG training program for your employees!</p> <p>Your employees need to understand how the equipment and operational procedures in your FSE affect the sanitary sewer lines. When they learn which practices allow excessive FOG discharges to the sanitary sewer system and the consequences, they will understand why it is important to use kitchen Best Management Practices (BMPs) and help avoid sanitary sewer overflows.</p> </div> </div>		
<p>Keep on file in the FSE as confirmation of being instructed about training development in your FSE!</p>		
<p>Initial BMPs Training</p> <ol style="list-style-type: none"> 1. Provide initial BMPs training to current employees in your FSE, at the beginning of the program and later to every new employee at the FSE, explaining: <ul style="list-style-type: none"> ▪ Problems created by FOG discharge to the sewer system. ▪ Kitchen BMPs procedures. ▪ Importance of following the kitchen BMPs procedures. 2. Make sure all employees see the FOG training presentation. 3. Go with your employees over the questions in <u>quiz</u> on the back of this form. 4. Enter record of each completed employee training in the <u>Training Tracking Form</u>. 5. Place signs in the kitchen to remind employees of the grease problem. 		
<p>Initial Grease Trap/Interceptor Inspection/Cleaning Training</p> <ol style="list-style-type: none"> 1. Train selected employees, at the beginning of the program and later as needed, how to: <ol style="list-style-type: none"> a) Check if the grease trap/interceptor needs cleaning. b) Complete the grease trap inspection form. c) Clean the grease trap OR schedule grease haulers to perform the cleaning. d) Complete the grease manifest form. 		
<p>Follow-ups and Refresher Training</p> <ol style="list-style-type: none"> 1. Observe employees and award employees who follow kitchen BMPs. 2. Ask employees for any ideas/suggestions. 3. Review the <u>Training Tracking Form</u> and provide <u>refresher training</u> to the employees (quarterly). 		
<p>I certify that I have read and understood the contents of this form.</p>		
<p>FSE Owner/Manager's Signature _____ Date: _____</p>		

Quiz:

1. What are the sources of Fat, Oil, and Grease (FOG) in your facility?

Examples: frying oil, butter, milk, and other dairy products, dish soap.

2. What devices discharge to the public sanitary sewer system?

Examples: pre-rinse station, sink, dishwashing machine, toilet, floor drain.

3. How can your employees prevent FOG from getting into the sewer system?

Examples of BMPs are: (1) scrape food and residue into a trash can before washing dishes and cookware; (2) use paper towels to absorb spilled oils and dispose in trash can instead of washing down the drain, etc.

D.5. Tracking of GRD Maintenance Training (2+ pages)

	<p>City of Tuscaloosa, AL</p>	<p>FOG Management Program: 3. Tracking of GRD Maintenance Training Form</p>	<p>p.1</p>
 <p>You, the owner/manager of the Food Service Establishment (FSE), must keep track of your employees training.</p>			
<p>Keep on file in the FSE as confirmation of completed employee training in grease trap/interceptor inspection/cleaning!</p>			
<p>TO BE COMPLETED BY <u>FSE OWNER OR MANAGER</u></p>			
<p>Keep on file in the FSE as confirmation of completed employee training in the FSE!</p>			
<p>Your Name/Title: _____</p>			
<p>Facility Name: _____</p>			
<p>Facility Address: _____</p>			
<p>Employees Trained to Perform Grease Trap/Interceptor Inspection/Cleaning</p>			
<p>Employee name:</p>	<p>Date trained to:</p>		<p>Employee signature:</p>
	<p>Inspect GRD*. Maintain log.</p>	<p>Clean GRD**. Fill in manifest.</p>	
<p>* GRD means grease trap and/or grease interceptor.</p>			
<p>** Clean the grease trap or monitor cleaning of grease interceptor.</p>			

FOG Management Program: p.2
4. Inspection Form for Grease Interceptors

FOG Discharge Prohibitions:

- DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
- DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.
- DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.
- DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant.

Scheduled cleaning of grease interceptor:

FOG hauler name: _____
Phone: _____
FOG pickup date: _____

Scheduled repairs of grease interceptor:

Repair needed:

Contractor: _____
Date: _____

D.7. Inspection/Cleaning Form for Grease Traps (2+ pages)

	City of Tuscaloosa, AL	FOG Management Program: 5. Inspection/Cleaning Form for Grease Traps	p.1		
Complete this form for each grease trap inspected/cleaned. Keep on file in the FSE as confirmation of completed inspection!					
TO BE COMPLETED BY <u>TRAINED FSE EMPLOYEES</u>					
Facility Name: _____ Facility Address: _____					
<p> The 25% Rule: See $H1 + H2 > 0.25 \times H0$ <i>Standa</i> </p> <p style="margin-left: 40px;"> H1 = Inches of floating grease blanket at top of liquid surface H2 = Inches of settled material on bottom of tank H0 = Depth from invert of outlet pipe to the bottom of tank. </p> <p style="text-align: center; margin-left: 40px;"> <i>rd Operating Procedure (SOP) for "25% Rule" Form for details.</i> </p>					
Identify Grease Trap:					
TRAP ID#	Location:	Capacity (gpm):	Length (in.)	Width (in.)	Depth* H0 (in.)
FOG discharge prohibitions: DO NOT discharge improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshing, or entrails. These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.					
<ul style="list-style-type: none"> DO NOT discharge wastewater with temperatures in excess of 140° F to any GRD. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools. DO NOT discharge caustics, acids, solvents, or other emulsifying agents. Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system. Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system. DO NOT utilize biological agents for grease remediation without permission from the WWTP. The biological agents may disrupt the biological treatment process at the wastewater treatment plant. 					

FOG Management Program: p. __
5. Inspection/Cleaning Form for Grease Traps

Checks 1-5:

1. GRD functions

2. Inlet pipe visible

3. Outlet pipe visible

4. No corrosion

5. No broken/missing parts

Trap ID #	Date/Time of Inspection:	.25×H0 (in.)	H1 (in.)	H2 (in.)	H1+H2 (in.)	Trap Cleaned?	Checks 1-5 OK?	Employee initial:
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	
						<input type="checkbox"/>	<input type="checkbox"/>	

Identify Employees Inspecting/Cleaning Trap(s):

Employee Name:	Employee initial:

D.8. Standard Operating Procedure (SOP) for “25% Rule” Form (1 page)



City of Tuscaloosa, AL

FOG Management Program:
6. SOP for “25% Rule” Form

25% The purpose of this Standard Operating Procedure (SOP) is to ensure that inspections of grease traps/interceptors are completed and documented uniformly. The 25% Rule is a general rule to assess the proper maintenance and cleaning of grease removal facilities and not the sole determining factor of compliance.

This procedure shall be followed every time a grease trap is inspected.

Method:

To inspect a grease trap using a clear plastic tube and to document the results.

Tools and Equipment:

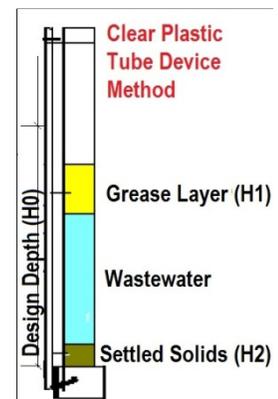
1. Facility specific equipment necessary to open a grease trap or a grease interceptor.
2. Safety equipment if necessary to redirect vehicles (cones, etc.)
3. Measuring device (such as DipStick-Pro® available through Environmental BioTec, 800-314-6263).
4. Cleaning materials (Earth Clean Technologies).

Preparation:

1. Locate and gain access to grease trap or grease interceptor.
2. Place safety equipment around the grease trap or interceptor as needed to prevent pedestrian or vehicular accidents during inspection.
3. Use appropriate tool to remove the grease trap lids or grease interceptor manhole covers.
4. Complete visual inspection of the condition of the device and record information on appropriate inspection form.

Procedures for Checking Grease & Solids Accumulation in a Grease Trap

1. Push the metal rod down so that the valve opens at the bottom of the plastic tube.
2. Slowly insert the plastic tube into the grease trap until it touches the bottom of the tank.
3. Pull up on the metal rod to close the valve and pull the tube out.
4. Measure the height of the grease layer (H1) and the settled solids (H2).
5. Record measurements on the Grease Trap Inspection Form.
6. Release contents back into grease trap by pushing down on metal rod.
7. Check the 25% rule: $H1 + H2 > 0.25 \times H0$
 $H0$ is the design hydraulic depth (the depth from invert of outlet pipe to the bottom of tank).



I certify that I have read this SOP and understand the procedure for checking the grease trap/interceptor. I also understand that the 25% rule is only a best management practice and not the determining rule for GRD maintenance needs.

Employee Signature _____ Date: _____

D.9. FOG Hauler Manifest Form (2 pages)



City of Tuscaloosa, AL

FOG Management Program:
7. FOG Hauler Manifest Form

p.1

See instructions for completing this form on the back page.

TO BE COMPLETED BY FSE REPRESENTATIVE:

Facility Name: _____

Facility Address: _____

Date/Time of GRD Cleaning: _____

GRD Number Serviced: _____ Estimated Removed: _____ gallons.

Print Name: _____ Signature: _____

TO BE COMPLETED BY GREASE HAULER:

Business Name: _____

Street or P.O. Box: _____

City: _____ State: _____ Zip: _____

Access Pass Card #: _____

Driver's Name: _____ Driver's License #: _____

Print Name: _____ Signature: _____

At Disposal Site (Hilliard Fletcher Wastewater Treatment Plant):

Date/Time of Disposal: _____

Print Name: _____ Signature: _____

TO BE COMPLETED BY CITY OF TUSCALOOSA:

Date Form Processed: _____

Print Name: _____ Signature: _____

INSTRUCTIONS FOR COMPLETING FOG MANIFEST FORMInstructions to FSE representative

- An authorized representative of the FSE shall fill out all of the requested information in the first (top) box of the form. The address shall be the physical address of the FSE. The FSE representative shall sign and date the form when the FOG is removed, specify the number of GRDs cleaned and estimate the quantity of FOG removed in gallons.

Important Notes

- The FSE shall give a self-addressed, stamped envelope (S.A.S.E.) to the FOG Hauler.
- The FSE shall retain the PINK Copy of the FOG manifest form (after the FOG Hauler filled the middle box except for the part relating to the disposal at the WWTP) and keep it at the FSE until the original white copy is received in the mail.
- It is the responsibility of the FSE to retain the copy of the manifest at the FSE. The completed manifests will be examined by the SSO/FOG Investigator as part of future FSE inspections.

Instructions to FOG Hauler

- The driver of the FOG hauler truck is considered an authorized representative of the FOG hauling company. The driver shall fill in all of the information requested in the second (middle) box of the manifest. The address shall be the mailing address of the business.
- The driver shall leave the PINK copy of the FOG manifest form to the FSE representative and pick up a FSE's self-addressed, stamped envelope (S.A.S.E.).
- The driver shall transport the waste collected from 1 or more FSEs (depending on the hauler's truck capacity) to the WWTP for discharge, bringing one FOG Manifest form and one S.A.S.E. for each FSE serviced.
- The driver shall date and sign again each form and leave the forms and corresponding S.A.S.E.s in the drop box, with one additional S.A.S.E. for the FOG Hauler business enclosed.

Instructions to City of Tuscaloosa

- The WWTP representative shall collect the forms/envelopes from the drop box and forward to Database Specialists on regular basis.
- The Database Specialists shall enter details of FOG pickup and discharge into the database and finish paperwork to bill the FOG haulers based on FOG quantities disposed (once a month or as needed).
- The Database Specialists shall date and sign the forms.

D.10. Listing of Permitted FOG Haulers Servicing Tuscaloosa updated list

FOG Haulers listed in this Appendix are permitted to collect brown and/or yellow grease in Tuscaloosa area as shown.

(TO BE DEVELOPED)

	Business Name	City, State	Phone	Brown grease	Yellow grease
1				x	
2				x	x
3					

D.11. Checklist for Monitoring of FOG Hauler Form (1 page)

	<p>City of Tuscaloosa, AL</p>	<p>FOG Management Program: 8. Checklist For Monitoring Of FOG Hauler Form</p>
	<p>You, the owner/manager of the Food Service Establishment (FSE) are responsible for the condition of the grease trap/interceptor.</p> <p>A representative from FSE should witness and monitor grease interceptor pump outs to ensure proper cleaning and maintenance procedures are followed and that the grease hauler does not take any shortcuts.</p>	
<p>Grease interceptor cleaning procedures</p>		
<ul style="list-style-type: none"> € Remove the manhole covers. Remove bolts as required. € <u>Skim the entire grease cap and debris from the top of the interceptor.</u> € <u>Place vacuum tube all the way into the interceptor to suck remaining solids from the bottom.</u> € <u>Vacuum water out of the interceptor.</u> € <u>Clean the sides of the interceptor.</u> € <u>Remove any remaining solids from the bottom of the interceptor.</u> € <u>Vacuum any remaining water out of the interceptor.</u> € <u>Make sure the interceptor is completely clean and the entire contents removed.</u> € <u>Make sure that the baffle is secure and in place.</u> € <u>Inspect the interceptor for any cracks or defects.</u> € <u>Check that the sanitary "T's" on the inlet and outlet sides of the interceptor compartments are not clogged, loose, or damaged. Notify the facility manager if damages or missing parts are observed.</u> € <u>If interceptor is equipped with a sample box, open it and clean the box.</u> € <u>Check that manhole covers are securely and properly seated after completion of cleaning. Re-install bolts to secure manhole covers.</u> € Clean any grease spills on the ground from the cleaning. Use dry method (grease/oil absorbent pads) if possible. Notify the FSE manager of any spill or damages observed. 		
<p>IMPORTANT: Decanting is not permitted. DECANTING means the practice of returning wastewater from a grease hauler truck back into the grease interceptor after it is vacuumed out. The grease and solids content in such water is very high and may cause odors.</p>		

Appendix E Forms for FOG Haulers

E.1. Hauler's Application for Pumper Truck Permit

APPLICATION FOR A SEWAGE TANK PUMPER PERMIT

For Department Use Only



ALABAMA DEPARTMENT
OF PUBLIC HEALTH

_____ County Health Department
 _____ Co. Health Dept. I.D. No.
 _____ Date Received
 _____ Date Permit Issued
 _____ Receipt Number (if applicable)

To Be Completed and Signed By the Applicant

1. Name of Business _____ Telephone() _____
 (Type or Print)
 Street Address _____ Telephone() _____
 City/Town _____ State _____ Zip _____
2. Name of Applicant/Owner/Proprietor _____ Telephone() _____
 Mailing Address _____
 City/Town _____ State _____ Zip _____
 Name of AOWB Licensee _____
 AOWB License # _____ Expiration Date _____
3. Means of Collecting, Transporting, and Disposing of Sewage: _____

4. Type of Waste to be Hauled: Septage Raw Sewage (Portable/Vault Toilet Contents)
5. Location of Disposal Points, Method of Sewage Disposal, and Type Waste to be Disposed:

Location	Disposal Method	Type Waste
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. Mode of Transportation:

Vehicle Tag Number	State of Vehicle Registration	Capacity (Sewage tank size)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

7. Disposal Method(s)—Approvals attached Yes No

Application is made pursuant to Alabama Law (Section 22-26-2), *Code of Alabama, 1975, Alabama Administrative Code, Chapter 420-3-1.*

I agree to allow inspection of all sewage tank cleaning equipment, vehicles, implements, containers, or other devices and sites used in the collection, transportation, or disposal of sewage tank contents. I also agree to mark my vehicle(s) and sewage holding tanks and to keep adequate records and submit them to the local health department personnel in accordance with rules of the State Board of Health. I understand that permit renewal is required each year between November 1 and December 31.

Date: _____

_____ Type or Print Applicant's Name

_____ Signature of Applicant

ADPH-CEP-1/Rev. 06-06 (See Reverse)

**SEWAGE TANK PUMPING
GENERAL REQUIREMENTS**

- A vehicle used in the collection, removal, transportation or disposal of septage shall display, in letters at least 2 inches high, and in a conspicuous place on both sides of the truck cab or carrier tank the name and address of the firm under which the business is conducted, the county in which the permit was issued, and the permit number.
- A carrier tank aboard a vehicle used for collecting, removing and transporting the contents of sewage tanks shall be conspicuously and permanently labeled "FOR SEWAGE ONLY" at or near the inlet and outlet valves of the tank. The use of the carrier tank for another purpose is prohibited. The required lettering shall be a minimum of 3 inches high.
- A carrier tank used for the collection, removal, transportation, or disposal of sewage tank contents shall be fully enclosed, leak proof, fly proof, and so operated as to prevent spillage or leakage during collection, removal, transportation and disposal. The carrier tank, when used for holding septage, shall have a minimum effective holding capacity of 1,250 gallons.
- Only pumping equipment, tanks and vehicles approved or permitted by the LHD shall be used.
- The equipment, implements, containers or other devices used for the collection, removal, transporting or disposal of sewage tank contents shall be maintained and operated so as to prevent unsanitary or nuisance conditions.
- A person engaged in sewage-tank pumping shall have facilities available for the flushing, cleaning and deodorizing of sewage tanks, carrier tanks and the required cleaning implements and equipment. In these operations the following practices shall be observed:
 1. Waste water resulting from the flushing and cleaning shall be disposed of either by an OSS designed for such activity or by a sanitary sewer system, when available.
 2. Odor-controlling substances may be left in the sewage tank, carrier tank or other sewage tank cleaning implement or equipment, but in no case shall such substances be used in lieu of proper cleaning.
- A sewage-tank pumping contractor shall keep a complete record of facilities pumped or cleaned and shall submit such records to the LHD quarterly or when requested by the LHD. The LHD may suspend a sewage-tank pumping contractor's permit for refusing to submit records quarterly. The LHD shall determine the duration of the suspension period. Records shall specify the following:
 - Name and address of the person for whom the waste was removed;
 - Date of completion of the operation;
 - Size of the tank and the amount, in gallons, of the waste removed;
 - Location of the disposal site; and
 - Method of final disposal.
- Septage shall be disposed of in a manner that will protect the public health and avoid nuisance conditions.

NOTE: The above listed requirements are **not complete**. See Chapter 420-3-1, Onsite Sewage Treatment and Disposal, Specifically Rule 420-3-1-.34 for Sewage Tank Pumping permitting and operational procedures and requirements.

For semisolid waste land application permitting and operational procedures and requirements, see Chapter 420-3-6, Septage Management.

Appendix F Forms and Documents for the City

Part III A. BMPs Implementation

<ol style="list-style-type: none">1. <input type="checkbox"/> No sink/floor drain screens?2. <input type="checkbox"/> Waste food in the sink?3. <input type="checkbox"/> Debris or loose screws in floor drains?4. <input type="checkbox"/> Spilled grease on the floor?5. <input type="checkbox"/> Spill cleanup kits readily available?6. <input type="checkbox"/> No grease waste containers?7. <input type="checkbox"/> No signage on the wall?8. <input type="checkbox"/> Employee training log incomplete?9. <input type="checkbox"/> GRD inspection/cleaning logs incomplete?10. <input type="checkbox"/> FOG Hauler manifests incomplete?	<p>Number of checks:</p> <p>This inspection = _____</p> <p>Previous inspection = _____</p>
--	--

How BMP disciplinary measure is determined if BMPs implementation is in violation:

If total number of checks is ≥ 7 : Courtesy Letter
If no checks at previous inspection: Verbal Warning If this is the first inspection ever: Verbal Warning

BMPs Implementation Inspection Outcome	
<input type="checkbox"/> Compliance	<input type="checkbox"/> Non-Compliance, Courtesy Letter
	<input type="checkbox"/> Non-Compliance, Verbal Warning

FOG Management Program: p.3
FSE Inspection

III B. GRD Performance/Condition

GRD #:	1	2	3	4	5	6	7	8	Total
1 Grease overflow? *	<input type="checkbox"/>								
2 GRD does not function?	<input type="checkbox"/>								
3 The 25% rule not met?	<input type="checkbox"/>								
4 Inlet pipe not visible?*** <input type="checkbox"/> NA	<input type="checkbox"/>								
5 Outlet pipe not visible?*** <input type="checkbox"/> NA	<input type="checkbox"/>								
6 Roots intrusion?	<input type="checkbox"/>								
7 Corrosion damage?	<input type="checkbox"/>								
8 Broken/missing parts?	<input type="checkbox"/>								
Total**:									

- * If Severe GRD non-compliance: Certified Letter
- ** If total number of checks > 0: Courtesy Letter
- *** Pipe not visible because it is covered with grease.

GRDs Performance/Condition Inspection Outcome

- Compliance
- Non-Compliance, Courtesy Letter
- Non-Compliance, Certified Letter
- Re-inspection scheduled on: _____

FOG Management Program: p.4
FSE Inspection

Part IV A. Re-Inspection. INSPECTION #2

Inspection Date/Time: _____ By: _____

GRD #:	1	2	3	4	5	6	7	8	Total
1 Grease overflow? *	<input type="checkbox"/>								
2 GRD does not function?	<input type="checkbox"/>								
3 The 25% rule not met?	<input type="checkbox"/>								
4 Inlet pipe not visible?*** <input type="checkbox"/> NA	<input type="checkbox"/>								
5 Outlet pipe not visible?*** <input type="checkbox"/> NA	<input type="checkbox"/>								
6 Roots intrusion?	<input type="checkbox"/>								
7 Corrosion damage?	<input type="checkbox"/>								
8 Broken/missing parts?	<input type="checkbox"/>								
Total**:									

* If Severe GRD non-compliance not corrected: Citation is issued and next re-inspection will decide about service termination (skip to Part V).

** If total number of checks > 0: Certified Letter

*** Pipe not visible because it is covered with grease.

- Compliance Non-Compliance, Certified Letter
 Severe GRD Non-Compliance, Citation
 Re-inspection scheduled on: _____

Part IV B. Re-Inspection. INSPECTION #3

Inspection Date/Time: _____ By: _____

GRD #:	1	2	3	4	5	6	7	8	Total
1 GRD does not function?	<input type="checkbox"/>								
2 The 25% rule not met?	<input type="checkbox"/>								
3 Inlet pipe not visible?** <input type="checkbox"/> NA	<input type="checkbox"/>								
4 Outlet pipe not visible?** <input type="checkbox"/> NA	<input type="checkbox"/>								
5 Roots intrusion?	<input type="checkbox"/>								
6 Corrosion damage?	<input type="checkbox"/>								
7 Broken/missing parts?	<input type="checkbox"/>								
Total*:									

* If total number of checks > 0: Citation

** Pipe not visible because it is covered with grease.

- Compliance Non-Compliance, Certified Letter
 Re-inspection scheduled on: _____

Part V. Final Re-Inspection. INSPECTION #4

Inspection Date/Time: _____ By: _____

GRD #:	1	2	3	4	5	6	7	8	Total
1 Grease overflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 GRD does not function?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 The 25% rule not met?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Inlet pipe not visible?*	<input type="checkbox"/> NA	<input type="checkbox"/>							
4 Outlet pipe not visible?*	<input type="checkbox"/> NA	<input type="checkbox"/>							
5 Roots intrusion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 Corrosion damage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 Broken/missing parts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* Pipe not visible because it is covered with grease.

Comments:

OUTCOME

- Compliance Non-Compliance, Termination of water and sewer service

Part VI. GRD Modifications.

Specify location of the device and modifications (change in dimensions, new or removed connections to the device, etc.)

If GRD is a grease interceptor:

Location: _____

Size of tank: • _____ gallons

• Dimensions: _____ ft deep, _____ ft wide, _____ ft long, _____ ft diameter (if round)

• Baffle? No Yes

If yes, are all compartments accessible for cleaning? No Yes

Comments:

If GRD is a grease trap:

Location: _____

Size of tank: _____ gpm

Dimensions: _____ ft long, _____ ft wide, _____ ft high

Comments:

(City Letterhead)

Subject: Food Service Establishment Fats, Oils, and Grease Management Program

Dear Facility Management:

As part of our continuing effort to protect the environment as well as the integrity and operation of public infrastructure, the City of Tuscaloosa began a program targeting effective control of fats, oils, and grease (FOG) discharges into the municipal sanitary sewer system. In order to prevent illegal sanitary sewer collection system overflows, routine inspections by City staff of all new and existing food service establishments (FSEs) in the City's service area will be occurring.

The purpose of these inspections at the onset of the program is to educate the FSE owners/managers on specific measures the FSEs can take to prevent excessive discharging of FOG into the sanitary sewer system and to familiarize the FSEs owners/managers about the program requirements. The inspections will afterwards be conducted approximately once or twice per year to check and document FSEs' compliance with the program.

Please allow the SSO/FOG Investigator from the City of Tuscaloosa access to your facility for introducing the program to your FSE and whenever needed for inspection of food preparation and other areas inside and outside of the facility, inspection and sampling of grease interceptors and traps and wastewater lines from the establishment to the sanitary sewer system. Please allow the SSO/FOG Investigator also to access and copy any forms that the FSEs are required to maintain as part of the FOG Management Program.

The SSO/FOG Investigator has a right of entry for the specified purposes based on provisions from City Ord. No. 2225, Sec. 16-55a. Failure to permit entry in accordance with the above conditions constitutes a misdemeanor punishable by fine up to \$500 for each day of violation, or confinement in the City jail or to hard labor for the City for a period not exceeding six (6) months, or both (Ord. No. 2114, Sec. 1-8a).

The inspections are not prescheduled so that the inspections observe daily business operations and routines.

As always, we appreciate your continued support of our efforts to keep our community the greatest place to live, work, and raise a family. Should you have any questions regarding this program, call the Water Works and Sewer Department at 205-248-5800.

Regards,

F.3. Example Courtesy Letter for Non-compliance at Inspection #1 *real courtesy letter*

This letter is to the FSE owner/operator if MBP deficiency or GRD non-compliance is identified at inspection #1.

(City Letterhead)

p.1

Subject: Food Service Establishment (FSE) Non-Compliance with Tuscaloosa FOG Management Program

Dear Facility Management:

This letter is to inform you that your facility _____, located at _____, was inspected on _____, by the SSO/FOG Investigator from the City of Tuscaloosa. During this inspection, non-compliance with the *Fat, Oil and Grease (FOG) Management Program* was determined as specified herein.

This is a courtesy letter to remind you that you are required to comply with the requirements of the FOG Management Program by the law. The SSO/FOG Investigator will return to your facility on or about _____. Please have all deficiencies corrected by that time.

Please know that failure to obey and abide by the requirements stated in the FOG Management Program may be punishable by fines and fees and in most severe cases by termination of water and sewer service.

If you have any questions about this please call the Water Works and Sewer Department at 205-248-5800.

Thank you for the cooperation.

Sincerely,

Implementation of Kitchen Best Management Practices (BMPs) Violation

- No sink/floor drain screens.
- Waste food in the sink.
- Debris or loose screws in floor drains.
-
- Spilled grease on the floor.
- Spill cleanup kits readily available.
- No grease waste containers.
- No signage on the wall.
- Uncovered/opened outside grease containers.
- Spilled grease. (while transporting)
- Leaking outside grease containers.
- Directly dumping of grease in storm sewer.
- Equipment cleaning outside (degreasing).
- Employee training log incomplete.
- GRD inspection/cleaning logs incomplete.
- FOG Hauler manifests incomplete.
- Outdoor mat washing.

Grease Removal Devices (GRDs) Condition/Performance Violation

- GRD does not work.
- The 25% rule not met.
- Inlet pipe not visible (from grease).
- Outlet pipe not visible (from grease).
- Roots intrusion.
- Corrosion damage.
- Broken/missing parts.

Comments: _____

F.4. Example Certified Letter for Non-compliance at Inspection #2Real Certified letter

This letter is sent out after inspection #2 if GRD non-compliance has not been corrected before inspection #2.

(City Letterhead)

Subject: Food Service Establishment (FSE) Continuing Non-Compliance with Tuscaloosa FOG Management Program

Dear Facility Management:

This letter is to inform you that your facility _____, located at _____, was re-inspected on _____, by the SSO/FOG Investigator from the City of Tuscaloosa following the first inspection completed on _____.

During the second inspection, non-compliance with the *Fat, Oil and Grease (FOG) Management Program* was again determined as specified herein.

Grease Removal Devices (GRDs) Condition/Performance Violation

- | | |
|---|--|
| <input type="checkbox"/> GRD does not work. | <input type="checkbox"/> Roots intrusion. |
| <input type="checkbox"/> The 25% rule not met. | <input type="checkbox"/> Corrosion damage. |
| <input type="checkbox"/> Inlet pipe not visible (from grease). | <input type="checkbox"/> Broken/missing parts. |
| <input type="checkbox"/> Outlet pipe not visible (from grease). | |

Grease interceptors/traps in violation: _____

The FOG Management Program is the formal program adopted by the City and based on the City Ordinance No. 2255. You are required to comply with the requirements of this program by the law. Please correct all deficiencies before the next re-inspection by the SSO/FOG Investigator scheduled on _____.

Please know that failure to correct existing deficiencies before next re-inspection will be punished by issuing Citation. You will still be required to appear in Court where applicable penalty will be determined. You will have to correct these deficiencies after the penalty has been paid. If non-compliance still persists thereafter, the City may terminate your water and sewer service.

If you have any questions about this please call the Water Works and Sewer Department at 205-248-5800. Thank you for the cooperation.

Sincerely,

F.5. FSE Compliance Recognition Certificates

Certificate of Compliance



Is hereby presented to:

(Restaurant Name)

For implementing
Fat, Oil and Grease (FOG) Program
measures and following the program requirements

(Date)

- ❖ Implementing kitchen Best Management Practices
- ❖ Supporting community and protecting environment



City of Tuscaloosa, AL
Water Works and Sewer Department

Certificate of Acknowledgement



Is hereby presented to:

(Restaurant Name)

For implementing
Fat, Oil and Grease (FOG) Program
measures and following the program requirements

(Date)

- ❖ Excellence in kitchen Best Management Practices
- ❖ Supporting community and protecting environment



City of Tuscaloosa, AL
Water Works and Sewer Department

Appendix G Grease Removal Devices (GRDs)

Sizing

G.1. Grease Traps/Interceptors

G.1.1. Introduction

Sizing method described herein is intended as guidance in determining grease trap/interceptor sizes that will protect the City’s sanitary sewer system against grease and other obstructing materials. It is the responsibility of FSE owners to control that the wastewater discharged from their facility is in compliance with the City’s discharge limitations.

G.1.2. Sizing Requirements

Exterior Grease Interceptors

The minimum required grease interceptor trap size can be calculated using the formulas listed below. If the calculated required interceptor capacity exceeds 1,500 gallons, multiple units in series may be installed. If the calculated required interceptor capacity is less than 250 gallons, interior flow-through grease traps MAY be used. For calculated capacity between 250 and 500 gallons, the use of interior flow-through grease traps is approved on case-by-case basis. For all other calculated capacities the following chart may be used:

Calculated Grease Trap Capacity	Minimum Acceptable Interceptor Size
500gallons to 749gallons	500 Gallon Interceptor
750gallons to 874gallons	750 Gallon Interceptor
875gallons to 1249gallons	1000 Gallon Interceptor
1250gallons to 1749gallons	1500 Gallon Interceptor
1750gallons to 2249gallons	2000 Gallon Interceptor
2250gallons to 2749gallons	2500 Gallon Interceptor
2750gallons to 3000gallons	3000 Gallon Interceptor
Greater than 3000gallons	Calculated Capacity Interceptor

*Note – The City may at its own discretion require the minimum acceptable interceptor size to meet or exceed the calculated capacity if deemed necessary to protect the City’s sanitary sewer system against grease and other obstructing materials.

(a) Dine-in restaurants, public schools

$$\text{SIZE} = \text{Seating Capacity} \times \text{Turnover_Rate} \times N \times \text{Grease_Per_Meal} \times \text{Loading_Factor}$$

OR, where seating capacity is not available

$$\text{SIZE} = [(\text{Length} \times \text{Width}) / A] \times \text{Turnover_Rate} \times N \times \text{Grease_Per_Meal} \times \text{Loading_Factor}$$

Where:

SIZE..... Minimum grease trap size, in gallons

Seating Capacity.. Actual number of seats available for meal service

OR

Length Dining area length, in feet

Width Dining area width, in feet

A Factor related to restaurant seating style, in square feet:
15 square feet for fixed seating or 7 square feet for non-fixed seating

Turnover_Rate constant: 2.5 dine-in restaurant, # periods/feeding public schools

N..... Number of feedings offered by the food establishment (breakfast, lunch, dinner): 1, 2, or 3

Grease_Per_Meal Standard grease production per meal, in gallons. (Typically 3 gallons).

Loading_Factor. Factor related to restaurant volume and grease production:
1 for normal (high to moderate volume restaurants, standard grease producers),
0.8 for moderate (low volume upscale restaurants, standard grease producers),
or 0.5 for other (light grease producers, e.g., sandwich shops, single service).

(b) Fast food takeout restaurants, convenience stores

$$\text{SIZE} = \text{CustomersPerDay} \times 1 \text{ GALLON PER CUSTOMER}$$

CustomersPerDay Number of customers per day

(c) Schools (excluding public schools), day cares, fraternities, sororities, group home, dining halls

$$\text{SIZE} = \text{MealsPerDay} \times 5 \text{ GALLONS PER MEAL}$$

MealsPerDay Number of meals served per day

(d) Other FSEs

$$\text{SIZE} = \text{Water Use Ave} \times 25\%$$

WaterUseAve ... Average daily water usage, in gallons per day

Interior Grease Traps

The required minimum flow-through capacity of the interior grease trap can be determined using the following formula:

$$\text{FlowRate} = \text{SIZE} / \text{SRTime}$$

FlowRate Minimum grease trap flow rate, in gallons per minute

SIZE Required grease trap holding capacity, in gallons

SRTime Standard retention time, typically 12 minutes

For any calculated minimum flow-through capacity of less than 25GPM, a grease trap with a minimum flow rate of 25GPM will be required.

G.1.3. Compliance, Site Accessibility and Layout

Each grease interceptor should be installed and connected so that it is easily accessible for inspection, and cleaning at any time. Location of grease interceptor should be approved by the City of Tuscaloosa.

Exterior Grease Traps

The best location for exterior interceptors is in an area outside of an outside wall, but upstream from the black water drain line(s). Access should be provided by two (2) manholes terminating 1-in. above finished grade with 24-in. cast iron frame and cover.

Grease interceptor should have a minimum of two compartments with fittings designed for grease retention. Wastewater discharging to the grease interceptor should enter only through the inlet pipe. Each grease interceptor should have only one inlet and one outlet pipe. A by-pass path is prohibited. Inlet and Outlet sanitary tees must be visible from manholes.

Interior Grease Traps

Interior grease traps should be installed in strict accordance with manufacturer's instructions. Grease traps should be equipped with a cover that can be opened for inspection and sampling. A mechanism for a secure closing is also required.

Grease traps should be equipped with a device to control the rate of flow through the unit. The rate of flow in gallons per minute should not exceed the manufacturers rated capacity recommended for the unit. The flow-control device and the grease trap should be vented in accordance with the Alabama State Plumbing Code's current edition. The flow-control device should terminate not less than 6-in. above the flood rim level and be installed in accordance with the manufacturer's instructions.

G.2. Sand and Oil Interceptors (Car Wash Facilities)

G.2.1. Introduction

Sand and oil interceptors for carwash facilities are large devices located in-ground and outside of the facilities. They are similar in construction to grease interceptors, i.e., have two compartments which are designed in such way to allow oils to migrate to the second compartment while forcing sand and sludge to stay in the first compartment.

G.2.2. Sizing Requirements

The minimum required sand and oil interceptor size for car wash facilities can be calculated using the formula developed and used in the City of Austin, TX:

$$GIS = [FlowCapacity_1 + (N - 1) \times FlowCapacity_2] \times SRT$$

Where:

GIS minimum trap size, in gallons (acceptable variance \pm 15%)

N number of wash bays

FlowCapacity_1 flow capacity for the first wash bay, in gallons per minute, as follows:
 20 gpm for hand held spray or brush wand type vehicle washes facility,
 40 gpm for automated drive through car-wash facility

FlowCapacity_2flow capacity for each additional wash bay, in gallons per minute, as follows:
 12 gpm for hand held spray or brush wand type vehicle washes facility,
 40 gpm for automated drive through car-wash facility

SRT standard retention time, in minutes: 12 min

Typical approved sizes of sand/oil interceptors are 360 or 480 gallons.

Other Cities specify different sizes, for example Colorado Spring Utilities approves 500, 1000, 1500, 2500 gallon capacity (Traffic rated) or 500, 1000, 1500, 2250 (Non-traffic rated). The maximum individual interceptor size should be 2500 gallons, and a series of interceptor's may be necessary if larger sand/oil interceptor capacities are necessary based on cleaning and maintenance requirements.

G.2.3. Site Accessibility and Layout

Each sand/oil trap should be installed and connected so that it is easily accessible for inspection, cleaning, and removal of the intercepted sand and oil at any time.

Standard/basic car-wash facilities, either single bay or auto bay configuration, should have an internal catch basin/drain connected to a sand/oil interceptor and then to City's sanitary sewer main line. Sand/oil interceptor should be located on the outside of buildings unless otherwise specifically approved in writing by the City. Location of all sand/oil interceptors and its outfall location should be shown on the approved construction or utility service plans approved by Springs Utilities. (Plumbing plans may be requested by the City to be attached to the approved construction plans for inspection and record purposes). Inlet and Outlet sanitary tees must be visible from manholes.

Appendix H Definitions

Black Water	Wastewater from sanitary fixtures such as toilets and urinals.
Brown Grease.....	Waste grease from grease traps or grease interceptors that cannot be rendered.
Compliance	Conforming to requirements of the FOG Management Program
Customer.....	A user of the sanitary sewer system who produces wastes from their process operations. The customer is responsible for assuring that the produced wastewater is disposed of in accordance with all Federal, State and local disposal regulations.
Deficiency.....	A requirement of the FOG Management Program related to either BMPs implementation or GRD maintenance which is not met by a FSE.
Violation.....	A failure to meet requirements of the FOG Management Program.
FOG Hauler	One who transfers waste from the site of a customer to an approved site for disposal or treatment. The hauler is responsible for assuring that all Federal, State and local regulations are followed regarding waste transport.
Food Grinder	A device, which shreds or grinds up solid or semisolid waste materials into smaller portions for discharge into the sanitary sewer collection system.
Food Service Establishment (FSE)	A facility which cuts, cooks, bakes, prepares, serves food, or disposes of food related wastes.
Gray Water.....	All wastewater other than “Black Water” as defined in this section
GRD Effluent.....	A wastewater discharged from a grease removal device into the sanitary sewer lateral.
Grease	A material composed primarily of fats, oil, and grease (FOG) from animal or vegetable sources. Grease does not include petroleum-based products.
Grease interceptor.....	A large tank or device so constructed as to separate and trap or hold FOG substances from the sewage discharged from a facility in order to keep FOG substances from entering the sanitary sewer collection system. Grease interceptors are typically located outside of food service facilities.
Grease trap	A device placed under or in close proximity to sinks or other facilities likely to discharge grease in an attempt to separate, trap or hold, FOG substances to prevent their entry into the sanitary sewer collection system.
Grease removal device (GRD).....	A device which slows the discharge time so that grease and water separate upon which grease remains in the device while water continues to the City’s wastewater collection system.
NPDES	Stands for National Pollution Discharge Elimination System under which the Tuscaloosa’s Wastewater Treatment Plant is permitted.
POTW	Stands for Publicly-Owned Treatment Works or “Treatment Works” as defined by Section 212 of the Clean Water Act (33 U.S.C. § 1292), which is owned or operated in this instance by the City of Tuscaloosa. This definition includes any sewers that convey wastewater to Tuscaloosa’s sewage treatment plant.
Sewage	The liquid and water-carried domestic or industrial wastes from dwellings, commercial establishments, industrial facilities, and institutions, whether treated or untreated.
Sewer Lateral	A sewer line typically maintained and controlled by private persons for the purpose of conveying sewage from the wastewater producing location to the public sanitary sewer collection system.

- User A City of Tuscaloosa’s customer operating a food service establishment inside the City’s wastewater service area.
- Wastewater The liquid and water-carried domestic or industrial wastes from dwellings, commercial establishments, industrial facilities, and institutions, whether treated or untreated. Wastewater may include but not be limited to, discharges from sinks, dishwashing machines, soup kettles, and floor drains located in areas where grease-containing materials may exist.
- Yellow Grease Waste cooking oil and grease that can be recycled, such as fryer grease.
- 25% Rule A rule determining when the grease trap or interceptor needs cleaning. If 25% of interceptor capacity is taken up by FOG and Solids, then the interceptor needs pumping. Example: If interceptor operating depth is 48-in. and has 6-in. of FOG and 6-in. of settled solids, then 25% of capacity is met.