SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT FOG PROGRAM EVALUATION AND ENHANCEMENT STUDY

CITY OF SAN JOSE ENVIRONMENTAL SERVICES DEPARTMENT

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San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

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San Jose/Santa Clara
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KEY ABBREVIATIONS

AOC – Area of Concern
BAPPG – Bay Area Pollution Prevention Group
BGB – Black Gold Biofuels
BMP – Best Management Practices
CCTV – Closed Circuit Television
CPC – California Plumbing Code
CWEA – California Water Environment Association
DOE – Department of Energy
DSIRE – Database of State Incentives for Renewables and Efficiency
EBMUD – East Bay Municipal Utility District
EEC – Environmental Engineering and Contracting
FAQ – Frequently Asked Questions
FOG – Fats, Oils and Grease
FSE – Food Service Establishment
GCD – Grease Control Device
GGI – Gravity Grease Interceptor
GI – Grease Interceptor
GPD – Gallon Per Day
GRD – Grease Removal Device (Automatic HGI)
GT – Grease Trap
HGI – Hydromechanical Grease Interceptor
IRWD – Irvine Ranch Water District
IU – Industrial User
KW - Kilowatts PSA – Plant Service Area
MG – Million Gallons
MGD – Million Gallons per Day
MRWPCP – Monterey Regional Water Pollution Control Plant
MW – Megawatts
NACWA – National Association of Clean Water Agencies
OCSD – Orange County Sanitation District
PG&E – Pacific Gas and Electric
POTW – Publicly Owned Treatment Works
SFPUC – San Francisco Public Utilities Commission
SIC – Standard Industrial Classification
SIU – Significant Industrial User
SRCSD – Sacramento Regional County Sanitation District
SSMP – Sewer System Management Plan
SSO – Sanitary Sewer Overflow
SWRCB – State Water Resources Control Board
UPC – Uniform Plumbing Code
WDR – Waste Discharge Requirement
WPCP – Water Pollution Control Plant

EXECUTIVE SUMMARY

Environmental Engineering & Contracting, Inc. (EEC), as a subconsultant to Brown and Caldwell, was retained by the City of San Jose (City) to evaluate the City's Fats, Oils and Grease (FOG) Program and to assess how the City's FOG Program could support potential future FOG Waste to Biogas/Energy programs. The key tasks associated with this evaluation included: 1) Evaluation of the FOG Control Program; 2) Estimation of FOG Waste Volume; 3) Evaluation of Current FOG Waste Disposal Practices; 4) Evaluation of Alternative FOG Waste Disposal Options; 5) Evaluation of Current FOG Outreach Efforts; and 6) Evaluation of FOG Related Grants and Loans.

State of the City of San Jose FOG Program

The San Jose FOG Control Program has one of the more comprehensive FOG Control Programs in the State, is in compliance with the State SSMP requirements, and can provide an ample supply of available FOG waste for a local FOG Waste to Energy Program. Key elements of the City's FOG Control Program include:

- Grease Control Device (GCD) requirements for new and remodeling food service establishments (FSEs);
- Comprehensive plan review process to evaluate GCD size, design and connected fixtures;
- Logical and fair GCD maintenance requirements;
- Comprehensive FSE inspection program to provide FOG Program education and monitor compliance with GCD and Kitchen Best Management Practices (BMPs) requirements;
- Follow-up FSE inspections to ensure completion of corrective actions for identified non-compliance issues;
- Comprehensive database to track and schedule the FSE inspection program.

FOG Waste Volume Estimate

It is estimated that approximately 20,000,000 gallons per year of FOG waste is generated within a 20 mile radius of the San Jose/Santa Clara Water Pollution Control Plant (WPCP) and it is projected to increase over the next 30 years to approximately 37,000,000 gallons per year.

Current FOG Waste Disposal Practices

Approximately 59 percent of the FOG waste from the PSA and immediately outside the PSA is currently being hauled and disposed of by Darling International in San Francisco. The other 41 percent is being disposed of at FOG Waste to Energy Programs at EBMUD, South Bayside System Authority, the City of Millbrae, the City of Watsonville (and the Palo Alto incinerator). The transportation costs and tipping fees at these facilities make the demand for a local FOG waste disposal facility very high. These disposal costs also increase the likelihood of illicit dumping.

Alternative FOG Waste Disposal Practices

There are currently no alternative disposal sites in the San Jose area for FOG waste haulers. Pending confirmation of some treatment plant design issues, the conditions appear to be ideal for the City to pursue a FOG Waste to Energy Project with a receiving station located inside the San Jose/Santa Clara WPCP or a primary receiving station located outside the plant. In addition to providing an alternative FOG waste disposal option, a substantial boost in biogas production from the FOG waste can be realized.

Current FOG Outreach

The current San Jose FOG outreach efforts are sufficient for the major sources of FOG and management of the FSE yellow and brown grease.

FOG Related Grants/Loans

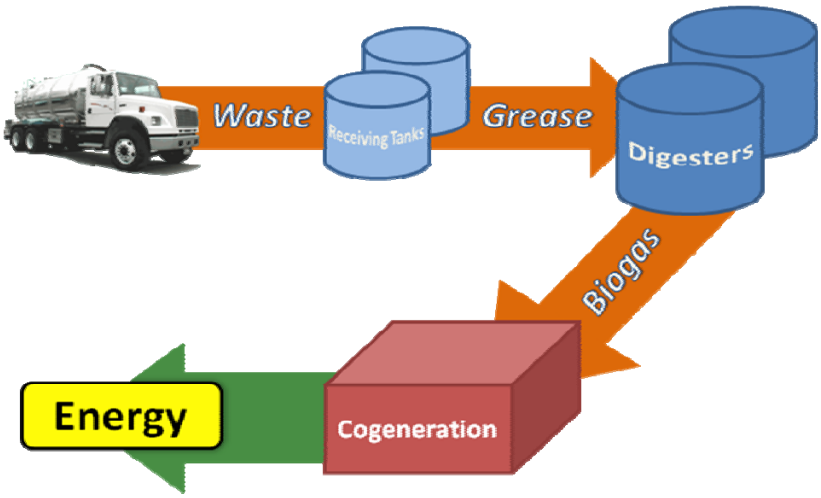
FOG related grants and loans are potentially available for qualified FOG Waste to Energy Projects. Some FOG Waste to Energy Projects are currently receiving natural gas and electricity rebates.

Recommended Next Steps

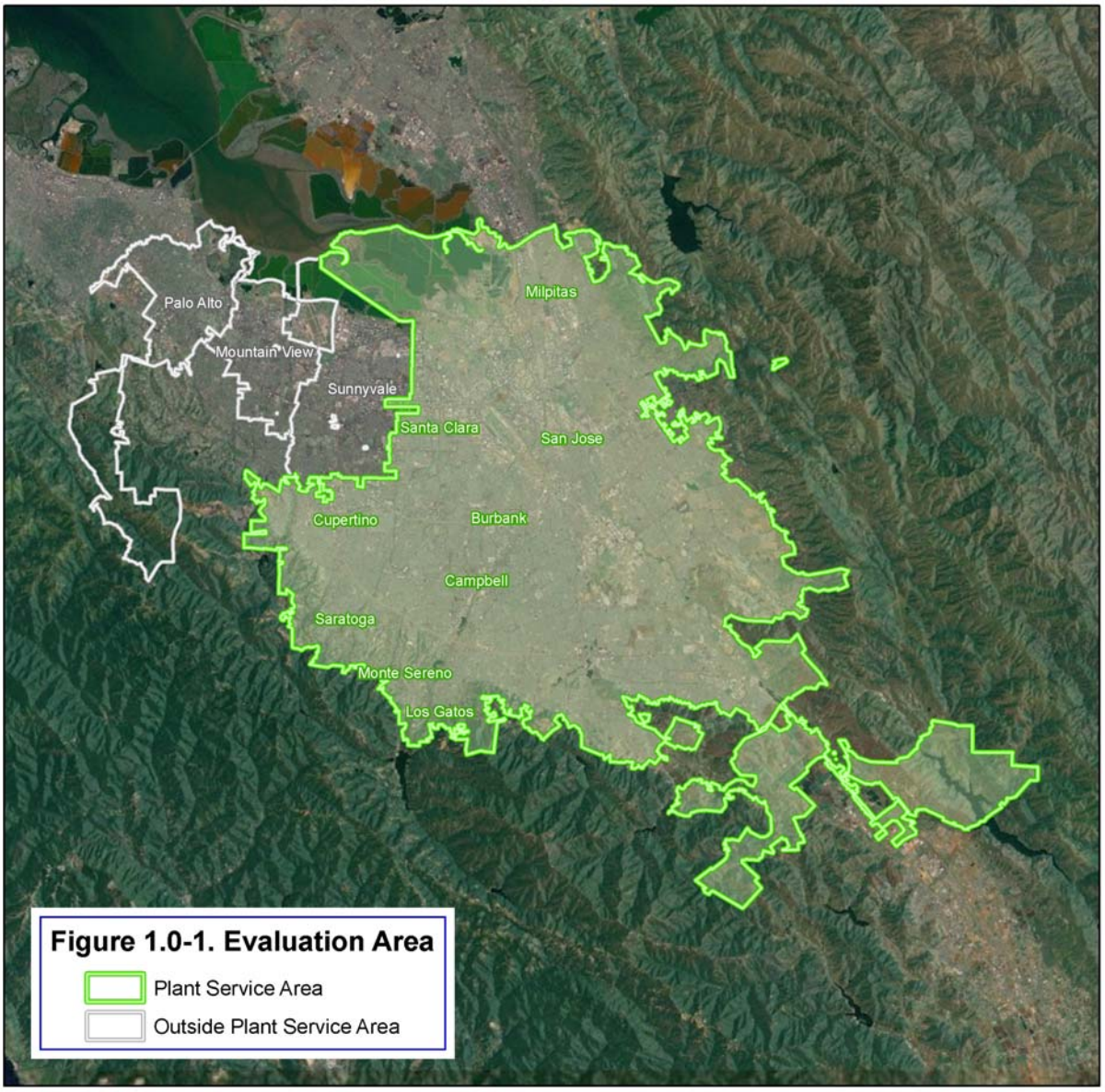
1) The City should consider implementation of the 2007 CPC as a standard for installation and sizing of GCDs.
2) The City should consider the benefits of a "Can the Grease" residential education and outreach program, and development and distribution of a FSE training video.
3) The City should consider the use of CCTV inspection of individual FSE sewer laterals as a direct performance measure of the success of the FOG Source Control requirements, inspections, and enforcement.
4) The City should conduct further study of brown grease to biodiesel and brown grease to biomass alternatives to determine if either option is as cost effective as brown grease to biogas to energy. If these options do not prove to be as cost effective as brown grease to biogas to energy, San Jose should consider a FOG Waste to Energy project as the primary alternative for creating energy from brown grease.
5) If a FOG Waste to Energy Program is pursued, the City should consider the use of a FOG waste hauler manifest system (2-part or 3-part) as an incoming FOG waste quality control measure.
6) The City should pursue the rebate program through the California Energy Commission if they plan on using a fuel cell renewable energy program.

1.0 INTRODUCTION

Due to local fats, oil, and grease (FOG) control regulations, FOG is pumped from thousands of food service establishment (FSE) grease interceptors and grease traps in the City of San Jose Plant Service Area (PSA) (ref: 2007 Annual Pollution Prevention Report, San Jose/Santa Clara Water Pollution Control Plant) and immediately outside the PSA on a frequent basis. A map of the area is provided as Figure 1.0-1. This FOG waste (i.e., brown grease) is currently hauled and disposed of at a variety of private and municipal sites located outside of San Jose and as far away as Oakland and San Francisco. The City of San Jose (City) FOG regulations are driven by the need to reduce sanitary sewer overflows (SSOs) caused by FOG blockages in the sewer system. Due to statewide SSO concerns, the State Water Resources Control Board (SWRCB) adopted General Waste Discharge Requirements (WDR) on May 2, 2006 for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipe. A requirement of the WDR is to prepare and implement a Sewer System Management Plan (SSMP) including a FOG Control Program. The City of San Jose's FOG Control Program has been developing rapidly since 2002 and recently was upgraded to provide more specific requirements and guidance documents for FSEs as well as increased FSE inspections and enforcement.



Environmental Engineering & Contracting, Inc. (EEC), as a subconsultant to Brown and Caldwell, was retained by the City to evaluate the City's FOG Program and evaluate how the FOG Program could support potential future FOG Waste to Biogas/Energy programs. To accomplish this, EEC completed the following items: 1) reviewed FOG control ordinances and FSE data; 2) interviewed representatives from the City and the PSA agencies, the agencies immediately outside of the PSA, and the local haulers and FOG waste disposal sites; 3) evaluated each of the current FOG waste disposal sites within the region; 4) evaluated alternative FOG waste disposal options; 5) evaluated the potential for the City to begin receiving and processing FOG waste for their own FOG Waste to Energy project; and 6) evaluated FOG source control and FOG Waste to Energy models throughout the State of California (State). EEC also incorporated many of the findings from a "Waste Grease to Energy" assessment report conducted for Liquid Environmental Services in October, 2007. The "Waste Grease to Energy" assessment report is included as Appendix A.


Palo Alto
Mountain View
Sunnyvale
Santa Clara
Milpitas
San Jose
Cupertino
Burbank
Campbell
Saratoga
Monte Sereno
Los Gatos
Figure 1.0-1. Evaluation Area
Plant Service Area
Outside Plant Service Area

2.0 PROJECT DELIVERABLES

This report includes all of the subtasks required in Task 2 of Service Order Number (No.) 1 - FOG Program Evaluation and Enhancement Study, Pre-design Study of Digester Rehabilitation, Modifications, and Gas Line Replacement, and Implementation Plan. The scope of work requested separate technical reports for each subtask. EEC combined each of these separate technical reports into this one report. The evaluation is presented in the following sections.

Evaluation of FOG Control Program (Section 2.1)

This section evaluates the City's FOG Control Program and other FOG Control Programs in the State, with and without FOG Waste to Energy Programs, to determine what upgrades could be made to the City's FOG Control Program to benefit the overall FOG Control Program and a potential future FOG Waste to Biogas/Energy Program. The evaluation included the following elements:

- Review and compare specific municipal ordinance and program requirements of each city and agency in the PSA (this element was adjusted from the original scope as discussed in the report);
- Review and compare relevant representative municipal ordinances and program requirements of agencies in the State of California that currently operate FOG waste receiving operations;
- Review and analyze current FOG Control Program practices in use by the City's Environmental Services Department, Department of Transportation, and Santa Clara County of Department of Environmental Health. Include review of the plan check Grease Control Device (GCD) sizing procedures, recommended GCD maintenance guidelines, FSE inspections, inspector training, and compliance enforcement;
- Identify, compare, and contrast alternate FOG Control Program models that could enhance the prevention, collection or reuse of waste FOG, including GCD installation/maintenance requirements and FOG inspection prioritization/inspection frequencies.

Estimation of FOG Waste Volume (Section 2.2)

This section estimates the current and projected volume of grease interceptor FOG waste generated, pumped, and hauled in the San Jose PSA, and immediately outside the PSA. The evaluation included the following elements:

- Identify the FOG generators (e.g.: FSEs, residents, industrial food processors, community kitchens, cooking schools, etc.) in the PSA and the key grease interceptor and grease trap data (this element was adjusted from the original scope as discussed in the report);
- Estimate the volume and type of FOG discharged to the sanitary sewer from each sector of the economy (this element was adjusted from the original scope as discussed in the report);

- Identify the destination and quantity of FOG hauled and disposed of based on waste hauler data;
- Coordinate with PSA cities, agencies and the nearby cities outside the PSA within a 20 mile radius of the San Jose/Santa Clara Water Pollution Control Plant (plus Morgan Hill and Gilroy) to project current and future FOG waste volume estimates.

Evaluation of FOG Waste Disposal Practices (Section 2.3)

This section identifies the current licensed FOG waste haulers and the disposal sites that are being used for disposal of the FOG waste. It also identifies current volume received, future FOG volume capabilities, disposal costs, and evaluates waste tracking FOG options. The evaluation included the following elements:

- Identify key licensed waste grease haulers that service the PSA;
- Identify current (preferred) disposal locations and alternate disposal locations (if available);
- Coordinate with existing FOG waste disposal facilities to identify current volume received, and current and future FOG waste disposal capabilities;
- Identify and compare FOG waste service costs and waste disposal costs;
- Estimate the extent that waste haulers adequately service FSEs in the service area;
- Estimate and evaluate why and to what extent FOG waste may be disposed of illicitly;
- Provide alternate recommendations for waste hauler permitting, bill of lading, or voucher systems that would provide documentation that area GCDs are being serviced and assurance that FOG material is properly disposed.

Evaluation of Alternative FOG Waste Disposal Options (Section 2.4)

This section evaluates alternative FOG waste disposal options including a FOG Waste to Energy Program at the San Jose/Santa Clara Water Pollution Control Plant. It includes identifying effective FOG waste receiving stations at other Publicly Owned Treatment Works (POTWs) and evaluates potential models for a successful approach. The evaluation included the following elements:

- Identify treatment facilities within the PSA that may be willing to accept FOG for disposal/processing;
- Assess the potential for a FOG Waste to Energy program;
- Identify models of effective and efficient waste FOG receiving stations from other agencies and POTWs;
- Identify alternate waste FOG disposal versus reuse models from other agencies and POTWs that may provide a better overall approach.

Evaluation of Current FOG Outreach Efforts (Section 2.5)

This section evaluates the current FOG outreach efforts in the PSA that affect FOG waste management. It also identifies alternative FOG Control Program outreach models that could

enhance the collection of FOG waste from commercial, residential, and community dischargers. The evaluation included the following elements:

- Review existing Best Management Practices (BMPs) materials, web page information, and public service advertising efforts;
- Identify, compare, and contrast alternate FOG Control Program outreach models that could enhance the prevention, or collection of waste FOG from commercial, residential, and community dischargers.

Evaluation of FOG Related Grants and Loans (Section 2.6)

This section evaluates the various FOG related grant and loan opportunities based on those secured by other FOG Waste to Energy Programs as well as other potentially available grants, loans, and rebates. The evaluation included development of a table that includes the funding source, applicable dates, funding amounts, brief program description, FOG elements, and ranked by order of relevance to the City's FOG program and potential for funding.

Final Evaluation and Recommendations (Section 2.7)

This section provides a final evaluation and recommendations based on the information presented in the earlier sections.

2.1 EVALUATION OF FOG CONTROL PROGRAM

The City has been rapidly developing and implementing a FOG Control Program since April 2002 working in concert with the City's urban runoff program. The FOG Control Program has focused primarily on controlling FOG discharge from FSEs; however, many of the FSE requirements were general in nature (e.g., grease control devices shall be maintained in efficient operating condition by periodic removal of the accumulated grease). The City upgraded the FOG Control Program through a significant FOG ordinance modification in July 2009 and increased inspections and enforcement of FSEs. The City has also recently reached agreement with the other PSA agencies for the City's FOG Control Program to expand and include the entire PSA. The FOG Control Program requires, among other things, that FSEs install grease interceptors and grease traps and maintain (i.e., clean) them on a frequency sufficient to not exceed 25 percent of device capacity (as measured in the last chamber). In addition to the City's FOG Control Program, EEC evaluated the FOG Control Programs from other cities and sewer districts in the United States and compared them to determine if upgrades should be made to the City's FOG Control Program to enhance FOG source control, provide a means of measuring performance, and maximize available FOG waste to benefit a FOG Waste to Biogas/Energy Program.

EEC reviewed the most recent draft of the City's FOG Ordinance, attended a November 6, 2008 FOG Input Workshop for the local FSEs, interviewed Mr. Josef Denk, a Senior Environmental Inspector for the City of San Jose's FOG Program - Environmental Services Department, and analyzed the City's plan check process and FOG Control Program database. EEC did not review the FOG Control Programs of the other PSA agencies because the City's FOG Control Program has been expanded to include the other PSA agencies. Additionally, EEC was informed that the other PSA agencies adopted FOG regulations similar to the City's regulations by January 2010. EEC evaluated seven FOG Control Programs in California and one in Kansas, focusing on programs that are well established and were open to providing EEC with the necessary information. The programs evaluated include the following:

- City of San Jose (San Jose) – San Jose, California
- Irvine Ranch Water District (IRWD) – Irvine Area, California
- East Bay Municipal Utility District (EBMUD) – Oakland Area, California
- Orange County Sanitation District (OCSD) – Tustin Area, California
- City of Palo Alto (Palo Alto) – Palo Alto, California
- City of Riverside (Riverside) – Riverside, California
- Johnson County (Johnson County) – Johnson County, Kansas
- City of El Segundo (El Segundo) - El Segundo, California

2.1.1 Plan Check Evaluation

All eight cities and wastewater agencies have a plan check process in place to evaluate which new or remodeled FSEs may require a GCD (i.e., grease interceptor[1] or grease trap[2]), what size the GCD should be, and what drains should be connected to the GCD. Comparisons of the plan check processes are provided in Table 2.1-1.

[1] Referred to as a gravity grease interceptor (GGI) in the 2006 and 2009 Uniform Plumbing Code (UPC)
[2] Referred to as a hydromechanical grease interceptor (HGI) in the 2006 and 2009 UPC

Table 2.1-1 Plan Check Information								
Element/ Agency	**San Jose**	**IRWD**	**EBMUD**	**OCSD**	**Palo Alto**	**Riverside**	**Johnson County**	**El Segundo**
Plan Check Required	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs	• For all new or remodeling FSEs
Key Review Items	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections	• GCD Sizing • GCD Design • GCD Fixture Connections
Plan Check Approvals	• Requires City Approval • Requires FOG Program Approval	• Requires District Approval • Requires FOG Program Approval	• Requires District Approval	• Requires District Approval	• Requires City Approval • Requires FOG Program Approval	• Requires City Approval • Requires FOG Program Approval	• Requires County Approval • Requires FOG Program Approval	• Requires City Approval • Requires FOG Program Approval
GCD Sizing	2003 UPC Modified	2007 CPC	2007 CPC	2007 CPC	2007 CPC	2007 CPC	2006 UPC	2007 CPC
Plan Check Fee	Varies (dependent on project scope)	None	Varies (dependent on project scope)	Varies (dependent on project scope)	Unable to determine	$110.00	$288.75	$55.00

GCD = Grease control device
UPC = Uniform Plumbing Code
CPC = California Plumbing Code

San Jose, IRWD, Riverside, Palo Alto, and Johnson County all have a plan check process that includes:

- Submittal of plans to the agency's FOG Control Program Manager and to the City's (or tributary City's) Building and Safety Department. In San Jose, the plans are first submitted to the County Health Department and then they are reviewed by the San Jose plan check engineering group.
- The FOG Control Program Manager (or engineering group) reviews and verifies if an adequately sized GCD will be required per the current Uniform Plumbing Code (UPC) or California Plumbing Code (CPC). The City of San Jose currently utilizes a modified version of the 2003 UPC.
- The FOG Control Program Manager (or engineering group) approves the plans and submits an approval letter to the City's (or tributary City's) Building and Safety Department or Plumbing Department.
- The City's (or tributary City's) inspector reviews and approves the construction of the GCD at the FSE.

The EBMUD and OCSD plan check process includes:

- Submittal of plans to the tributary City Building and Safety Department.
- Plan check fees that vary depending on the overall cost of the construction project for new or upgrading FSEs.
- FOG-trained personnel at the Building and Safety Department that review and verify if an adequately sized GCD will be required per the current UPC or CPC. All cities within the EBMUD and OCSD service area utilize the current CPC.
- The plans are approved and a tributary City inspector reviews and approves the construction of the GCD at the FSE.

The City of San Jose uses a facility's standard industrial classification (SIC) to determine if the FSE should be added to the FOG Control Program. A plan check questionnaire is used in conjunction with submitted plans to determine the appropriate size of the GCD and what fixtures need to be connected. Not all FSEs are required to install a GCD. When an FSE has insufficient space for installation of a grease interceptor and has known sources of FOG in the kitchen wastewater, the plan checker will evaluate all drains and help to identify a suitable location for a grease trap(s). This is a logical and effective approach for working with FSE owners and still maintaining compliance with the intent of the FOG Control Program to require GCDs at FOG-discharging FSEs. Based on a comparison of the plan check processes and sizing criteria at the eight programs, in EEC's opinion, the City has an adequate plan check process and sizing criteria to ensure that all new and remodeled FSEs are properly evaluated and the GCD is sized adequately to handle the sources of FOG with the City's sizing criteria.

Many cities/agencies require property owners to be responsible for the installation and maintenance of grease interceptors when two or more FSEs are sharing a grease interceptor on the property. The benefit of this policy is that it provides a much higher likelihood that the grease interceptor will be properly installed and maintained. EEC interviewed the FOG Control Program Managers for OCSD, IRWD and the City of Santa Ana to provide a better understanding of shared grease interceptor programs. Each of these cities and districts expressed

that requiring the property owner to be responsible for a shared interceptor on their property has been extremely successful without any significant issues. In each case, the FSE is issued a FOG control permit which includes FOG best management practice (BMP) requirements and prohibitions, but the property owner is responsible for the proper installation and maintenance of the grease interceptor.

The IRWD FOG Control Rules and Regulations include the following requirement for property owners:

"Grease Interceptor Serving Multiple FSEs on a Single Parcel: Property owner(s) of commercial properties or their official designee(s) shall be responsible for the installation and maintenance of the grease interceptor serving multiple FSEs that are located on a single parcel."

Similar requirements are included in the FOG Control Program resolutions and ordinances for OCSD and the City of Santa Ana. San Jose identifies property owners/managers who have assumed responsibility for shared grease interceptor maintenance, but the requirements are not specified in the City's ordinance.

2.1.2 FSE Inspection Information

FSE inspections are a major element of a responsible FOG Control Program. There are several types of FOG inspections that are typically performed. The inspections are listed below:

1) Permitting/initial inspections
   a. Initial inspection used to inform and educate the FSE owner/manager on the FOG control program requirements.
   b. Review important FOG educational documents.
   c. Inventory the kitchen fixtures and GCD(s).
2) Kitchen Best Management Practice (BMP) inspections
   a. Performed at FSEs with or without a GCD(s).
   b. Performed to inspect the FOG BMPs in the kitchen.
3) GCD inspections
   a. Performed to evaluate the operation and maintenance of the GCD.
4) BMP/GCD inspections
   a. Combination of both the BMP and GCD inspection.
5) Follow-up inspections
   a. Performed to verify if an FSE has corrected a previous non-compliance or violation.

Grease interceptor "dip-stick" measurement of interceptor contents

EEC interviewed the FOG Control Program Managers at the same eight cities and districts to evaluate their inspection information. Table 2.1-2 summarizes that information and the main topics listed below:

- Total FSEs in the FOG Control Program
- Total FSEs with GCDs
- FSE inspection frequency
- Inspection types
- GCD mandatory minimum pumping frequency
- Inspection staff and inspection frequency
- Permits required for FSEs
- Permit fees
- FOG Control Program data management

Table 2.1-2 FOG Control Program Inspection Data								
Element	**San Jose & Tributary Area**	**IRWD**	**EBMUD**	**OCSD**	**Palo Alto**	**Riverside**	**Johnson County**	**El Segundo**
Total FSEs in FOG Program	• 5280	• 732	• 3000	• 230	• 380	• 930	• 1500	• 133
Total FSEs with GCD(s)	• 2285	• 307	• 500	• 50	• 263	• 558	• 820	• Unknown
FSE Inspection Frequency	• Every 1 - 3 years based on violations • Additionally, if upstream of a hot spot or part of a grease investigation	• Every 2 years • More frequent if upstream of a hot spot or if non-compliance occurs	• Every 5 years • More frequent if non-compliance occurs	• Annually • More frequent if non-compliance occurs	• Every 3 Years • More frequent if non-compliance occurs	• Annually • More frequent if non-compliance occurs	• Every 5 years • More frequent if non-compliance occurs	• Inspect all FSEs with >150 seats once per year
Inspection Types	• Permit type • Initial BMP • Initial BMP/GCD • Follow-up • Storm water/BMP	• Permitting • BMP • BMP/GCD • GCD • Follow-up	• BMP • GCD • Follow-up	• Permitting • BMP • GCD • Follow-up	• BMP • GCD • Follow-up • Storm water	• BMP • GCD • Follow-up	• GCD • Follow-up	• General • Storm water
GCD Mandatory Minimum Pumping Frequency	• Monthly for grease traps • Quarterly for grease interceptors	• Monthly for grease traps • Quarterly for grease interceptors	• Monthly for grease traps • Quarterly for grease interceptors	• No mandatory frequency for grease traps • Quarterly for grease interceptors	• Monthly for grease traps • Quarterly for grease interceptors	• Quarterly for grease interceptors	• Monthly for grease traps • Quarterly for grease interceptors	• No mandatory pumping frequency for grease interceptors or grease traps
Verification of Proper GCD Maintenance	• Verify pumping records • Routine inspections of GCDs	• Routine inspections of GCDs	• Routine inspections of GCDs	• Routine inspections of GCDs	• Routine inspections of GCDs	• Routine inspections of GCDs	• Routine inspections of GCDs	• Unable to determine
Inspection Staff and Frequency	• 11 inspectors • 1 inspector/480 FSEs • Approximately 3 inspections/ day/inspector • Typically comprehensive inspections / enforcement	• 1 part time contract inspector • 1 part time inspector/732 FSEs • 6 inspections/day/ inspector-part time • Typically comprehensive inspections / enforcement	• Unable to determine	• 1 part time contract inspector • 1 part time inspector/230 FSEs • Approximately 10 inspections/day/ inspector • Typically GCD inspections	• 1 inspector • 1inspector/380 FSEs • 3-4 inspections/ day/ inspector • Typically comprehensive inspections / enforcement	• Unable to confirm	• 1 inspector • 1inspector/1500 FSEs • Approximately 5 inspections/day/ inspector • Typically comprehensive inspections / enforcement	• 1 part time inspector • 1 part time inspector/133 FSEs • 1 inspection/day/ inspector (2 hours per day) • Typically comprehensive inspections
Permit Required	• No	• Yes	• Yes	• Yes	• No	• No	• Yes	• Pending
Permit Fee	• No	• No	• No	• $200/2 years	• No	• No	• $300/year	• Pending
FOG Data Management	• Commercial database	• In-house database	• Unable to determine	• In-house database	• In-house spreadsheet	• Unable to determine	• In-house spreadsheet	• In house spreadsheet

EEC reviewed the data from these eight cities and districts and has summarized the findings below.

Due to the large size of the City's service area, the City has the largest number of FSEs within their FOG Control Program and FSEs with GCDs compared to the other cities and districts.

The percentage of FSEs with GCDs ranged widely from 17 percent at EBMUD to 69 percent at Palo Alto. Forty three percent of the San Jose PSA area FSEs have GCDs installed. Many FSEs have very limited food preparation or are insignificant FOG dischargers (e.g., coffee shops, mini-marts, etc.) where GCDs are unnecessary. However, based on EEC's experience with other FOG control programs, greater than 50 percent of FSEs are FOG-discharging FSEs; therefore, there may be some existing PSA area FOG-discharging FSEs without GCDs. This does not necessarily mean that these existing FOG-discharging FSEs should be required to install GCDs because other cities/agencies with similar or lower ratios than San Jose (e.g., IRWD and OCSD) have very low FOG-related SSO rates (<1 FOG–related SSO/100 miles of sewer). Based on EEC's familiarity with IRWD's and OCSD's FOG Control Programs, EEC believes this is an indication that existing FOG-discharging FSEs can be managed through kitchen BMP programs, diligent sewer line cleaning programs, and FOG characterization activities that identify evidence of FOG discharge from FSEs (e.g., requiring GCD retrofits only when there is evidence of excessive FOG discharge).

All eight cities and districts have established FSE inspection frequencies for all their FSEs and perform follow-up inspections to verify that violations were corrected. El Segundo limits their FSE inspections to only those with seating capacity of 150 seats or greater.

San Jose, IRWD, and OCSD all perform permitting or permit-type inspections with a heavy emphasis on education. This may include handing out additional educational documents and explaining how to fill out GCD logs, BMP training logs, and the required pumping frequency for the GCD(s).

San Jose, Palo Alto, and El Segundo include urban runoff (storm water) inspections along with the BMP and GCD inspections. Performing these inspections requires additional time.

Seven of the eight cities and districts, including San Jose, conduct follow-up inspections. These inspections are required to verify if compliance has been achieved after non-compliance is identified from a previous inspection. San Jose indicated that multiple follow-up inspections are often required for certain facilities to verify compliance. Therefore, more time is required for the San Jose inspectors to complete the follow-up inspection process.

Seven of the eight cities and districts, including San Jose, have mandatory minimum quarterly pumping frequencies for grease interceptors. Five of the eight, including San Jose, have mandatory minimum monthly pumping frequencies for grease traps.

All eight cities and districts report to have adequate staff to perform the FSE inspections. EEC was not able to determine the number of inspectors or inspection frequency at EBMUD.

Four of the eight cites and districts issue permits to the FSEs that are in their FOG Control Program. Each permit has terms and conditions that the FSE must comply with to keep the permit active. The terms and conditions could include kitchen BMPs, GCD maintenance or urban runoff conditions. San Jose does not issue permits to FSEs. Therefore, the San Jose inspectors must reference the ordinance for the FSE requirements when conducting inspections.

The number of inspectors per FSE varied significantly. El Segundo uses a part time inspector to cover 133 FSEs while IRWD uses a part time contract inspector to cover 732 FSEs. Palo Alto uses one full time inspector to cover 380 FSEs while Johnson County uses one full time inspector to cover 1,500 FSEs. The City of San Jose covers 480 FSEs with each full time inspector. These wide variations are due mostly to the number of times each FSE is inspected per year which varied from annually to once every 5 years. Additionally, each FOG Source Control Program uses a different approach to prioritizing which FSEs should be inspected more often due to risk of FOG discharge.

The number of inspections performed per day per inspector varied widely from three to ten inspections per day per full time inspector. However, inspections vary in complexity depending upon the FOG Source Control requirements and whether additional duties are being performed by the inspector (e.g., storm water inspections). Because most of OCSD's inspections focus primarily on GCD maintenance, their part time contract FOG inspector can perform ten physical grease interceptor/grease trap inspections per day. Conversely, San Jose and Palo Alto focus on all the elements of the FOG Source Control Program and their Storm Water Program during inspections, which results in conducting three to four inspections per day per inspector.

Inspection Violation Data

EEC requested additional FOG Control Program data from each of the eight cities and districts relating to compliance and enforcement activities; however, only San Jose, IRWD, OCSD, and Johnson County were able to respond to the request. Table 2.1-3 summarizes that information and the topics listed below:

- Total FSEs in the FOG Control Program
- Total FSE inspection performed in 2008
- Total FSE violation notices in 2008
- The three most common violations that caused the FSE to be in non-compliance
- Total percentage of FSEs that became compliant after one follow-up inspection
- Total percentage of FSEs that became compliant after multiple follow-up inspections

Table 2.1-3 2008 Inspection Violation Data				
	San Jose[1]	**IRWD**	**OCSD**	**Johnson County**
FSEs In Program	• 5280	• 732	• 230	• 1500
Total Facilities Inspected	• 2750	• 375	• 157	• 200
Total Violations	• 2285[2]	• 188	• 126	• 41
3 Most Common Violations	• Incomplete pumping records • Pumping frequency issues • Floor drains without screens	• Incomplete pumping logs • GCD requires pumping • Incomplete BMP logs	• Incomplete yellow grease logs • Incomplete BMP training • Incomplete pumping records	• GCD requires pumping • GCD structural issues • GCD connection issues
FSEs in Compliance After Follow-up Inspections	• 56%-required one follow-up inspection • 34%-required two or more follow-up inspections	• 36% required one follow-up inspection • 64% required two or more follow-up inspections	• 81%- required one follow-up inspection • 19%- required two or more follow-up inspections	• Not Provided

1 = Fiscal year 2008/2009
2 = Some facilities received multiple violations

FOG Source Control Program Performance Measures

Based on EEC's experience with multiple FOG Characterization Studies, the most direct performance measure of a FOG Source Control Program is how much FOG is being discharged from individual FOG sources based on closed circuit television (CCTV) evidence (see figure 2.1-1). CCTV evidence proves if source control measures such as grease interceptor maintenance and/or kitchen BMP requirements are truly preventing FOG accumulation that can lead to blockages and SSOs. However, this was not included in the scope of this assessment. Therefore, indirect performance measures must be evaluated.

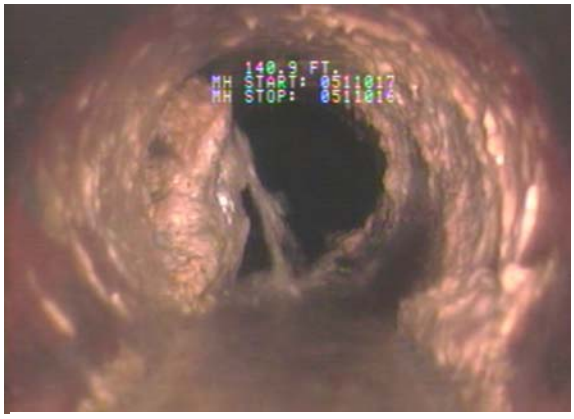


Figure 2.1-1 CCTV image of excessive FOG accumulation from a FSE lateral

This is similar to performance measures of an Industrial Pretreatment Program (IPP). The most direct performance measure of an IPP is comparing the laboratory analyses results of industrial discharge samples to the discharger permit limits to determine if the pretreatment system(s) is performing as required or if pretreatment is not necessary. All other performance measures (e.g., number of inspections, number of violations, etc.) provide valuable information concerning the IPP, but these are indirect measures of performance.

The number of FOG inspections conducted is an indirect performance indicator of the level of effort in providing FOG Control Program awareness and education to the area FSEs. Based on the data provided, San Jose's inspection frequency is similar to other successful FOG Control Programs, generally completing inspections of all FSEs every two years. Once FSE non-

compliance is identified, the number of follow-up inspections required to bring the FSE back into compliance is a measure of the effectiveness of enforcement actions. Based on the data provided, San Jose enforcement actions appear to be effective with 56% of the FSEs obtaining compliance after one follow-up inspection and 34% obtaining compliance after the second follow-up inspection. While the remaining non-complaint facilities are ultimately brought into compliance, substantial resources are often allocated to these FSEs for continued follow-up inspections and education/outreach efforts.

Another way to measure the effectiveness of a FOG Control Program is to measure the percentage of non-compliance from year to year. If this percentage decreases, this indicates that the FSE owners are more aware of the FOG Control Program and understand what is required. If this percentage increases, this could indicate that FSEs are not well educated on the FOG Control Program and may need to be reeducated. This may also indicate that more frequent inspections need to be performed to keep FSEs aware of the FOG Control Program requirements or fines may need to be issued.

The FOG Control Program Manager at San Jose informed EEC that when their FSEs have recurring non-compliance issues, the FSE is inspected more frequently. These inspections are performed to help educate the FSE owner about the FOG Control Program, discuss key issues that are causing non-compliance, and hand-out more FOG outreach materials. In EEC's opinion, this is an effective way to educate FSE owners that have non-compliance issues.

The City inspects FSE BMPs and GCDs and also verifies with multiple follow-up inspections whether an FSE has corrected a non-compliance issue. Josef Denk stated that the City works closely with the Sewer Maintenance Departments of the Tributary Cities to inspect certain FSEs more frequently in areas requiring more frequent line cleaning (i.e., hot spots). They also will perform multiple inspections of FSEs upstream of a new hot spot to understand the source of the FOG to prevent a future SSO. The City also double checks the total number of FSEs in their current FOG Control Program with the Santa Clara County Health Department business list to verify if there are new FSEs that are not in their current FSE FOG Program list. Additionally the FOG Control Program updates their FSE inventory through yearly reviews of new business licenses issued.

Data Management

All eight cities and districts have some type of data management system for their FOG Control Program. San Jose, OCSD and IRWD have databases that they use to manage the inspections performed, FSE compliance status, and FSEs with GCDs. The databases can be queried to obtain key information for managing the FOG Control Program. The other cities and districts use a spreadsheet to manage the information for their FOG Control Program.

San Jose has a thorough database where all inspections (FSE, Industrial Users (IU), and Significant Industrial Users (SIU)), plan check data, warning notices, and violation are stored. This database allows for easy access of inspection data for FSEs, determines the quantity of FSEs in violation, allows for review of the plan check information for a specific FSE, and provides a list of the Areas of Concern (AOC) and violations that a FSE may have been issued during a certain period of time. All data can be queried to obtain key wastewater information for

the FOG Control Program. Inspectors use a hand-held device in the field allowing the inspector to enter the inspection information directly into the hand-held device as the inspection is taking place and removes the need for data entry personnel. Additionally, each inspector has a field printer that allows the inspector to print inspection reports and Official Warning Notices. This system can save on data entry time, and may reduce the errors that occur at other agencies when data is transferred from the inspection to the data entry personnel.

2.1.3 FOG Waste Generation

Based on a comparison of these FOG Control Programs, San Jose's upgraded FOG Control Program is one of the more comprehensive programs in the State and should contribute to maximizing the FOG waste available for a FOG Waste to Biogas/Energy Program. The requirements that most significantly impact this are:

1) Minimum quarterly pumping of grease interceptors required
2) Minimum monthly pumping of grease traps required
3) Full pump-outs of grease interceptors required
4) Physical inspection of FSEs and verification of pumping records
5) FSE inspection tracking using a database to prioritize FSE inspections

The current San Jose FOG Control Program does not include routine inspections of the grease and solids layers (i.e., coring inspections) in grease interceptors in order to determine if pumping should be performed more often than quarterly at some FSEs. Based on EEC's own experience inspecting approximately 3,500 grease interceptors, this may result in 10 percent to 15 percent of the grease interceptors being pumped more frequently than quarterly. In EEC's opinion, this would not result in a substantial increase in FOG waste available for a FOG Waste to Biogas/Energy Program.

Some FOG Source Control Program elements directly benefit a FOG Waste to Biogas/Energy Program. For example, requiring FSEs to pump-out their grease interceptors on a minimum quarterly basis would provide more potential FOG supply to a FOG Waste to Energy Program than if the grease interceptors were required to be pumped-out every six months. In this case, allowing an additional three months between pump-outs would allow some FOG to pass-through the grease interceptor, potentially impacting the sewer system, and resulting in less FOG to be pumped-out and available for collection. On the other hand, requiring FSEs to implement BMPs in the kitchen to prevent FOG from being discharged into drains (e.g., don't pour grease down the drain or scrape plates into the trash before washing) may help reduce sewer blockages, particularly at FSEs without a grease interceptor. Kitchen BMPs would also increase the volume of fryer grease (i.e., yellow grease) to be collected, recycled, and perhaps converted into biodiesel. However, kitchen BMPs would not result in more brown grease being available for a FOG Waste to Energy Program. The San Jose Environmental Services Department, through the implementation of their FOG Control Program, is the only San Jose area agency that truly affects the generation of FSE FOG waste due to their grease interceptor and grease trap installation and requirements. Therefore, activities of agencies such as the City's Department of Transportation and the Santa Clara County Department of Environmental Health were not evaluated.

Note: The San Francisco Public Utilities Commission (SFPUC) FOG Source Control Program was not chosen for comparison to the other eight Programs because SFPUC is just starting to develop a comprehensive FOG Source Control Program with a new ordinance, new GCD requirements, and frequent inspections. However, SFPUC is planning to implement a unique GCD requirement and incentive that may reduce their FOG blockages and increase the collection of FOG waste to benefit their FOG Waste to Energy Program. SFPUC will require grease removal devices (GRDs[3]) for many of their existing FSEs. SFPUC will fund the cost of the GRDs and will be reimbursed through the FSE sewer fees. SFPUC plans to recover the FOG waste collected by the GRDs and convert it into biodiesel. This will result in the collection of a significant volume of FOG waste that would have otherwise ended up in the trash. This is an ambitious plan that should be monitored over the next 3-5 years to see how it is received by the FSEs and to determine if the benefits outweigh the costs.

2.1.4 SSMP Compliance

One of the State's General WDRs is the development and implementation of a Sewer System Management Plan (SSMP). According to Section D.13.(vii) concerning SSMP elements: "If FOG is found to be a problem, the Enrollee must prepare and implement a FOG Control Program to reduce the amount of these substances discharged to the sanitary sewer system." Based on the City's population, the schedule for FOG Control Program compliance was November 1, 2008. According to Mr. Phil Lee, the City certified that the FOG Control Program was in compliance with the WDR in August 2006. Table 2.1-4 provides each of the FOG Control Program elements and EEC's evaluation of compliance with each element.

Table 2.1-4 SSMP FOG Control Program Requirements

Element	Compliance	Comments
A. Implementation Plan and Schedule for Public Education Outreach that Promotes Disposal of FOG	Yes	• Compliance with FSE FOG education outreach based on FOG BMP guidance documents located on the website, and one-on-one education provided by inspectors. • Compliance with residential FOG education outreach based on FOG education at community events and a flyer sent out each year at Thanksgiving time. The City also places "grease hangers" on residential doors when the City finds high incidences of FOG in the sewer mains. At the regional level, the City coordinates through Bay Area Pollution Prevention Group (BAPPG) a Spanish radio FOG outreach campaign.
B. Plan and Schedule for the Disposal of FOG Generated Within the Sanitary Sewer System Area	Yes Enhancement in Progress	• The City is aware that the local haulers have adequate disposal locations for the FOG (yellow and brown grease) generated within the City of San Jose, but the brown grease disposal is expensive due to the distance to proper disposal locations. • The City is currently providing grease trap and interceptor cleaning service sheets to all FSEs that provides a list of the local haulers.

[3] Grease removal devices (GRDs) are grease traps (or hydromechanical grease interceptors) with automatic grease removal features such as mechanical skimmers that collect FOG waste in a liquid form similar to yellow grease.

Table 2.1-4 SSMP FOG Control Program Requirements		
Element	**Compliance**	**Comments**
		• The City is evaluating the development of a FOG waste receiving station at the water pollution control plant (WPCP) for a more cost effective disposal method of FOG waste generated in the Tributary area.
C-1. Legal Authority to Prohibit Discharges to the System	Yes	• San Jose Municipal Code Sections 15.14.565 and 15.14.570 address the prohibition of discharge of grease, oils, fats and solid and viscous materials capable of causing obstruction to the flow in the sanitary sewer system.
C-2. Identify Measures to Prevent SSOs and Blockages Caused by FOG	Yes	• The FOG source control program implementation prevents SSOs and blockages caused by FOG. • The sewer maintenance department increases maintenance of sewer sections prone to blockages.
D-1. Grease Removal Devices - Requirements to Install	Yes	• San Jose Municipal Code Section 15.14.630 addresses the requirement to install GCDs.
D-2. Grease Removal Devices - Design Standards	Yes	• San Jose Municipal Code Section 15.14.630 addresses the requirement to design GCDs as approved by the Director.
D-3. Grease Removal Devices - Maintenance Requirements	Yes	• San Jose Municipal Code Section 15.14.650B addresses the requirement to maintain GCDs in efficient operating condition by periodic removal of the accumulated grease. • San Jose Municipal Code Section 15.14.650B and D states that grease traps shall be cleaned monthly and grease interceptors shall be cleaned quarterly or more frequently to prevent odors, surcharging of the GCD, and reduction of FOG removal efficiency of the device. • The City has specific maintenance requirements handed out to each FSE.
D-4. BMP Requirements	Yes	• BMP requirements are posted on the City's website and handed out to all FSEs during inspections.
D-5. Record Keeping Requirements	Yes	• San Jose Municipal Code Section 15.14.650.E addresses the requirement for the discharger to develop and maintain a record of periodic maintenance and cleaning of the GCD, which records are to be retained for a period of not less than three years.
D-6. Reporting Requirements	N/A	• San Jose FOG/Urban Runoff Inspectors inspect and verify FSE records during their inspections in lieu of FSE reporting.
E-1. Authority to Inspect Grease Producing Facilities	Yes	• San Jose Municipal Code Section 15.14.690 addresses the right to access upon all properties for the purpose of inspecting any sewer connection, including all plumbing fixtures.
E-2. Authority to Enforce Grease Producing Facilities	Yes	• San Jose Municipal Code Sections 15.14.710 and 15.14.715 addresses the Director's authority to terminate service, revoke permits, and correct violations.
E-3. Sufficient Staff to Inspect and Enforce the FOG Ordinance	Yes	• The City has eleven FOG Inspectors that are responsible for inspecting FSEs and enforcing the FOG regulations.

Table 2.1-4 SSMP FOG Control Program Requirements		
Element	**Compliance**	**Comments**
F. An Identification of Sanitary Sewer System Sections Subject to FOG Blockages (i.e., Hot Spots) and Establishment of a Cleaning Maintenance Schedule for Each Section	Yes	• The sewer maintenance department increases maintenance of sewer sections prone to blockages (hot spots) and maintains a list of these sections.
G. Development and Implementation of Source Control Measures for All Sources of FOG Discharged to Hot Spots	Yes	• The FOG control program is aware of the hot spots and responds to requests for grease investigations.

Based on this evaluation, the City appears to be in compliance with the WDR/SSMP FOG control requirements. Being in compliance with the FOG control requirements of the WDR/SSMP significantly minimizes the potential for regulatory enforcement due to FOG-related SSOs. However, compliance with the WDR/SSMP does not necessarily protect the City from regulatory enforcement since any public SSO could be enforceable.

2.1.5 Recommendations

The City has developed and implemented a comprehensive FOG Control Program that is in compliance with the State SSMP requirements; however, recommendations are presented below for consideration to further enhance the success of this program.

1) San Jose should consider the following enhancements to the FOG Source Control Program:

   a. Implementation of the 2007 CPC concerning the installation and sizing of GCDs to be consistent with other established FOG Control Programs in the United States and to benefit from many of the improvements over the 2003 UPC or 2004 CPC. For example, the new 2007 CPC grease interceptor sizing formula was designed to avoid over sizing grease interceptors, which had become common due to the use of the 2003 UPC or 2004 CPC.

   b. Using CCTV evidence of FOG accumulation downstream of individual FSEs as a direct performance measure of the success of the FOG Source Control requirements, inspections, and enforcement.

   c. San Jose focuses significant resources on a comprehensive FOG BMP education program with over 9,000 BMP documents distributed to inspected FSEs as of August 2009; however, kitchen BMP enforcement focuses on practices such as the City's drain screen requirements. Other important BMPs (e.g., proper scraping of plates) could be enforceable. If there is proactive CCTV evidence of FOG accumulation problems downstream of existing FOG-discharging FSEs without GCDs in the future, it may be beneficial to further evaluate FOG Programs such as IRWD and OCSD with respect to the handling of existing FOG-discharging FSEs without GCDs, including utilization of

more extensive BMP enforcement programs, diligent sewer line cleaning programs, and FOG characterization activities that identify evidence of FOG discharge from FSEs (e.g., requiring GCD retrofits only when evidence of excessive FOG discharge is identified).

d. San Jose is routinely inspecting GCDs and verifying proper pumping records; however, if there are FOG accumulation problems downstream of FOG-discharging FSEs with GCDs in the future, San Jose should evaluate if more frequent on-going physical inspections of GCDs should be performed to ensure adequate maintenance is being conducted and structural/ plumbing issues are identified.

e. Upon review of other FOG Source Control Programs, San Jose appears to be inspecting FSEs at an appropriate frequency of once every 1-3 years and is adequately staffed to inspect the large number of FSEs in the FOG Source Control Program. However, the number of FSE inspections performed each day per inspector may be low compared to some other FOG Source Control Programs. It is difficult and potentially misleading to compare the number of FOG inspections performed each day with other agencies due to the differences in inspection scope and enforcement responsibilities. For example, San Jose includes storm water inspections and issues many FOG violations, but does not conduct as many coring inspections of GCDs as other programs. With these considerations in mind, other agencies with comprehensive FSE inspections and enforcement (e.g., IRWD, Johnson County) are performing 5-6 inspections per day per inspector. If the City finds a need to perform more FSE inspections in the future, the City should recognize future opportunities to increase the number of FOG/Urban Runoff inspections that can be performed each day per inspector as the FOG Source Control Program matures.

2) There are no recommendations for modifying or upgrading the City's FOG Source Control Program to benefit a FOG Waste to Biogas/Energy Program because the FOG Source Control Program requirements result in sufficient FOG waste generation.

2.2 ESTIMATION OF FOG WASTE VOLUME

FOG waste (i.e., brown grease) is generated through the food preparation and processing activities conducted by a variety of FSEs. The FOG waste is captured by grease interceptors and grease traps serving these FSEs and pumped-out on a frequent basis by local FOG waste haulers. Residences do not generate brown grease. Therefore, the focus of this FOG waste volume estimation is based on the FOG waste captured and collected from FSEs located near the San Jose/Santa Clara WPCP.

An earlier FOG Waste Volume estimation effort was conducted in 2001 by San Jose State University (Grease Study Report, Gregory L. Young, Ph.D., September 7, 2001). This study estimated the volume of FOG waste from FSEs within Santa Clara County based on review of ESD's Watershed Protection Source Control records. Based on the findings of this report, an estimated 8,500,000 gallons of FOG waste was being generated annually in Santa Clara County in 2001.

To further analyze the volume of FOG waste generated within the San Jose PSA, EEC conducted a review of the Industrial Discharger Database. The database contains more recent information relating to the quantity and size of grease interceptors and grease traps for those FSEs located within the PSA. Furthermore, based on information provided by John Mukhar with the City of San Jose, the quantity of grease interceptors currently within the PSA (as identified in the database) should be increased by 15 percent (based on recent field findings). The PSA FOG waste volume estimates, accounting for this increase, are summarized below in Table 2.2-1. Tables detailing these results and projections are provided in Appendix B.

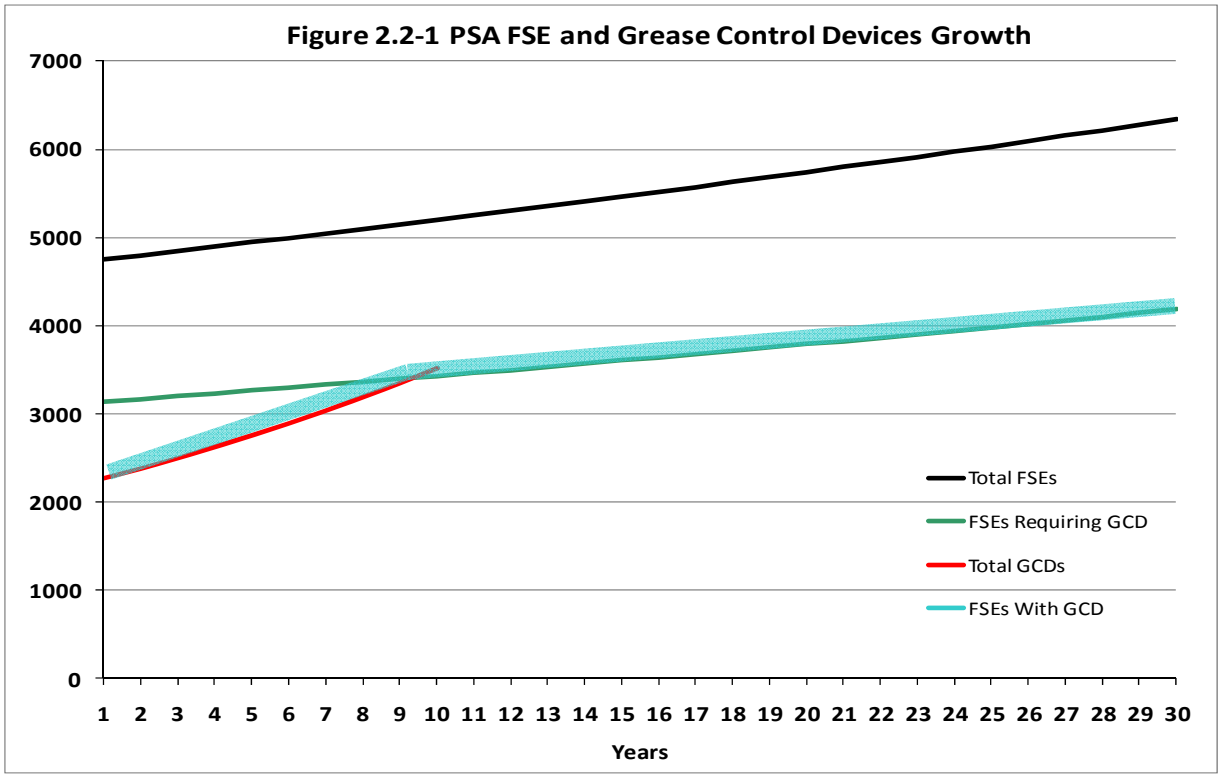
Table 2.2-1 PSA Annual FOG Waste Volume

Agency	Grease Interceptor (Gal/Year)		Grease Traps (Gal/Year)		Total FOG Waste Volume (Gal/Year)	
	Current	10 Year Projection	Current	10 Year Projection	Current	10 Year Projection
PSA	10,223,629	14,636,771	320,070	534,284	10,543,699	15,171,055

The assumptions utilized in projecting future FOG waste volumes within the PSA include:

- The average new grease interceptor is assumed to be 1,500 gallons and pumped quarterly;
- The average new grease trap is assumed to be 35 gallons and pumped monthly;
- An estimated 1 percent annual increase in the number of new FSEs based on projected population growth over the next 30 years for the San Jose/Sunnyvale/Santa Clara Metropolitan Area (reference: ABAG Projections 2007);
- An estimated annual 5 percent increase in number of grease interceptors/grease traps due to new FSEs and upgrades of currently existing FSEs driven by FOG Program requirements;
- An estimated 33 percent of new and existing FSEs within and outside of the PSA will not be required to install a grease interceptor/grease trap (limited food preparation facilities, shared interceptor sites, etc.).

Based on the assumptions above and the rapid development of the PSA FOG Control Program over the next 10 years, the volume of FOG waste will steadily increase over the first 10 years. It is projected that the rate of increase will taper-off beyond 10 years (Figure 2.2-1) due to the PSA FOG control program requiring upgrades of existing FSEs becoming more infrequent after 10 years. In other words, over the next 10 years, the PSA FOG Control Program will be ramping up and will require many existing FSEs without grease interceptors and grease traps (i.e., GCDs) to retrofit their facility and install GCDs. After 10 years, with only a few exceptions, only the new FSEs will be required to install GCDs. This trend in GCD installations is represented by the blue highlight in the graph below.



To identify appropriate cities outside of the PSA with the potential for becoming sources of FOG waste supply to a future San Jose FOG Waste to Biogas/Energy Program, an area map was developed and is included in Appendix F. Based on the 20 mile treatment plant radius depicted in this map, the following cities outside of the PSA were contacted to collect information regarding their FSEs and installation of GCDs.

Cities Outside the PSA Contacted

- Mountain View
- Livermore
- Hayward
- Dublin
- Pleasanton
- Union City
- East Palo Alto
- Redwood City
- Woodside
- Sunnyvale
- Los Altos
- San Martin
- Fremont
- San Leandro
- Atherton
- Foster City
- San Carlos
- Palo Alto
- Los Altos Hills
- Castro Valley
- Newark
- San Lorenzo
- Belmont
- Menlo Park
- San Mateo

Although they do not fall within the 20 mile treatment plant radius, the Cities of Gilroy and Morgan Hill were also included since they are located within Santa Clara County.

From the collected data, annual FOG waste generation totals for the contacted agencies were projected. Where the contacted agencies were not able to provide the requested data, the number and volume of grease interceptors and grease traps were estimated based on the following two scenarios:

1. Using PSA data:
   a. 25 percent of current FSEs have a 1500-gallon grease interceptor, pumped on a quarterly basis
   b. 17 percent of current FSEs have a 35-gallon grease trap, pumped on a monthly basis
2. Using an average of the agencies' data outside of the PSA (those providing data):
   a. 15 percent of current FSEs have a 1500-gallon grease interceptor, pumped on a quarterly basis
   b. 38 percent of current FSEs have a 25-gallon grease trap, pumped on a monthly basis

The following tables summarize the estimated current quantity of grease interceptors and grease traps as well as the estimated current FOG waste volume for the agencies outside the PSA based on Scenario 1 and Scenario 2 described above:

Table 2.2.2 Estimated Annual FOG Waste Volume for Cities Outside the PSA - Scenario 1						
Agency	**Total FSEs**	**Total FSEs with Grease Interceptors(GI)**	**Total FSEs with Grease Traps (GT)**	**Current Annual FOG Volume for GI**	**Current Annual FOG Volume for GT**	**Total Annual FOG Volume**
Sunnyvale	402	31	150	286,800	37,474	324,274
Mountain View	333	22	323	66,000	139,200	205,200
Palo Alto	287	74	166	724,840	137,794	862,634
Gilroy/ Morgan Hill	308	35	40	210,000	16,800	226,800
Livermore	340	81	49	243,000	20,580	263,580
Los Altos	82	20	14	122,372	5,938	128,310
Los Altos Hills	5	1	1	7,462	362	7,824
Hayward	602	150	104	898,393	43,591	941,984
San Martin	6	1	1	8,954	434	9,389
Castro Valley	148	37	26	220,867	10,717	231,584
Dublin	185	46	32	276,084	13,396	289,480
Fremont	658	164	113	981,964	47,646	1,029,611
Newark	248	62	43	370,102	17,958	388,060
Pleasanton	330	82	57	492,474	23,896	516,370
San Leandro	441	110	76	658,125	31,933	690,058
San Lorenzo	69	17	12	102,972	4,996	107,968
Union City	209	52	36	311,901	15,134	327,034
Atherton	15	4	3	22,385	1,086	23,471
Belmont	129	32	22	192,513	9,341	201,854
East Palo Alto	65	16	11	97,003	4,707	101,709
Foster City	102	25	18	152,219	7,386	159,605
Menlo Park	232	58	40	346,224	16,799	363,024
Redwood City	536	133	92	799,898	38,812	838,710
San Carlos	175	44	30	261,161	12,672	273,833
San Mateo	600	149	103	895,408	43,446	938,855
Woodside	21	5	4	31,339	1,521	32,860
Totals	**6,528**	**1,451**	**1,566**	**8,780,461**	**703,619**	**9,484,080**

Table 2.2-3 Estimated Annual FOG Waste Volume for Cities Outside the PSA - Scenario 2						
Agency	**Total FSEs**	**Total FSEs with GI**	**Total FSEs with GT**	**Current Annual FOG Volume for GI**	**Current Annual FOG Volume for GT**	**Total Annual FOG Volume**
Sunnyvale	402	31	150	286,800	37,474	324,274
Mountain View	333	22	323	66,000	139,200	205,200
Palo Alto	287	74	166	724,840	137,794	862,634
Gilroy/ Morgan Hill	308	35	40	210,000	12,000	222,000
Livermore	340	81	49	243,000	14,700	257,700
Los Altos	82	12	32	74,085	9,457	83,542
Los Altos Hills	5	1	2	4,517	577	5,094
Hayward	602	91	231	543,889	69,430	613,320
San Martin	6	1	2	5,421	692	6,113
Castro Valley	148	22	57	133,714	17,069	150,783
Dublin	185	28	71	167,142	21,337	188,479
Fremont	658	99	253	594,483	75,889	670,373
Newark	248	37	95	224,061	28,603	252,663
Pleasanton	330	50	127	298,145	38,060	336,205
San Leandro	441	66	170	398,430	50,862	449,292
San Lorenzo	69	10	27	62,339	7,958	70,297
Union City	209	31	80	188,825	24,105	212,930
Atherton	15	2	6	13,552	1,730	15,282
Belmont	129	19	50	116,548	14,878	131,426
East Palo Alto	65	10	25	58,726	7,497	66,222
Foster City	102	15	39	92,154	11,764	103,918
Menlo Park	232	35	89	209,605	26,757	236,362
Redwood City	536	81	206	484,260	61,818	546,079
San Carlos	175	26	67	158,107	20,183	178,291
San Mateo	600	90	231	542,082	69,200	611,282
Woodside	21	3	8	18,973	2,422	21,395
Totals	**6,528**	**975**	**2,596**	**5,919,698**	**901,456**	**6,821,153**

The assumptions used in projecting future FOG waste volumes for the agencies outside the PSA are the same as those used within the PSA and include:

- The average new grease interceptor is assumed to be 1,500 gallons and pumped quarterly;
- The average new grease trap is assumed to be 35-gallons and pumped monthly;
- An estimated 1 percent annual increase in the number of new FSEs based on projected population growth over the next 30 years for the San Jose/Sunnyvale/Santa Clara Metropolitan Area (reference: ABAG Projections 2007);
- An estimated annual 5 percent increase in number of grease interceptors/grease traps due to new FSEs and upgrades of currently exiting FSEs;

- An estimated 33 percent of new and existing FSEs within and outside of the PSA will not be required to install a grease interceptor/grease trap (limited food preparation facilities, shared interceptor sites, etc.).

Based on these assumptions, future FOG waste volumes were projected for the agencies outside the PSA using Scenario 1 and 2 as described above. Tables 2.2-4 and 2.2-5 summarize the current and projected FOG waste volumes generated within a 20 mile radius of the treatment plant:

Table 2.2-4 Annual FOG Waste Volume - Scenario 1

Agency	Grease Interceptor (Gal/Year)		Grease Traps (Gal/Year)		Total FOG Volume (Gal/Year)	
	Current	10 Year Projection	Current	10 Year Projection	Current	10 Year Projection
PSA	10,223,629	14,636,771	320,070	534,284	10,543,699	15,171,055
Outside Cities	8,780,461	14,147,977	703,619	1,124,408	9,484,080	15,272,386
Total	19,004,090	28,784,748	1,023,689	1,658,692	20,027,779	30,443,441

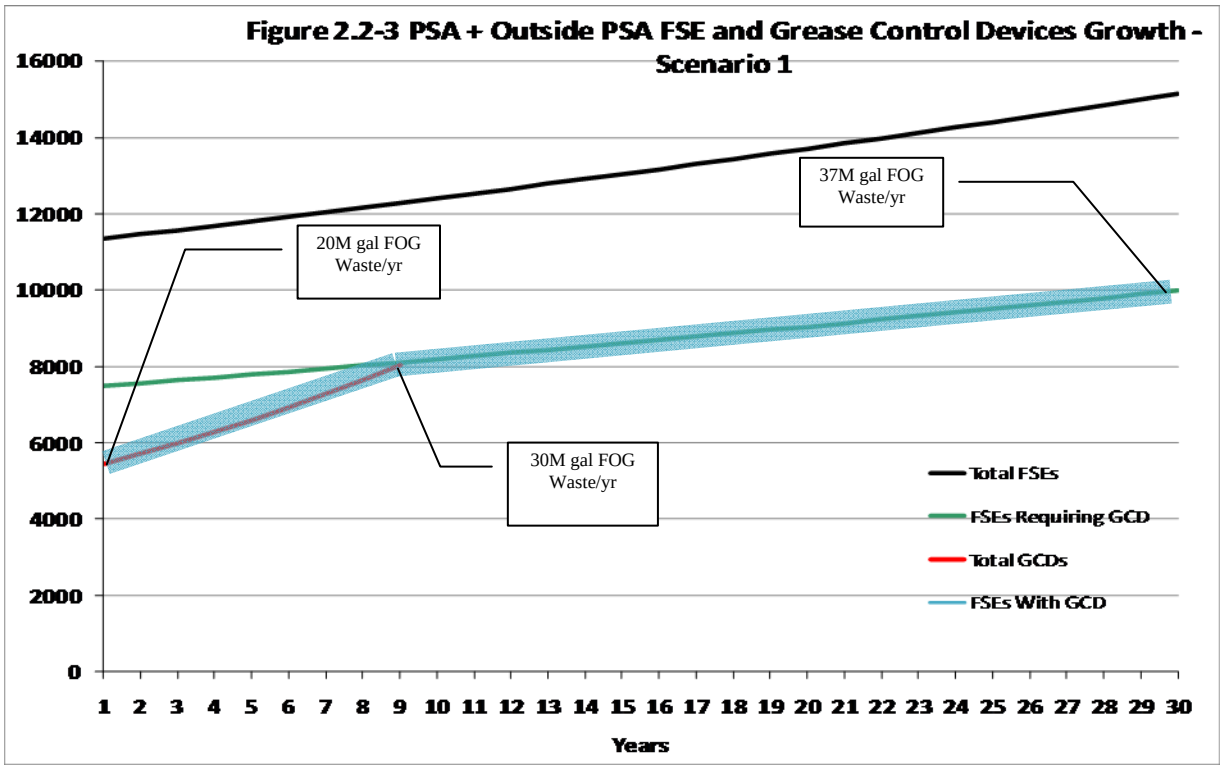
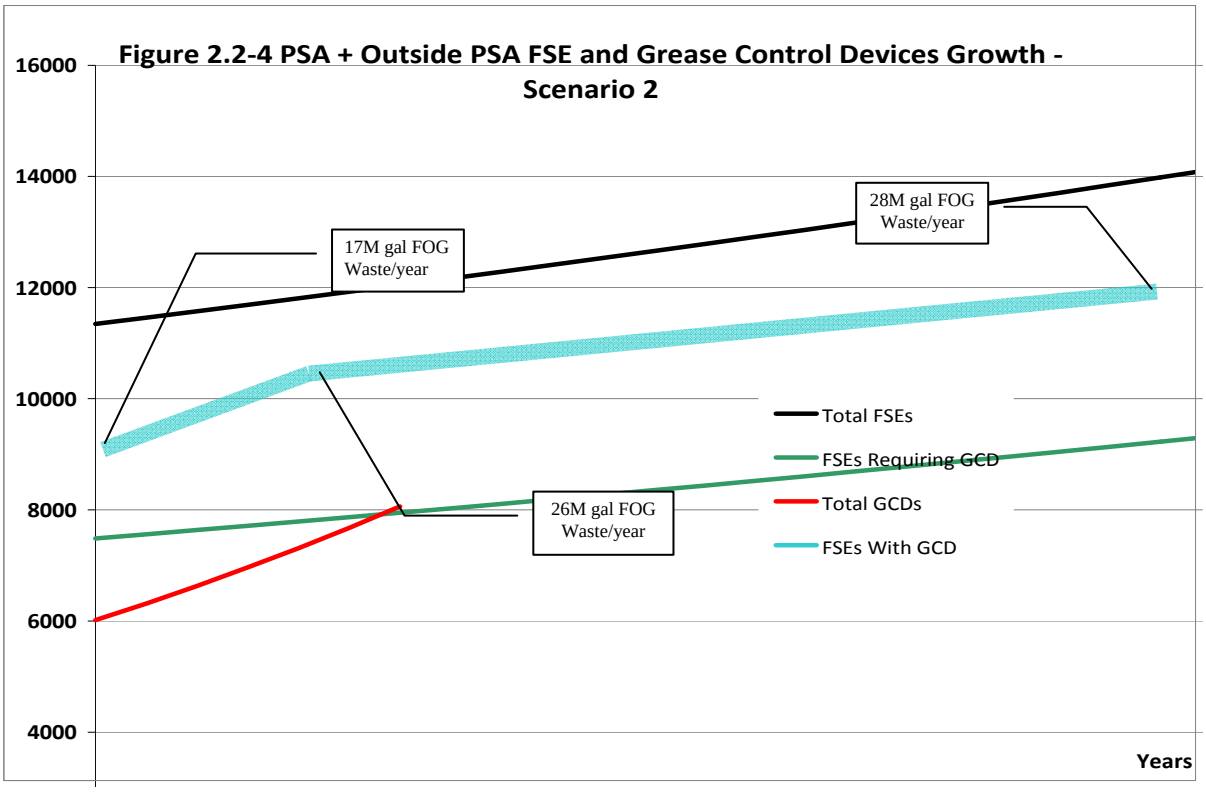


Table 2.2-5 Annual FOG Waste Volume - Scenario 2						
Agency	Grease Interceptor (Gal/Year)		Grease Traps (Gal/Year)		Total FOG Volume (Gal/Year)	
	Current	10 Year Projection	Current	10 Year Projection	Current	10 Year Projection
PSA	10,223,629	14,636,771	320,070	534,284	10,543,699	15,171,055
Outside Cities	5,919,698	9,456,326	901,455	1,448,859	6,821,153	10,905,185
Total	16,143,327	24,093,097	1,221,525	1,983,143	17,364,852	26,076,240



EEC assumes that the other cities will have similar percentages of grease interceptors and grease traps as the PSA Scenario 1. Therefore, the current and projected FOG waste volumes from Figure 2.2-3 PSA will be used plus outside PSA FSE grease control device Scenario 1.

In summary, it is estimated that as much as 20,000,000 gallons per year (55,000 gallons per day) of FOG waste is currently generated within a 20-mile radius of the PSA on an annual basis. The volume of FOG waste is projected to increase over the next 10 years to as high as 30,000,000 gallons per year (82,000 gallons per day), which is primarily attributable to FSE kitchen upgrades and new FSE businesses. With declining GCD installation rates beyond 10 years, potential FOG waste volumes after 30 years are projected to increase to as high as 37,000,000 gallons per year (101,000 gallons per day).

2.3 EVALUATION OF FOG WASTE DISPOSAL PRACTICES

Currently there are no local options for waste haulers to dispose of the FOG waste generated in and immediately outside of the San Jose PSA. Therefore, the vast majority of the San Jose PSA generated FOG waste is disposed of outside of the PSA at private dewatering facilities and public disposal locations, such as EBMUD, South Bayside System Authority, and the City of Watsonville, where the FOG waste is used to supplement FOG Waste to Energy programs. Palo Alto also receives FOG waste from the San Jose PSA, which is used as a supplemental fuel supply for their incinerators.

Local FOG waste haulers were interviewed with respect to their hauling practices. Table 2.3-1 summarizes the findings from these interviews, including preferred and alternate disposal sites, and the volume of FOG waste transported.

Eight out of nine waste haulers transport the FOG waste to EBMUD, as either their primary or secondary disposal location. The disposal sites identified by the FOG waste haulers as receiving FOG waste from the San Jose PSA and outside the PSA are shown in Table 2.3-2. A map showing the location of these sites is provided as Figure 2.3-1.

Table 2.3-1 San Jose PSA FOG Waste Hauler Information[1]					
FOG Waste Hauler	**Disposal Location (Primary /Secondary)**	**Common Truck Sizes (Gallons)**	**Tracking Documents**	**Dewater FOG Waste**	**Volume of PSA Area FOG Waste (Gallons/Month)**
A-1 Septic Tank Services	EBMUD/Palo Alto	3,000 – 3,300	Manifests	No	15,000
Able Septic	EBMUD/Palo Alto/SBSA	4,000	Receipts & Site Logs	No	25,583
Ameriguard Maintenance Services	Bakersfield/Watsonville	2,500-9,000	Manifests	No	50,530
Burr Plumbing and Pumping	EBMUD/Palo Alto/SBSA	N/A[2]	Manifests	No	5,000–35,000
Pioneer Liquid Transport	EBMUD	4,000	Manifests	No	N/A
R&D Grease Trap Cleaning	EBMUD/SBSA	500	Unknown	No	<1000
Trap Recyclers	EBMUD/Watsonville	5,000-5,500	Manifests	Yes	40,000-60,000
Liquid Environmental Solutions	Millbrae/EBMUD	3,500	Online or Manifests	No	82,182
Darling International	Darling International/ EBMUD	400-6,000	Inspection Reports/ Manifests	Yes	288,000-384,000

Notes:

1) Information related to Aaron's Septic Tank Services was not available. All Valley Environmental and Rotor Rooter were out of business or no longer providing FOG waste pumping services
2) N/A = Information Not Available
3) Additional hauler contact information is provided in Appendix I

Table 2.3-2 Current FOG Waste Disposal Sites						
	EBMUD	**City of Watsonville**	**City of Millbrae**	**SBSA**	**Darling International**	**City of Palo Alto**
Treatment Plant Size (MGD)	168	7	3	28	Not Applicable[1]	39
Distance From San Jose/Santa Clara WPCP (miles)	37	63	32	24	50	13
FOG Waste Processing	Digester/ Co-generation	Digester/ Co-generation	Digester/ Co-generation	Digester/ Co-generation	Dewater and Landfill	Used as a Fuel Supply for Incinerators
Current FOG Waste Volume (GPD)	20,000-30,000	8,000	4,000	10,000	18,500	4,100
FOG Waste Volume Capacity (GPD)	120,000	20,000	4,000	20,000	20,000	6,000
Tipping Fee ($/gallon)	0.11	0.10[2]	Not Available	0.14	Not Available	0.10[3]

Notes:

1) Darling International's facility provides dewatering prior to landfill disposal of solids.
2) The City of Watsonville charges $0.05/gallon plus an additional service fee per load. The $0.10/gallon is an estimate including the service fee.
3) The City of Palo Alto charges an additional $0.10/gal for loads <1000 gallons.

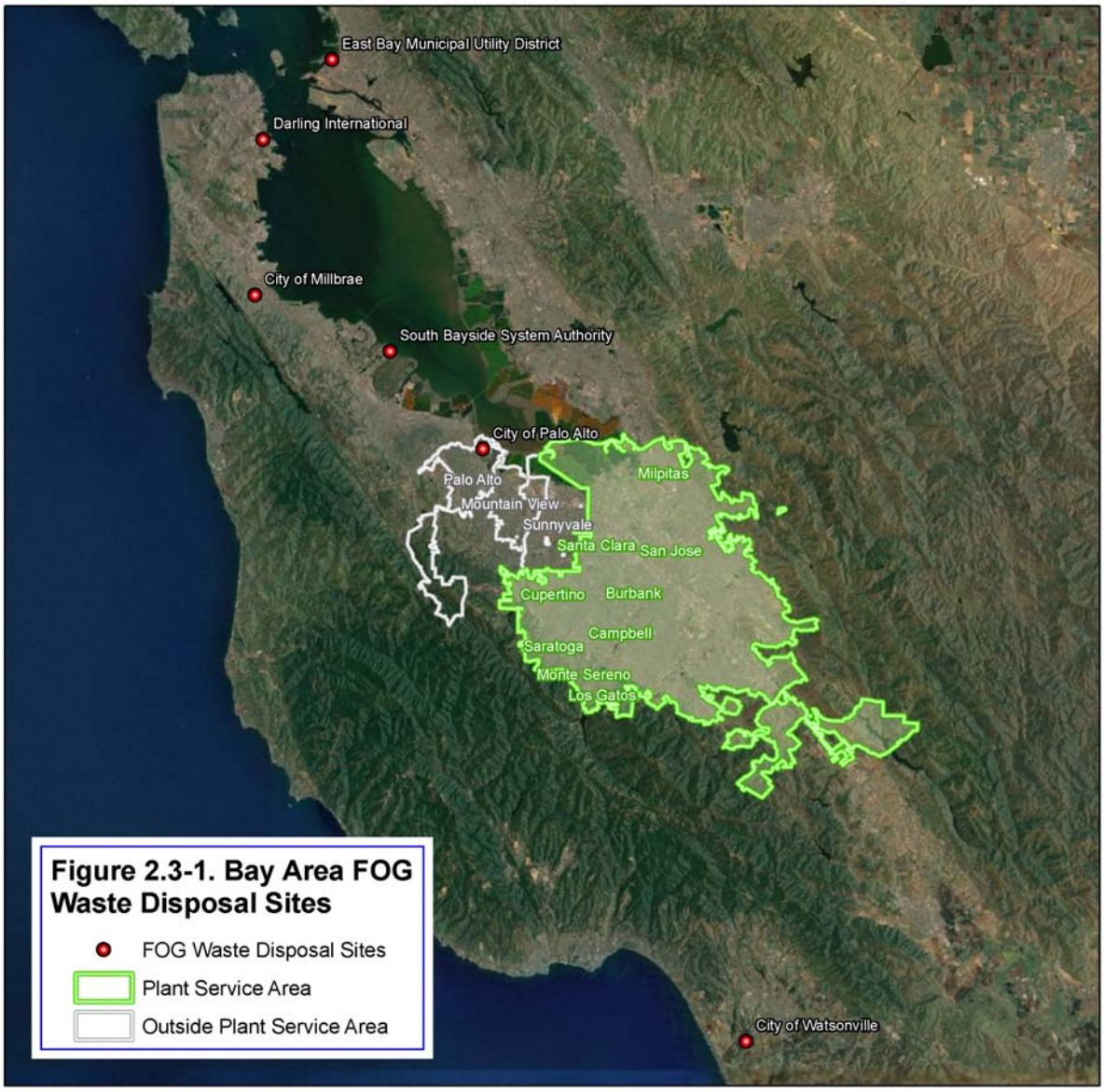


Figure 2.3-1. Bay Area FOG Waste Disposal Sites

The common truck size used to transfer FOG waste is approximately 4,000 gallons and most of the haulers are using some type of manifest or log process to track FOG waste hauling activities. Darling International dewaters FOG waste at their private facility prior to landfill disposal of the solids. The FOG waste volume for the PSA, as reported by the waste haulers, is approximately 30 percent less than the FOG waste volume estimates in Section 2.2, likely attributable to the lack of verifiable data provided by the waste haulers.

Additional details pertaining to FOG waste hauling service fees were requested; however, the haulers were not willing to disclose these amounts.

Based on the data presented in Tables 2.3-1 and 2.3-2, Darling International and EBMUD are processing the majority of FOG waste and are located more than 35 miles from the San Jose/ Santa Clara Water Pollution Control Plant (WPCP).

Based on the waste hauler volume estimates, approximately 41 percent of the San Jose PSA generated FOG waste is currently being disposed of at public disposal facilities, including EBMUD, Palo Alto, SBSA, and Watsonville. The remaining 59 percent is currently disposed of at Darling International's private disposal site located in San Francisco. This assumes that Darling International is treating all the FOG waste they collect at their San Francisco facility. Based on recent conversations with Darling International, a percentage of the FOG waste they collect is actually disposed of at EBMUD. Darling International was unable to provide data on the percentage of FOG waste disposed of at EBMUD.

2.3.1 Future Disposal Capabilities

Based on Table 2.3-2, EBMUD provides substantial capacity to receive increased volumes of FOG waste from the region. Some additional FOG waste receiving capacity is available at the other public and private facilities; however, this capacity is limited.

Private facilities are typically used to avoid the FOG waste receiving fees (i.e., tipping fees) of other disposal facilities such as EBMUD's rate of $0.11/gallon. According to interviews with multiple haulers, if a disposal location was available in the San Jose area that provided easy access, charged reasonable tipping fees, (e.g., less than $0.07/gallon), and could accept a large quantity of FOG waste each day, the haulers would dispose of a majority of their FOG waste at the San Jose location.

Therefore, if a San Jose FOG waste disposal facility were to charge a reasonable tipping fee and have sufficient capacity, it is loosely projected that 80 percent of the FOG waste originating from the San Jose PSA (and nearby cities) would be disposed of at the San Jose facility. The 80 percent projection is based on the San Jose facility being the most desirable location for FOG waste disposal in the area; however, it is not realistic to assume that all of the FOG waste would be disposed of at the facility. Therefore, the projected FOG waste that might be disposed of at a San Jose facility is approximately 16,000,000 gallons/year currently and 29,600,000 gallons/year in 30 years.

2.3.2 Illicit Dumping/Disposal

Due to the high cost of proper disposal in the San Jose area, it is possible that some FOG waste is being disposed of illicitly (e.g., discharged into a sewer manhole late at night). In fact, three waste haulers (Thrifty Best Services, Pioneer Liquid Transport, and A-1 Septic Tank Service) were prosecuted due to illicit FOG waste disposal activities in Palo Alto and Cupertino in 2000/2001. More information on these prosecutions can be found in Appendix C. A 2006 State Law (AB 1333) provides additional criminal liability for illicit discharge of FOG waste, which should lessen the likelihood of illicit FOG waste disposal. However, it is logical to assume that if a San Jose facility was available that provided a much more convenient and affordable disposal location for FOG waste, than the temptation for illicit disposal would decrease significantly.

2.3.3 FOG Waste Hauler Licensing and Permitting

Following are key licensing and permitting requirements for FOG waste haulers in the San Jose area:

- State of California - Requires any person or company that hauls inedible kitchen grease to obtain a license. The license is obtained through the Department of Food and Agriculture. A copy of the license application is included in Appendix D.
- County of Santa Clara - Requires that FOG waste haulers obtain a permit from the Santa Clara County Health Department. A copy of the permit is included in Appendix D.
- City of Palo Alto - Requires all FOG waste haulers to maintain a Hauled Liquid Waste Discharge Permit. A copy of their permit is included in Appendix D. Additionally, any FOG waste originating within the City of Palo Alto is required to be disposed of at the Palo Alto treatment plant for use as a fuel supply in their incinerators.

2.3.4 FOG Waste Tracking

Many POTWs throughout the State receive FOG waste at their treatment plants and are using some method to track these wastes to provide some protection from unidentified wastes entering the treatment plant and to provide some cradle to grave accountability for the waste.

In addition to the FOG waste hauler tracking information presented in Table 2.3-1, EEC researched FOG waste hauling tracking methods such as receipt collection and liquid waste manifest programs throughout the State. Based on this research, issuing and managing liquid waste manifests (often combined with hauler permitting) is the most common and accepted method. The following POTWs are using formal methods of manifesting FOG waste:

- OCSD – Fountain Valley, California (2-part manifest)
- City of Vacaville – Vacaville, California (3-part manifest)

Copies of these manifests are located in Appendix D. These manifests require the hauler to provide information such as:

- Waste hauler information
- Waste generator business names and addresses
- Volume of each generator load
- Total volume of the waste load
- Waste classification
- Signed certification

One copy of the signed manifest is hand delivered by the hauler to the disposal facility at the time of disposal, and one copy is retained by the hauler. The City of Vacaville forwards their third copy to the County Health Department. In EEC's opinion, manifesting makes it unnecessary to permit the haulers to provide the desired level of hauler control and accountability. However, if there are specific concerns regarding hauler activities and responsibilities within the San Jose/Santa Clara WPCP (e.g., discharging proper pH waste or FOG waste only), then permitting the haulers may be necessary.

Another form of FOG waste tracking is a voucher system that is reportedly being used in Australia, although there is very little information available on the program. Reportedly, when an FSE obtains a permit from the local municipality, they pay for FOG waste vouchers. When a hauler pumps out the interceptor or trap, the hauler fills out the voucher. The hauler is then paid for their services by turning the voucher into the municipality. This type of process gives the municipality more control, but appears to be unnecessary if there is a proper manifesting process in place.

2.3.5 Recommendation

EEC recommends that a FOG waste hauler manifest system (2-part or 3-part) be considered by San Jose if a FOG Waste to Energy Program is pursued to track the FOG waste and discourage illicit dumping. The manifest provides valuable data including generator information, load volumes, and waste classification. It will also act as a strong deterrent to haulers bringing non-FOG waste into the receiving station, particularly if the signed certification holds the hauler personally responsible for false information and hazardous waste disposal. If there are specific concerns regarding hauler activities and responsibilities within the San Jose/Santa Clara WPCP, then permitting the haulers may need to be considered as well.

2.4 EVALUATION OF ALTERNATIVE FOG WASTE DISPOSAL OPTIONS

As discussed in Section 2.3, there is a lack of FOG waste disposal options in the San Jose area. Based on interviews with haulers, disposal sites, and POTWs in the area, there are no current plans for any new disposal sites in the San Jose area. Therefore, evaluation of alternative FOG waste disposal options for the San Jose area is appropriate. Alternative FOG waste disposal options currently used throughout the United States include use as soil amendments for land application and use as a renewable energy source (e.g., biodiesel, biogas, or biomass) for heat or power generation. Conversion of FOG waste to a soil amendment (e.g., EcoSoil), as is currently performed by EcoPlus in North Carolina, provides a disposal solution with some benefits, primarily in agricultural applications. However, conversion of FOG waste to energy is a solution that not only addresses the primary disposal issue but also provides the potential benefit of substantial energy cost savings for the wastewater treatment plant.

Due to their potential energy cost savings, EEC researched the key FOG Waste to Energy alternatives throughout the United States. The alternatives identified are specific to processing brown grease rather than yellow grease, which already have multiple cost effective uses. The following three FOG Waste to Energy alternatives appear to be the most common and promising:

- Brown Grease to Biodiesel
- Brown Grease to Biomass
- Brown Grease to Biogas

The alternatives are summarized in Table 2.4-1 below and a detailed discussion follows the table.

Table 2.4-1 FOG Waste to Energy Alternatives					
Alternative	**Companies/POTWs**	**Incentives**	**Tested Technology**	**Program Description**	**Relevance to San Jose FOG Program**
Biodiesel	• North American Biofuels • BlackGold Biofuels • BioFuelBox	• Use biodiesel in fleet vehicles to comply with green fleet policy • Production costs are approximately $0.60/gallon after tax incentives • Supplemental biogas for Cogeneration (from non-lipid content of FOG waste) • Reduce electrical costs	• SFPUC Oceanside Treatment Plant represents a large scale pilot test	• Uses a two-step conversion process to convert brown grease into road grade biodiesel. • Brown grease must be significantly de-watered before conversion into biodiesel. The resulting wastewater could be fed into an anaerobic digester.	• Biodiesel could be used to comply with the green fleet policy. • Non-lipid content of FOG Waste could be fed to the San Jose/Santa Clara WPCP digesters for additional biogas production
Biomass	• EcoPlus Inc.	• State and local agencies could provide grants • Reduce electrical consumption	• System has been large-scale tested.	• Process uses brown grease waste to make a solid granular material. • Product with 55 percent moisture equates to 6000-6500 BTU/lb. Product dried to 25 percent moisture equates to 11,000 BTU/lb.	• FOG waste could be converted to granular biomass material and used as a renewable energy.
Biogas	• EBMUD • City of Watsonville • City of Millbrae • City of Riverside • MRWPCP	• Supplemental biogas for Cogeneration • Reduce electrical costs • Relatively low cost to start adding FOG waste	• Several POTWs and cities add FOG waste to their digesters	• FOG waste is heated, mixed and added to the existing digesters to boost biogas production for use in Cogeneration systems.	• FOG waste could be directly added to existing digesters for increased biogas production

2.4.1 Brown Grease to Biodiesel

Biodiesel from grease can be created through a transesterification process. This process trades the glycerin in the grease for methanol to create a methyl-ester fuel (i.e., biodiesel). The by-products of the process are wastewater and glycerin. Biodiesel can be created from yellow grease or brown grease, however, it is much less efficient to create biodiesel from brown grease than from yellow grease due to the low overall grease content (~3 percent) and high free fatty acid content (>15 percent) of brown grease.

Biodiesel can be used in any diesel motor. No specific diesel engine modification is required to accept biodiesel. The fuel can also be blended with standard diesel fuel. There are tax incentives for making/using biodiesel. They include a $0.50/gallon tax credit for biodiesel from waste grease. There is also a tax credit for 30 percent of the cost for alternative fuel equipment, up to $30,000.

Currently there are many companies making biodiesel from yellow grease, but only a few making biodiesel from brown grease. The brown grease to fuel technology is being pilot-tested on a large scale at the SFPUC Oceanside Treatment Plant by BlackGold Biofuels (BGB). The project received over $1,200,000 in State and Federal grants. BGB could not disclose the details of their process for creating biodiesel from brown grease, but did say their process was able to address the additional free fatty acids associated with producing biodiesel from brown grease. BGB reports that they can convert 100 percent of the free fatty acids and triglycerides from brown grease or yellow grease. They stated that it costs approximately $0.60 to produce one gallon of biodiesel, which includes the costs for feedstock, reagents, energy, and disposal. According to BGB, a plant processing 50,000 gallons of brown grease a day has a three year payback period on the capital costs. EEC attended a SFPUC presentation discussing the BGB pilot project at the California Water Environment Association (CWEA) Annual Conference on April 30, 2009. SFPUC anticipates generating 300 gallons of ASTM-grade biodiesel for every 10,000 gallons of brown grease processed. SFPUC addressed the significant challenges of converting brown grease to biodiesel, but pointed out that the co-location of the biodiesel and wastewater treatment plants provide unique benefits. For example, they believe that the high strength wastewater generated in the initial brown grease dewatering process (8,000 mg/L Chemical Oxygen Demand) can be used in the digesters to create more biogas. SFPUC stated that they did not anticipate continuation of the pilot test or upgrading to a full scale process once the pilot test is completed. A copy of a similar URS/SFPUC presentation at the Puget Sound Brown Grease Symposium on April 15, 2009 is provided in Appendix E. Also information on benefits of conversion of grease to biofuels by BlackGold Biofuels is included in Appendix E.

BiofuelBox Novo Stream Corporation has a very similar technology as BGB. They will receive FOG waste and extract the lipid and fatty acid content for conversion to biodiesel for transportation uses. The process is very similar to the BGB in that the FOG waste is screened and dewatered prior to processing into biodiesel. During the process, the lipid and fatty acid content (estimated by BioFuelBox to be 3 to 10 percent of the grease interceptor contents) are extracted from FOG waste as the feed stock for the biodiesel process. BioFuelBox indicated that 80 percent of this feed stock is then converted to B100 biodiesel. The BioFuelBox business plan includes building a plant near a POTW to be owned and operated by BioFuelBox with the

produced biodiesel sold back to the POTW. Construction and operating cost would be offset by the selling price of the biodiesel.

2.4.2 Brown Grease to Biomass

Biomass fuel pellets can be generated from brown grease according to EcoPlus Inc. of Charlotte, North Carolina. Due to a non-disclosure agreement with EcoPlus, EEC cannot disclose information about the process to make the pellets. However, the pellets can be used as a fuel to generate electricity when equipped with the available generator system. According to EcoPlus, 1000 gallons of brown grease (before dewatering) can be converted into one ton (2000 pounds) of pellet product with 55 percent moisture content. This product will have an energy content of 6000 BTU/lb. If the product is dried to a moisture content of 25 percent, the energy content increases to 11,000 BTU/lb. It takes 10,000 BTUs to generate one kilowatt hour of electricity according to the Department of Energy (DOE). If it is assumed that electricity can sell for $0.10/kWhr, the plant can produce approximately $6,000 in electricity from 50,000 gallons of brown grease. EcoPlus stated that it will cost approximately $15,000,000 to build a plant that can handle 50,000 gallons/day of brown grease waste. This cost does not include ongoing operation and maintenance costs.

2.4.3 Brown Grease to Biogas

In a typical FOG waste to biogas program, the FOG waste is collected by area waste haulers and is transferred to holding tank(s) at a designated receiving station. Trash and debris is removed from the FOG waste by the use of a grinding or screening process prior to transferring to the holding tanks. Since the FOG waste supply is relied upon for biogas production, arrangements for consistent deliveries are made, or sufficient holding tank capacity is provided to ensure ample FOG waste supply. Typically, the FOG waste is constantly mixed to maintain a homogeneous mixture in the holding tank(s). In some cases, the FOG waste is heated, to prevent separation and solidification. This mixture is injected into the digester(s) at a constant rate to optimize biogas production by 40 percent to 100 percent.

EEC has assessed the alternative FOG waste to energy programs and their potential energy content (BTU) values. Table 2.4-2 summarizes that information.

Table 2.4-2 FOG Waste to Energy Alternative Programs			
	FOG Waste to Bio-Diesel	**FOG Waste to Biomass**	**FOG Waste to Biogas**
FOG Waste Processed (gallons per day (GPD))	50,000	50,000	50,000
FOG Waste Avail for Biodiesel Processing (GPD)	1,500	-	-
FOG Waste Avail for Biomass Processing (GPD)	-	50,000	-
FOG Waste Avail for Anaerobic Digester Feed (GPD)	-	-	50,000
Yield			
Biodiesel (GPD)	1,500		
Biomass (pounds/day)		100,000	
Biogas (cubic feet/day)			1,000,000
Energy Content (BTUs)	195,000,000	600,000,000	600,000,000

The table provides the potential energy content from each FOG Waste to Energy alternative program.

The brown grease to biodiesel conversion process involves screening and dewatering activities to extract the lipid and fatty-acid content from the FOG waste (estimated by BGB to be 3 percent of grease interceptor contents). From the 50,000 GPD of FOG waste, 1,500 gallons of the grease feedstock will be converted to 1,500 GPD of ASTM 6571 Biodiesel with an estimated energy content of 195,000,000 BTUs (130,000 BTU per 1 gallon of biodiesel). The remaining 48,500 gallons of non-lipid content FOG waste could be fed to an anaerobic digester to supplement existing biogas production.

The FOG waste to biomass process generates 100,000 pounds of pellets from 50,000 gallons of FOG waste (2,000 pounds of pellets at 55 percent moisture per 1000 gallons of FOG waste). The energy content of these pellets is estimated at 600,000,000 BTUs.

When introduced into an anaerobic digester, 50,000 gallons of FOG waste can result in 1,000,000 cubic feet of biogas (estimated 20 cubic feet of biogas per gallon of FOG waste) with an energy content of 600,000,000 BTUs.

The resulting energy content for the biomass and biogas programs is similar: however, the complexity and initial capital expense for the biomass alternative are significantly higher (biomass production facility vs. receiving station/minor digester modifications).

San Jose should consider thoroughly evaluating the FOG waste to biodiesel program as an option for complying with the “Green Fleet Policy”. The Green Fleet Policy requires that all fleet vehicles be replaced with green vehicles. This will minimize the gas emissions. A green fleet

vehicle operates from alternative fuels sources (natural gas, propane, ethanol (E-85), and Biodiesel (5 percent blend or above)). The FOG waste to biodiesel program would enable San Jose to produce 1,500 gallons per day of Biodiesel and could help them reach their green goal and emissions reduction.

2.4.4 Brown Grease to Biogas to Energy

A logical FOG waste disposal alternative for the City of San Jose is a brown grease to biogas to energy (FOG Waste to Energy) project with a FOG waste receiving station located in the San Jose area. A local POTW could convert the FOG waste to energy, utilizing anaerobic digestion and cogeneration. In order for a POTW to consider pursuing a FOG Waste to Energy project, the following conditions should be in place or in the planning stages:

1. Available anaerobic digester capacity
2. Sufficient digester mixing
3. Available biogas storage capacity
4. Available cogeneration capacity
5. Accommodations for a FOG waste receiving station, FOG waste storage tanks, and management of hauler truck traffic
6. Odor management capability

The best candidate for a FOG Waste to Energy project in the San Jose area is the San Jose/Santa Clara WPCP. The current San Jose/Santa Clara WPCP's digester upgrade plans meet conditions 1-4, above which are the most critical. The detailed analysis for the San Jose/Santa Clara WPCP digester upgrade is included in *TM3.3, Design Criteria for Digester Modifications and Gas System Improvements*. Conditions 5 and 6 can be met, with some additional planning.

EEC evaluated existing FOG Waste to Energy Programs that could serve as models for a potential San Jose FOG Waste to Energy Program. The following programs were evaluated:

- EBMUD
- City of Watsonville
- City of Millbrae
- City of Riverside
- Monterey Regional Water Pollution Control Plant (MRWPCP)

All five cities and districts have FOG Waste to Energy programs in place, which consist of receiving FOG waste and feeding it to the digesters to produce biogas for the cogeneration systems. Table 2.4-3 lists features for each of these FOG Waste to Energy Programs.

Table 2.4-3 FOG Waste to Energy Program Models					
	EBMUD	**City of Watsonville**	**City of Millbrae**	**City of Riverside**	**MRWPCP**
POTW Facts and FOG Waste Processing	• 168 MGD Plant • Eleven Digesters (2 million gallons (MG) each) • Cogeneration	• 7 MGD Plant • Digesters • Cogeneration	• 3 MGD Plant • Two Digesters (0.5 MG) • Cogeneration	• 40 MGD Plant • Two Digesters (1.5 MG each) • Cogeneration	• 19.5 MGD Plant • Two Digesters (1.7 MG each) • Cogeneration
FOG Waste Hauling and Disposal	• All approved haulers allowed • 20,000-30,000 GPD	• All approved haulers allowed • 8,000 GPD	• One contracted hauler allowed • 8,000 GPD	• One contracted hauler allowed • 60,000 GPD	• All haulers allowed • 5,000 GPD
FOG Waste Receiving Station	• Within the plant • 24 hours (hr)/day access • Plant attendant present • Use vapor scrubber for odors • FOG waste storage tanks are unheated/ unmixed	• Within the plant • 8 hr/day access • Plant attendant present • One 5,000 gallon unheated/mixed storage tank	• Outside the plant • 24 hr/day access • Restricted/ monitored access • Authorization access to receiving station via card reader • No plant attendant required • 12,000 gallon unheated/mixed storage tank	• Within the plant • 24 hr/day access • Plant attendant present • Two 10,000 gallon heated/mixed storage tanks • Additional holding capacity at contracted FOG hauler's facility	• Within the plant • 8 hr/day access • Plant attendant present • One 2,500 gallon heated sludge/ mixed storage tank
FOG Waste Sampling	• 10 percent random sampling of haulers	• Samples are collected	• No samples collected	• Samples are collected	• Samples are collected
FOG Waste Pretreatment (Grit/Trash/Debris Removal)	• Unable to determine	• Screens used to remove large foreign objects	• Rock trap at inlet of storage tank	• ¾-inch debris screen (by hauler)	• Debris screen

All five cities and districts have FOG waste receiving stations that meter the FOG waste to anaerobic digesters and then distribute the biogas to the existing cogeneration systems.

EBMUD, the City of Watsonville, and MRWPCP use multiple haulers to haul FOG waste to the receiving station. The Cities of Millbrae and Riverside use contracted haulers to haul the FOG waste to the receiving station.

EBMUD and the Cities of Millbrae and Riverside have the ability to receive FOG waste any time of the day. The City of Watsonville and MRWPCP only receive FOG waste for 8 hours per day.

MRWPCP, BMUD and the Cities of Watsonville and Riverside randomly sample the trucks to verify wastewater quality issues. The City of Millbrae does not require sampling.

With the exception of EBMUD, which EEC could not verify, all the cities and districts require some type of screening or rock trap to remove large foreign objects or debris from the FOG waste prior to pumping it to the FOG waste receiving stations/holding tanks

2.4.5 Receiving/Transfer Station Issues

As described in Section 2.4.3, typically the FOG waste collected by area waste haulers is transferred to holding tank(s) at a designated receiving station prior to being introduced into the digester. FOG waste receiving stations generally consist of the following items (each is described further below):

- Monitoring or tracking system for FOG waste introduced into the holding tank(s)
- Quick connect coupling for receiving waste
- Grinding or screening facilities with FOG waste transfer pump
- Receiving/holding tank(s) with heating, metering system, FOG mixing and feed pump(s)
- FOG conveyance piping to digester(s)
- Sampling locations
- Odor control
- Containment

Heated FOG Waste Holding Tanks at the Riverside Water Quality Control Plant (RWQCP)

FOG Waste Receiving Station at RWQCP

While not required, a method to monitor or track the FOG waste should be provided at the receiving facilities. A key card system that tracks the time and volume of FOG waste received from authorized haulers is used at the City of Millbrae treatment plant. Video monitoring systems have also been used where increased security is required.

Typically, the FOG waste is received at the plant through a quick connect coupling. Screening or an inline grinder is recommended to eliminate or reduce large debris prior to the FOG waste transfer pump.

FOG waste holding tank size is dependent on peak digester capacity and FOG waste delivery schedules. With an inconsistent delivery schedule, increased holding capacity may be needed to maintain the necessary volume of FOG waste for injection into the digesters (for consistent biogas production). Where reliable deliveries are provided, less holding capacity is needed. Thickening of the FOG waste through receiving station processes would further reduce the storage capacity required. Mixing, and potentially heating, of the tank contents is required to maintain a homogeneous FOG mixture and to prevent separation or solidification of the FOG. A flow meter is recommended to meter the quantity of FOG waste transferred to the digester(s).

Sampling locations should be provided after the FOG waste transfer pump and the FOG waste feed pump. The first sampling location allows for sampling of individual FOG waste received at the plant, while the second sampling location allows for sampling of the homogenized feed to the digester(s).

FOG waste has a strong unpleasant odor and these odors can be problematic. In evaluating potential locations for the receiving station, consideration of potential nuisance odors generated during waste hauler transfers is needed. Management of FOG waste holding tank odors can be addressed through foul air scrubbers or locating the tanks in an area of the plant where odors would not be a nuisance to the public. Another option is to connect the receiving tank to the digester gas management system; however, in this configuration, all the receiving facility components would be in a classified area requiring explosion proof equipment.

The entire area for the receiving facilities should be within a spill containment area. The containment area would then be drained back to the plant headworks downstream of influent sampling facilities.

A FOG Waste to Energy program will result in increased truck traffic at the receiving/transfer station. The following assumptions were utilized in estimating the truck traffic (e.g., truck loads per day) that a City of San Jose receiving station could expect:

<u>5-day Work Week</u>

- Five day work week for haulers and disposal site operations
- 80 percent of the 30-year projected FOG waste generated in the San Jose PSA and outside the PSA is disposed of at the treatment plant; (80 percent of 37 MG/year projects to 29.6 MG/year of FOG waste = 114,000 gallons/day (5 day work week))
- A worst case scenario assumes partially filled trucks averaging 1,000 gallons per load
- A typical scenario assumes partially filled trucks averaging 2,000 gallons per load
- A best case scenario assumes completely full trucks averaging 5,000 gallons per load

Based on these assumptions, truck traffic estimates for FOG waste disposal are as follows:

- Worst case scenario: 110 to 120 trucks per day
- Typical scenario: 55 to 60 trucks per day
- Best case scenario: 20 to 25 trucks per day

<u>7-day Work Week</u>

- Seven day work week for haulers and disposal site operations
- 80% of the 30-year projected FOG waste generated in the San Jose PSA and outside the PSA is disposed of at the treatment plant; (80 percent of 37 MG/year projects to 29.6 MG/year of FOG waste = 81,000 gallons/day (7 day work week))
- A worst case scenario assumes partially filled trucks averaging 1,000 gallons per load
- A typical scenario assumes partially filled trucks averaging 2,000 gallons per load
- A best case scenario assumes completely full trucks averaging 5,000 gallons per load

Based on these assumptions, truck traffic estimates for FOG waste disposal are as follows:

- Worst case scenario: 75 to 85 trucks per day
- Typical scenario: 40 to 45 trucks per day
- Best case scenario: 15to 20 trucks per day

It is likely that multiple trucks will arrive at the disposal site simultaneously. For the typical and worst case scenarios, in addition to the space allocation needed for a FOG waste receiving station, substantial space for standby vehicles will be needed to accommodate this traffic. An offsite receiving/holding station (private or public) could alleviate the on-site traffic.

The best case scenario of 15 to 20 trucks per day (7-day work week) would likely be accomplished through a partnership with a hauler (private or public), whereby the hauler provides a fixed amount of FOG waste on a fixed schedule. This is currently being implemented successfully in Riverside and Millbrae.

There are two general options for management of a FOG waste receiving station:

1) Design, build, and manage a receiving station at the treatment plant near the digesters, which allows all approved haulers to enter the plant and dispose of their FOG waste, or

2) Enter into a public/private partnership with a private company to manage one or more aspects of the project. This may range from:

    a. The private company managing the FOG waste off-site and transporting only their FOG waste into the plant (in some cases partially dewatered); to
    b. The private company designing, building and managing the receiving station at the treatment plant near the digesters.

Most FOG Waste to Energy Programs have chosen either Option 1 or Option 2a. EBMUD, OCSD, SBSA, and MRWPCP manage their own receiving stations and allow all approved haulers to enter the plant and dispose of their FOG waste. Millbrae and Riverside have slight variations of Option 2a, where they have partnered with a private hauler. This minimizes their plant resources, reduces the risk of unknown wastes coming into the plant, and ensures a consistent quality and quantity of FOG waste delivered to the plant. The City of Oxnard pursued a unique option that was not discussed above that involves the City competing with pumpers and pumping-out grease interceptors for a fee. They use their own vacuum trucks and transport the FOG waste directly to their digesters.

2.4.6 Ideal Receiving Station Model to Attract Haulers

Based on a combination of the many receiving station models discussed above and based on interviews with haulers that work throughout the State such as Darling International, Baker Commodities, and Liquid Environmental Services, the ideal receiving station model to attract haulers would have the following features:

1) A receiving station open 20 to 24 hours per day located in the treatment plant. In addition, the receiving station would have the space and organization to quickly and efficiently process multiple FOG waste loads per hour and manage the odors associated with FOG waste unloading and processing. If this is not practical inside the treatment plant, then a public/private partnership should be pursued with a private company to manage a primary receiving station outside the plant and have a small secondary receiving station near the digesters to receive managed loads from one hauler.

2) A tipping fee that is based more on providing the best deal for the haulers rather than the revenue per truckload. In this way, the City will not lose FOG waste to other disposal options due to the tipping fee being too high and will provide a disincentive for future alternative disposal options to be considered. This may also attract FOG waste haulers from outside the San Jose area who are currently hauling loads to facilities such as EBMUD.

If any of these features are not present, there is incentive for the hauler to find a separate location for disposal, including processing at their own sites.

2.4.7 Public/Private Partnerships

The advantage of a FOG Waste to Energy public/private partnership is that the City can rely on a private company to manage tasks where their expertise or resources exceeds the City's expertise or resources. Cities/agencies are typically not experts in liquid waste management and the special needs of haulers and city staffing resources are limited. Public/private partnerships with waste management companies can lead to opportunities for outside experts to manage the brown grease hauling and disposal issues and/or managing the receiving station, while having a contractual obligation to the city/agency for proper service.

The main disadvantage of a FOG Waste to Energy public/private partnership is that the city/agency becomes reliant on a private company to complete the project tasks. Therefore, if

the private company goes out of business, or has other problems that limit their ability to perform the tasks, the city/agency may end up scrambling to find another private partner on short notice or have to manage some of the tasks themselves. This risk can be largely mitigated through careful partner selection and strict contract conditions, such as "failure to perform" penalties or performance bond requirements.

2.4.8 Recommendations:

1) San Jose should conduct a further evaluation of the brown grease to biodiesel and brown grease to biomass to determine if either option is as cost effective as brown grease to biogas to energy. EEC has concerns that the brown grease to biodiesel companies may be presenting an overly optimistic view of the efficiency and cost effectiveness of such a program.
2) If these options do not prove to be as cost effective as brown grease to biogas to energy, San Jose should consider a FOG Waste to Energy project as the primary alternative for creating energy from brown grease.
3) The San Jose/Santa Clara WPCP appears to be ideally suited for a FOG Waste to Energy Project. In addition to providing an alternative to the current FOG waste disposal options, which are expensive and inconvenient for haulers, a substantial boost in biogas production from the FOG waste can be realized.
4) The City should consider whether to design, build, and manage the receiving station at the treatment plant or to enter into a public/private partnership with a private company to manage some or all of the tasks and potentially manage much of the waste off-site.
5) Assuming that the biogas and energy calculations indicate that San Jose would generate significant revenue from adding as much FOG waste as possible to the digesters, the primary driver for the receiving station and tipping fee decisions should be to provide the most attractive disposal option for the haulers to prevent losing FOG waste to other disposal options.

2.5 EVALUATION OF CURRENT FOG OUTREACH EFFORTS

2.5.1 FOG Control Program Outreach

FOG Control Program outreach is necessary to convey the FOG Control Program information to the FSE and residences. More effort is typically put into FSE outreach than residential outreach because of the need to educate FSEs on the ordinance requirements and the common belief that the FSEs are the most controllable contributors to FOG blockages. However, residential outreach is also important because the only way to reduce residential FOG discharges is to change the residential FOG discharge behavior.

FSE outreach is best accomplished during FSE inspections where one-on-one education can take place. Preferably, there should be professional information packages prepared. The packages should include kitchen BMP posters for the kitchen area, and general information about the FOG Control Program, including why the program is needed. There should also be a website for restaurant managers to refer to when needed. At the website, there should be a copy of all the documents in the information package.

Residential outreach is also important so that residents are informed about FOG blockages and the potential damage that blockages can cause. It is difficult to estimate how much FOG waste is discharged by residences, but cumulatively it is substantial. It is also difficult to estimate how much FOG waste discharge could be prevented due to an effective residential outreach program. EEC is not aware of any studies that have been conducted in the United States to provide meaningful estimates of residential FOG waste generation. However, based on CCTV evidence, some high density residential buildings can discharge quantities of FOG similar to that of a large FSE.

The City has extensive FSE outreach materials and some residential outreach materials. The current FSE outreach materials are available on the City's website and are included in Appendix G. The City inspects the FSEs and provides helpful guidance documents and fact sheets, which are also included on the City's website. The City provides maintenance documents, equipment cleaning logs, and information on the limitations on the use of chemical, enzymes and bacteria for grease removal. This is very helpful to FSEs as it gives them the documents they need to track grease removal device maintenance. The information on chemicals, enzymes and bacteria for grease removal limitations is unique to San Jose.

The City's SSMP calls for the sewer crews to provide residents with educational door hangers and flyers in areas associated with FOG blockages. In addition, based on information provided by the City's Environmental Services Department, the City distributes grease scrapers at community events and explains to residents that all food scraps and grease should be disposed in the garbage rather than down the drain. At the regional level, the City coordinates a Spanish radio outreach campaign through the Bay Area Pollution Prevention Group (BAPPG). The radio advertisement campaign delivers the FOG outreach messages to Hispanic audiences in the nine county San Francisco Bay Area and reaches over 2,000,000 listeners.

EEC conducted a review of the FOG outreach programs of EBMUD, OCSD, and the Cities of Sacramento and San Francisco. Table 2.5-1 summarizes San Jose's and other agency's available outreach materials.

EBMUD has several guidance documents for FSE outreach and a residential outreach brochure. EEC found EBMUD's permit application and standard permit terms and conditions helpful. Having the permit application on-line allows the FSE to accurately fill out the required information for the permit prior to contact with the agency. The standard permit terms and conditions were unique to EBMUD's materials and allow the FSE to see what terms and conditions may be imposed on them. The available EBMUD outreach material is included in Appendix G.

The Sacramento Regional County Sanitation District (SRCSD) has both FSE and residential outreach materials. Along with the outreach materials, SRCSD has a very user-friendly website. In 2008, the SRCSD won the National Environmental Achievement Award in the Public Information and Educational Program category by the National Association of Clean Water Agencies (NACWA). EEC found the grease hauler selection information, the training video, and the requirements for new and existing FSEs to be useful. The training video is easy to download for staff viewing. The requirement for new and existing FSEs gives the FSE a checklist to ensure compliance with the regulations. The available SRCSD outreach materials are included in Appendix G.

The City of San Francisco's website includes FSE outreach materials only. EEC found the "FSE Self-Assessment Checklist" and "Self-Assessment Short List" to be helpful. The short list is a checklist to quickly evaluate an FSE's FOG program. The checklist is more in-depth and provides guidance on how to correct issues identified from completion of the short list. The City of San Francisco also provides FSEs signs and posters to remind employees not to dump grease down the drain. The available City of San Francisco outreach material is included in Appendix G.

OCSD has a user-friendly webpage that has both FSE and residential outreach documents. EEC found the information on "What Makes a FOG Program Work" very informative with respect to the need for an FSE to follow the rules for FOG waste removal. OCSD's website also includes the ordinance related to FOG waste. Having the FOG ordinance readily available on the website was unique to the OCSD FOG Program. The available OCSD outreach material is included in Appendix G.

Table 2.5-1 Available FOG Outreach Materials			
Agency	**FSE Outreach**		**Residential Outreach**
San Jose	• Managing Fats, Oils and Grease poster • Vapor/ventilation hood cleaning • Exhaust hood cleaning services • Grease interceptor maintenance • Grease trap maintenance • Power – operated grease removal devices • Chemicals, enzymes & bacteria • Maintenance documentation • Good cleaning practices folder	• Grease trap and interceptor cleaning services • Restaurant equipment cleaning log • Maintenance documents • Limitations on the use of chemicals, enzymes and bacteria for grease removal • Mobile food vendors environmental guidelines • Cleaning logs • Do it right waste storage area poster	• Flyers and door hangers • Grease scraper
EBMUD	• FOG permit application • FOG permit standard terms and conditions • Grease interceptor conditional variances (installation restrictions & grease generating capabilities) • Grease interceptor pumping frequency conditional variance	• Grease interceptor conditional waiver • Sample grease trap maintenance log • Discharge prohibition poster • FOG program brochure • Approved hauler list • Grease interceptor maintenance flyer • Best management practices flyer • Frequently Asked Questions (FAQ) List	• Residential FOG Brochure • Grease scraper • FAQ List • Residential door hanger
City of Sacramento	• FOG program information • Types of grease removal devices • Grease interceptor maintenance • How to recycle kitchen grease • How to select a grease hauler	• Licensed grease haulers • Requirements for new and remolded food service establishments • Grease removal device manufactures • Kitchen BMP poster • Training video	• FAQ list • Residential door hanger • Grease scraper • Magnet • Grease can
City of San Francisco	• FOG guide • FOG self-assessment checklist • FOG self assessment shortlist	• “No Grease” sign • Eliminate FOG information sheet • FOG brochure	
OCSD	• Permit application materials • FOG program information • Kitchen Best Management Practices • Managing food materials • FOG prohibitions • Restaurant oils and grease rendering • Design guidelines for grease interceptors	• Grease interceptor FAQ • Ordinances • General information about what makes a FOG program work • FOG studies • Training video • FAQ List	

Based on EEC's review of the other FOG Control Program outreach materials, it is EEC's opinion that outreach materials are extremely useful and provide very practical and pertinent guidance to FSEs on the proper management of yellow and brown grease. The City has a very substantial FSE outreach program. The City has all the materials needed to educate FSEs on the FOG program and how to properly dispose of FOG waste. The residential outreach program appears to be sufficient to educate the public about FOG waste and how to dispose of it. Should the City consider a PSA-wide residential outreach program, they should be prepared to incur high costs associated with the extensive resources and materials needed for distribution to the entire PSA. Based on past projects, other agencies focus their FOG residential outreach on locations where the sewer lines required additional maintenance due to FOG accumulation. Typically, flyers and door hangers are a part of the outreach. An example door hanger and flyer are included in Appendix G.

2.5.2 Yellow Grease Management Outreach

Typically, yellow grease is recovered and used as a valuable commodity. Commodity uses for yellow grease include processing into animal feed and biodiesel. SFPUC recently started a unique campaign (SF Greasecycle) where they have partnered with private biodiesel manufacturers. SFPUC is providing media outreach and trucks that collect FSE yellow grease for free and deliver it to the biodiesel manufacturers. SFPUC is also partnering with Costco to pick-up residential yellow grease (e.g., turkey fryer grease) that is dropped off at Costco stores during the Thanksgiving and Christmas seasons. Although there are already adequate yellow grease disposal options for most FSEs and the residential yellow grease waste volume is not significant, this campaign is most likely successful in preventing some yellow grease from being discharged to the sewer and is providing additional yellow grease to the biodiesel manufacturers. The SF Greasecycle effort is reportedly very costly to manage, but is bringing general public awareness to the FOG blockage issue and the ability to convert waste products into renewable energy. It is also projecting a "green" image for the SFPUC.

EEC does not recommend that San Jose pursue a similar FSE yellow grease campaign due to the high cost of the program and a vast majority of the FSE yellow grease already having multiple private disposal options. However, if the City is interested in the potential public relations benefits despite the high cost of the program, then a program similar to SFPUC's should be considered.

Similar to SFPUC, EBMUD has developed a residential outreach program for residential waste cooking oil to prevent the dumping of waste grease/oil down the drain. This program provides disposal locations for residences to drop off yellow grease during Thanksgiving and Christmas holidays. The residences are limited to 15 gallons of yellow grease per visit. Reportedly, this does not result in a large volume of total grease collected.

Some FOG programs in the United States have initiated residential "Can the Grease" programs which educate homeowners and apartment tenants on how to prevent pouring grease down the drain. Some agencies include information on their website (http://www.wssc.dst.md.us /info/canthegrease.cfm) or provide information tables at county fairs or other community events.

2.5.3 FOG Waste (Brown Grease) to Energy Program Outreach

Because FOG Waste (brown grease) is almost exclusively disposed of via waste haulers and it is the waste haulers' business to know what disposal options are available for the brown grease they haul, there is no need for significant outreach efforts or materials for a FOG Waste to Energy Program beyond the basic outreach of keeping the haulers notified of the City's plans. If the City pursues a FOG Waste to Energy Project, the brown grease haulers will become aware of it without any significant outreach efforts by the City.

Based on interviews with local FOG waste haulers, EEC did not identify any need for significant education or outreach to educate the haulers on San Jose's current grease interceptor/grease trap program.

2.5.4 Recommendation

In EEC's opinion, there is no significant need for additional FSE or residential outreach efforts (beyond potential public relations benefits). However, if residential sewer line cleaning is not sufficient to control FOG-related SSOs, the City should consider implementing a "Can The Grease" education program similar to other FOG programs in the country. Furthermore, if more FSE training is needed, San Jose could consider development and distribution of a FSE training video (e.g., Sacramento Regional County Sanitation District). In EEC's opinion, there is no need to create materials to promote a FOG Waste to Energy Program.

2.6 EVALUATION OF FOG RELATED GRANTS, LOANS, REBATE AND INCENTIVE PROGRAMS

Many POTWs have researched funding for their FOG Waste to Energy projects. There are some State and Federal programs that may provide grants and loans for qualifying projects. However, no POTW that EEC interviewed had received State or Federal grants or loans for their FOG Waste to Energy Projects. The Cities of Millbrae and Rialto FOG Waste to Energy Projects are receiving rebates from their natural gas and energy providers, but this is based on the use of fuel cells.

In addition to the grants and loans, there are many rebate and incentive programs available for renewable energy. The Department of Energy has a Database of State Incentives for Renewables and Efficiency (DSIRE). The rebate and incentive programs require the POTW to first meet specific criteria. If the criteria are met, the POTW begins the application process.

Table 2.6-1 provides information on the grant, loan, rebate, and incentive programs identified. Appendix H includes the detailed information for each of the listed programs, including information for obtaining the funding.

Table 2.6-1 Grant, Loan and Rebate Information					
	Funding Source (General Description)	**Applicable Dates**	**Funding Amounts**	**Program Description**	**Relevance to San Jose FOG Program**
California Energy Commission	• Pacific Gas & Electric (Rebate) • Self Generating Incentive Program (SGIP)	• Program currently closed, may re-open in 2009	• Fuel cell (30 kilowatts (kW) minute) $4.50/W (Rebate) • Incentive is capped at 3 megawatts (MW) • $36 Million available from PG&E in 2008	• SGIP initiated in 2001 • Provides incentives to customers who produce electricity using wind turbines or fuel cells. • Fuel cell/renewable fuels incentive program is capped at 3MW • Up to 1 MW-100% funding • 2nd 1 MW- 50% funding • 3rd 1 MW-25% funding	• Not applicable unless installing a fuel cell operating on biogas
Federal Incentive Program	• US Department of Treasury-Renewable Energy Grant (Grant) • Fuel cell/renewable fuels	• Effective Date 1/1/2009 • Grant application submittal by 10/1/2011	• 30 percent funding of approved project • $1,500 per 0.5kW for qualified Fuel Cell • $200 per kW for qualified micro turbine property (2MW max)	• Renewable energy grant administered by the Department of Treasury • Provides incentives to customers who produce electricity with Solar, Fuel Cells, Wind Turbines • 30 percent grant for facilities that close loop or open loop biomass facilities.	• Not applicable for municipalities
Clean Renewable Energy Bonds (CREBs)	• Federal Incentive Program • Loan to fund the CREBs • Tax credit bonds	• Effective Date 2/17/2009	• 100% loan for clean renewable energy bonds	• Clean Renewable Energy Bonds (CREBs) can be used by the public sector to finance renewable energy projects • $800 Million will be allocated per year • Given in the form of tax credits	• Potentially applicable, but not aware of any FOG Waste to Energy Projects that have received this funding
State Incentive Program	• California Public Utilities Commission	• Effective 1/1/2009	• Based on CPUC market price.	• Allows smaller utilities to enter into 10, 15, or 20 year contracts to sell electricity from renewable sources. • Up to 1.5 MW • May not participate in any other state incentive programs.	• Applicable if not involved in any other incentives.

Table 2.6-1 Grant, Loan and Rebate Information (continued)					
	Funding Source (General Description)	**Applicable Dates**	**Funding Amounts**	**Program Description**	**Relevance to San Jose FOG Program**
Renewable Energy Incentives	• U.S. Internal Revenue Service • Department of Energy	• In-Service deadline of December 31, 2013	• Closed-loop biomass $0.021 per (kilowatt hour (kWh) • Open-loop biomass $0.01 per kWh	• Production tax credit based on creating electricity from renewable sources. • Offered by both IRS and Department of Energy	• Applicable if biomass facility qualifies.
Innovative Clean Air Technologies (ICAT)	• California Environmental Protection Agency – Air Resources Board	• Program currently closed, may re-open in 2009	• $100,000 - $250,000 funding annually • ICAT will pay up to 50% of the projects costs	• ICAT funds projects to develop technologies that have passed the laboratory stage of development • The technology must promote emission reductions in California by: o introducing a new prevention or control technology, or o increasing the degree of control provided by an existing technology, or o reducing the cost or other practical impediment to a control technology, or o increasing the scope of application of a control technology	• Potentially applicable, but focus is on clean air technologies
Renewable Energy Secure Communities	• California Energy Commission (CEC) / Public Interest Energy Research (PIER) program	• Unknown	• $9,100,000 available • Funding Requests • Exploratory $200,000 • Pilot $1,000,000 • Implementation $2,000,000	• Must involve hardware development and demonstration employing three or more mature and viable resource/conversion technologies • Must address energy system design, scale-up and operational and grid integration issues	• Most likely not applicable, research based

2.6.1 Recommendation:

The City should consider pursuing grant and loan applications for a FOG Waste to Energy Project, particularly with the recent Federal and State emphasis on funding renewable energy projects. However, based on the research conducted thus far, there are no grant or loan programs that appear to be a good fit for FOG Waste to Energy Projects unless the City pursues new technologies or new research. Regardless of whether the FOG Waste to Energy Project qualifies for a grant or loan, the City should pursue a natural gas and/or electricity rebate from Pacific Gas and Electric (PG&E) with the understanding that rebates have been issued so far only for FOG Waste to Energy Projects utilizing fuel cells.

San Jose should pursue the rebate program through the California Energy Commission only if there are plans to use a fuel cell renewable energy program. The application process starts with PG&E. This program is a rebate program that will reimburse 100 percent of the capital cost up to a 3 MW fuel cell. If additional fuel cells are required then the rebate amount will decrease. Refer to Table 2.6-1 for the details on the breakdown of the cost.

If the City pursues a renewable energy program with biomass, then they should start by filling out an application with the Department of Energy. This program provides a tax credit.

If the City pursues a research program to convert FOG waste to energy, then the City should pursue the Renewable Energy Secure Communities Program through the California Energy Commission. This program funds pilot projects for up to $1,000,000 or for implementing the project up to $2,000,000.

2.7 FINAL EVALUATION AND RECOMMENDATIONS

FOG Control Program (From Section 2.1)

The San Jose FOG Control Program has one of the more comprehensive FOG Control Programs in the State, is in compliance with the State SSMP requirements, and can provide an ample supply of available FOG waste for a local FOG Waste to Energy Program. However, the City should consider the following enhancements to the FOG Source Control Program:

1) Implementation of the 2007 CPC concerning the installation and sizing of GCDs.

2) Using CCTV evidence of FOG accumulation downstream of individual FSEs as a direct performance measure of the success of the FOG Source Control requirements, inspections, and enforcement.

3) If there are FOG accumulation problems downstream of existing FOG-discharging FSEs without GCDs in the future, further evaluation of FOG Programs such as IRWD and OCSD with respect to the handling of existing FSEs without GCDs could be beneficial.

4) If there are FOG accumulation problems downstream of FOG-discharging FSEs with GCDs in the future, more frequent on-going physical inspections of GCDs may be effective to ensure adequate maintenance is being performed.

5) If the City finds a need to perform more FSE inspections in the future, the City should recognize future opportunities to increase the number of FOG/Urban Runoff inspections that can be performed each day per inspector as the FOG Source Control Program matures.

FOG Waste Volume Estimation (From Section 2.2)

Based on the data collected in this evaluation, it is estimated that approximately 20,000,000 gallons per year of FOG waste is generated within a 20 mile radius of the San Jose/ Santa Clara WPCP and it is projected to increase over the next 30 years to approximately 37,000,000 gallons per year.

FOG Waste Disposal Practices (From Section 2.3)

Based on hauler provided information, approximately 59 percent of the FOG waste from the PSA and immediately outside the PSA is currently being hauled and disposed of by Darling International in San Francisco (note: recent discussions with Darling International have indicated that a percentage of their collected FOG waste is disposed of at EBMUD; however, no data or estimates could be provided). The other 41 percent is being disposed of at FOG Waste to Energy Programs at EBMUD, South Bayside System Authority, the City of Millbrae, the City of Watsonville (and the Palo Alto incinerator). The transportation costs and tipping fees at these facilities make the demand for a local FOG waste disposal facility very high. These costs also

increase the likelihood of illicit dumping. A FOG waste manifest tracking system will provide valuable control over the FOG waste and accountability for the haulers.

EEC recommends that a FOG waste hauler manifest system (2-part or 3-part) be considered by San Jose if a FOG Waste to Energy Program is pursued. The manifest provides valuable data including generator information, load volumes, and waste classification. It will also act as a strong deterrent to haulers bringing non-FOG waste into the receiving station, particularly if the signed certification holds the hauler personally responsible for false information and hazardous waste disposal. If there are specific concerns regarding hauler activities and responsibilities within the San Jose/Santa Clara WPCP, then permitting the haulers may need to be considered, as well.

Alternative FOG Waste Disposal Options (From Section 2.4)

There are currently no alternative disposal sites in the San Jose area for FOG waste haulers. Pending confirmation of some treatment plant design issues, the conditions appear to be ideal for the City to pursue a FOG Waste to Energy Project with a receiving station located inside the treatment plant or a primary receiving station located outside the plant. A public/private partnership with a hauler may be a viable option when evaluating the receiving station issues. Multiple models of FOG waste receiving stations are provided in this report, which provide practical design ideas and emphasize the need for easy hauler access, reasonable tipping fees, and odor management.

1) San Jose should conduct a further evaluation of the brown grease to biodiesel and brown grease to biomass to determine if either option is as cost effective as brown grease to biogas to energy.
2) If these options do not prove to be as cost effective as brown grease to biogas to energy, San Jose should consider a FOG Waste to Energy project as the primary alternative for creating energy from brown grease.
3) The San Jose/Santa Clara WPCP appears to be ideally suited for a FOG Waste to Energy Project. In addition to providing an alternative to the current FOG waste disposal options, which are expensive and inconvenient for haulers, a substantial boost in biogas production from the FOG waste can be realized.
4) The City should consider whether to design, build, and manage the receiving station at the treatment plant or to enter into a public/private partnership with a private company to manage some or all of the tasks and potentially manage much of the waste off-site.
5) Assuming that the biogas and energy calculations indicate that San Jose would generate significant revenue from adding as much FOG waste as possible to the digesters, the primary driver for the receiving station and tipping fee decisions should be to provide the most attractive disposal option for the haulers to prevent losing FOG waste to other disposal options.

Current FOG Outreach Efforts (From Section 2.5)

The current San Jose FOG outreach efforts are sufficient for the major sources of FOG and management of the FSE yellow and brown grease; however, the City should consider the

benefits of a "Can the Grease" residential education and outreach program, and development and distribution of a FSE training video.

FOG Related Grants and Loans (From Section 2.6)

FOG related grants and loans are potentially available for qualified FOG Waste to Energy Projects. Some FOG Waste to Energy Projects are currently receiving natural gas and electricity rebates.

The City should consider pursuing grant and loan applications for a FOG Waste to Energy Project, particularly with the recent Federal and State emphasis on funding renewable energy projects. However, based on the research conducted thus far, there are no grant or loan programs that appear to be a good fit for FOG Waste to Energy Projects unless the City pursues new technologies or new research. Regardless of whether the FOG Waste to Energy Project qualifies for a grant or loan, the City should pursue a natural gas and/or electricity rebate from PG&E with the understanding that rebates have been issued so far for FOG Waste to Energy Projects using fuel cells.

The City should pursue the rebate program through California Energy Commission if they plan on using a fuel cell renewable energy program. Refer to table 2.6 for the details on the breakdown of the rebates.

If the City pursues a renewable energy program with biomass, then they should start by filling out an application with the Department of Energy. This program provides a tax credit.

If the City pursues a research program to convert FOG waste to energy, then the City should pursue the Renewable Energy Secure Communities Program through the California Energy Commission. This program funds pilot projects for up to $1,000,000 or for implementing the project up to $2,000,000.

Key Recommendations

If FOG waste to biogas/energy is found to be more cost effective than brown grease to biodiesel or brown grease to biomass, then this would be the direction that the City should pursue. Assuming that the digester upgrade project provides sufficient digestion capacity (hydraulic and organic), digester mixing, gas storage, and co-generation capacity, based on the research presented in this evaluation, EEC recommends that the City pursue a FOG Waste to Energy program based on the following findings:

1) There are no cost effective alternatives for FOG waste disposal in the area other than a potential San Jose FOG Waste to Energy Program.
2) A FOG Waste to Energy Program in the City of San Jose will most likely receive 80 percent of the FOG waste (10 year projection of 24.4MG per year and 30 year projection of 29.6MG per year) collected within a 20-mile radius of the San Jose/ Santa Clara WPCP.
3) A reasonable tipping fee charged to the haulers will result in increased revenue on top of the significant energy savings due to the FOG Waste to Energy Project.

4) Due to the space available in the vicinity of the plant digesters, a proper receiving station near the digesters is most likely feasible.
5) If there are issues with truck traffic or odors at the treatment plant, there may be off-site primary receiving station options available, particularly if a public/private partnership is pursued with a hauler.
6) State and Federal grants and loans may be available to help fund the project. Natural gas and energy rebates are already being provided to other California FOG Waste to Energy Projects.

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix A
"Waste Grease to Energy" Assessment

- Waste Grease to Energy -
Is Grease Interceptor Waste a Safe and Effective Biogas Booster?

Authors: Jim Kolk, Stan Steinbach, P.E., John Shaffer
Environmental Engineering & Contracting, Inc. (EEC)

1.0 INTRODUCTION

As wastewater treatment facilities continue to strive for energy independence due to high and rising costs, waste grease, collected from restaurant grease interceptors and traps, is emerging as a viable source of renewable energy. Through controlled introduction of waste grease into anaerobic digesters, several California POTWs are finding that the benefits of waste grease processing greatly outweigh the drawbacks.

The Waste Grease to Energy concept also addresses an increasing need for additional disposal options for collected waste grease. Increased awareness of the impacts of waste grease blockages causing sanitary sewer overflows (SSOs), together with more restrictive regulations for waste grease collection/disposal, has led to a challenge for disposal of more waste grease and fewer disposal options.

The potential for dramatically increasing biogas (methane) production through the addition of waste grease to a digester was recently presented by EPA Region 9's Waste Management Division in a presentation to CalFOG in October, 2006. A chart from that presentation (Figure 1) indicates that fats can yield 4 to 5 times more biogas per ton than biosolids depending upon the type of fat. Waste grease consists of water and solids as well as fats and oils, but this potential for waste grease to be a "biogas booster" for anaerobic digesters has motivated many POTWs to consider introducing it to their digestion systems, particularly if they have excess digestion capacity and the ability to convert the biogas into energy through cogeneration (co-gen). According to the same EPA presentation referenced above, 137 POTWs in California have digesters with 15-30% excess capacity. Not all of those POTWs have co-gen, but many do and many are planning for co-gen in the near future.

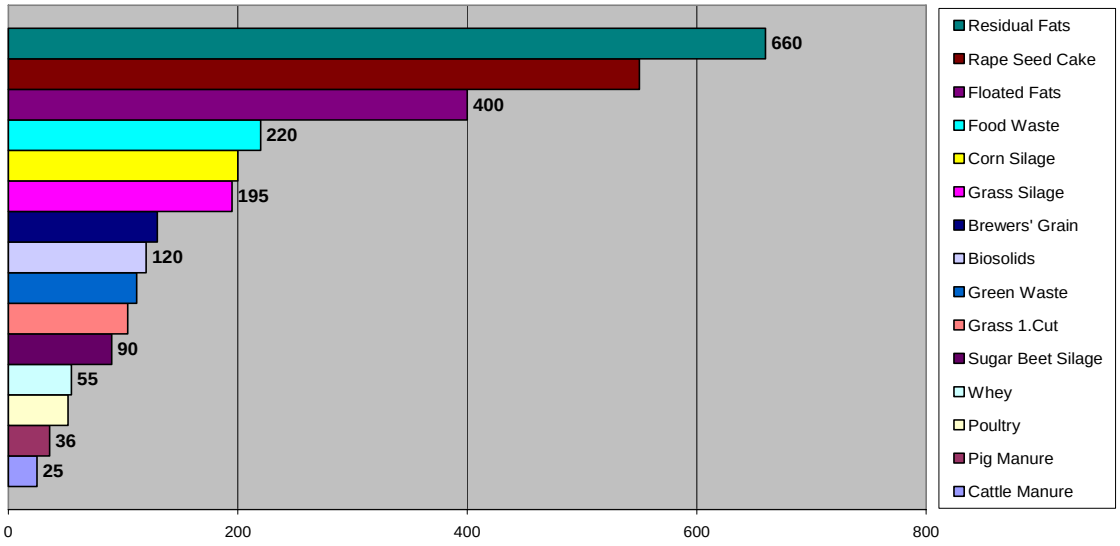
Based on a 1998 National Renewable Energy Laboratory (NREL) study entitled "Urban Waste Grease Resource Assessment", it was estimated that 13 pounds of interceptor/trap grease per year per person or 9,453 pounds of interceptor/trap grease per year per restaurant is generated in the typical city or region in the United States. This provides an ample potential supply of waste grease for California POTWs.

While interest in Waste Grease to Energy solutions is on the rise, many POTWs continue to be hesitant to embrace the concept. General processing issues such as biogas quality and site specific process and O&M impacts need to be better understood in order to determine the feasibility and cost effectiveness of such a program. The following assessment report compares and contrasts the processes, equipment and results of Waste Grease to Energy programs currently operational in California in an effort to provide valuable "real world" data and information to POTWs who may be considering their own Waste Grease to Energy programs.

Figure 1

Gas Yields of Various Organic Materials (m^3 gas/ton)

Source: EPA Region 9 Waste Management



2.0 DATA COLLECTION AND ANALYSES

2.1 POTWs Evaluated

To better understand the requirements of a successful Waste Grease to Energy program, Environmental Engineering and Contracting, Inc. (EEC) conducted an assessment of Waste Grease to Energy programs at various POTWs in Southern and Northern California.

Based on POTW conference presentations and published articles on the Waste Grease to Energy topic, POTWs were identified as top candidates for this assessment. Each of the candidate facilities were contacted to discuss the scope and intent of the assessment as well as their availability to participate. For those available to participate, a site visit was conducted with plant staff to observe the waste grease processes and equipment configurations and to discuss the various elements of their Waste Grease to Energy program.

The following four POTWs were selected for the assessments:

POTW	Treatment Plant Capacity Million Gallons Per Day (MGD)	Anaerobic Digester Capacity Million Gallons (MG)
City of Riverside	40 MGD	(2) 1.5 MG*
City of Oxnard	32 MGD	(3) 1.8 - 2.3 MG
South Bayside System Authority (SBSA)	28 MGD	(2) 1.7 MG
City of Millbrae	3 MGD	(2) 0.5 MG

* The City of Riverside has an additional 1.1 MG digester that is not included in the waste grease to energy project.

City of Riverside Waste Grease Storage Tanks

South Bayside System Authority Anaerobic Digester

During the site visits, a series of waste grease processing topics were discussed with each facility beginning with waste grease receiving station configuration and concluding with biogas production, utilization and storage issues. In addition to the processing details, economic issues such as energy cost savings, equipment installation costs and O&M costs associated with the "Waste Grease to Energy" programs were discussed. When available, hard data was provided; however, much of the key information collected was based on verbal interviews with the treatment plant operators and management, previous presentations, and what was visible during the site visits. The results of these discussions are summarized in the following tables:

2.1 Waste Grease Receiving and Storage

The following waste grease receiving and storage data was collected from the four POTWs:

Table 2.1 Waste Grease Receiving and Storage Data

	City of Riverside	City of Oxnard	SBSA	City of Millbrae
Waste Grease Receiving Station Location	• Within plant • Restricted/monitored access • 24hr/day access • Plant attendant present	• Within plant • Accessible to city vehicles only	• Within plant • Restricted/ monitored access • Limited access hours • Plant attendant present	• Outside of plant • Restricted/monitored access • 24hr/day access • Authorization/access to receiving station via card reader • No plant attendant required
Waste Grease Delivery to POTW	• One contracted grease hauler authorized to deliver waste grease to plant • 5-6 deliveries per day	• Only city owned grease hauling vehicles authorized to deliver waste grease to plant • 1-2 deliveries per day	• Specific wastes (grease and some septic) accepted from permitted haulers • 1-2 deliveries per day	• One contracted grease hauler authorized to deliver waste grease to plant • 1-2 deliveries per day
Incoming Waste Grease Sampling	• Significant analytical data on multiple loads is available. Volatile solids content of the solids is 90-98%. pH = 4.3 – 4.8.	• None reported	• 500 ml sample collected for each load and held for 1 month (for analysis in event of plant upset)	• None reported
Waste Grease Storage	• Two 10,000 gal heated/mixed holding tanks • Additional holding capacity at contracted grease hauler's facility.	• None	• 20,000 gal underground concrete holding tank, unheated, manually mixed • Converted septic receiving station	• 0ne 12,000 gal mixed holding tank
Waste Grease Pre-treatment (Grit/Trash/Debris Removal)	• Requirement of 3/4" debris screening (by hauler) prior to injection to waste grease holding tanks	• None • Plan to install a grinder at waste grease connection	• Rock trap and debris removal performed at receiving station • Haulers are responsible for area clean-up	• Rock trap at inlet to holding tank • Maintained by plant staff
Odor Issues	• Holding tanks vented into digester • Minimal odors during operation • Some odors during hauler transfers	• Some odors during hauler transfers	• Receiving station is remotely located • Some odors during hauler transfers • Air scrubber has been abandoned	• Air scrubber for holding tank utilized • Minimal odors during operation • Some odors during hauler transfers

Generally, waste hauler access to the receiving station is restricted to the availability of a plant attendant. To eliminate the necessity of a plant attendant for waste grease receiving, the City of Millbrae has built a pad just outside of the plant, with restricted access to the receiving station. A card-reader and keypad are used to verify hauler authorization and provide access to the station as needed. Control systems are employed to prevent damage or overfilling of the waste grease system and hardware interlocks, lighting and surveillance equipment are utilized to prevent unauthorized disposal.

Ideally, delivery of waste grease from the haulers to the waste grease station should be consistent quantities at regular intervals. This consistency will help to minimize digestion process overloads and optimize biogas production. With multiple haulers providing waste grease to a facility, and without significant storage, achieving a high degree of consistency will be difficult. A growing trend is to identify a single waste management company or hauler to be the dedicated waste grease provider. In the Cities of Millbrae and Riverside, only one contracted hauler is authorized to deliver waste grease to the plant. In the City of Oxnard, since they pump-out most of the grease interceptors in their service area themselves, they only allow their own pump trucks to deliver waste grease to the plant.

The ideal situation for a POTW utilizing contracted waste grease providers is to require them to commit to providing specified quantities of waste grease at specified intervals. In order to meet the quantity requirements of the facility, the hauler may need to provide additional waste grease holding capacity and may need to accept waste grease from other haulers. A dedicated waste grease provider has the added benefit of consistent receiving station equipment operation and housekeeping as well as source identification of contaminated grease waste loads. This need for waste grease quantity and quality consistency provides an opportunity for POTWs to explore Public-Private Partnerships and other quantity and quality arrangements with waste grease management companies.

Based on observations at three of the four site assessments, a waste grease receiving station does not need to be a complex or costly system. Constant mixing and heating of the above ground waste grease holding tank(s) is a critical, yet relatively simple solution for maintaining a homogeneous mixture and preventing grease solidification. This is a particularly important consideration for facilities subject to colder weather. Equally important is consideration of the delivery piping from the holding tanks to the digester. The delivery piping should be designed to minimize the potential for grease to settle and accumulate, resulting in excessive maintenance. Constant recirculation through coated or heated piping appears to be effective. Fitting for steam cleaning and pigging would be important considerations. Considerations should also be made for the relatively low pH of the waste grease (e.g., pH of 4.3 to 4.8 in Riverside) to prevent corrosion of tanks, pumps, mixers, and piping. Due to low pH and high solids content of the waste, the City of Riverside recommends acid resistant chopper style pumps.

Since the source of the waste grease is from restaurant grease interceptors and grease traps, trash and debris removal must be included in the design; however, grit is generally not a significant issue. Most facilities have implemented simple rock traps or screens to prevent any potential debris from damaging pumps or causing blockages.

Typically, the waste grease is transferred from the hauling vehicle directly to the waste grease holding tanks. The load can be pumped by the hauler into the tanks or drawn from the hauling vehicle by receiving station pumps. While potentially a more costly design, drawing the waste from the truck enables greater control and automation of the transfer process. Underground pits (i.e., lift stations) have been considered and utilized as the waste grease receiving stations; however, this configuration does not lend itself readily to mixing and is susceptible to increased maintenance (e.g., formation of grease blanket, odors).

Where waste grease mixing techniques and consideration of waste grease conveyance issues were specifically addressed, very little maintenance effort is required for the receiving station.

Waste grease storage tank sizing should be optimized based on peak digestion capacity and waste grease delivery schedule. If inconsistent or no deliveries are routine, increased holding capacity may be needed to maintain consistent biogas production. Where reliable deliveries are provided, less holding capacity will be needed.

Waste grease can have a strong unpleasant smell and these odors can be problematic. In evaluating potential locations for the receiving station, consideration of the impact of potential nuisance odors generated during waste hauler transfers is needed. Management of waste grease holding tank odors was addressed by each of the four POTWs through venting into the digesters, air scrubbers, or locating the tanks in an area of the plant where odors would not be a nuisance to the public.

2.2 Waste Grease Processing

The following waste grease processing data was collected from the four POTWs:

Table 2.2 Waste Grease Processing Data

	Riverside	Oxnard	SBSA	Millbrae
Volume of Waste Grease Processed	• Currently 27,500 gal/day, 7 days/week • Upgrades to increase to 60,000 gal/day, 7 day/week are in process	• 3,000-5,000 gal/day, 5 days/week • No plans to increase	• 3,000-5,000 gal/day, 5 days/week • No plans to increase	• 3,000-6,000 gal/day, 7 days/week • No plan to increase
Waste Grease Conveyance to Digester	• Timed injection using 250 gpm holding tank mixing pump • Injection for 1 minute every 15 minutes • Injected into digester recirculation line	• Slug Injection of full contents of truck • Injected into digester recirculation line ahead of the heat exchanger	• Manually Injected using variable speed pump • Injected into digester recirculation pump • Generally injected to supplement low sludge flow (to stabilize gas production)	• Recirculating biosolids mixed with waste grease in waste grease holding tank ("pre-digestion") • Waste grease/ biosolids mixture Injected at a rate to utilize the contents of the holding tank over a 24 hour period • Injected back into heated digester recirculation line
Digester Configuration	• Two 1.5 MG Anaerobic • Waste grease to digester 2 • Digester 1 originally used as the control; now receiving waste grease • Mesophilic, fixed cover	• Three 1.8-2.3 MG Anaerobic • Waste grease to any one of the three digesters • Mesophilic, fixed cover	• Two 1.7 MG Anaerobic • Waste grease to digester 1, digester 2 used as control • Mesophilic, fixed cover	• Two 0.5 MG Anaerobic • Waste grease to one digester • Mesophilic, fixed cover
Digester Mixing	• 3,500 gpm mechanical mixing	• Draft tube gas mixing	• 10,000 gpm mechanical mixing	• 3,300 gpm mechanical mixing
Increased Biogas Production	• Digester 2 generating 80-200% more gas than digester 1	• 5% increase	• Digester 1 generating ~40% more gas than digester 2	• 100% increase
Biogas Quality	• 3.3 mg/Lsiloxane; no increased siloxane concentrations reported • BTU increase from 535 to as high as 720	• No increased siloxane concentrations reported	• No increased siloxane concentrations reported	• No increased siloxane concentrations reported
Digester Sensitivity to Waste Grease Variations	• 2 days with no waste grease deliveries resulted in 5 days of digester recovery (gas production back up)	• None reported	• None reported	• Minimal recovery time after missed grease injections
Biosolids	• 20% reduction from 5,000 wet tons/month to 4,000 wet tons/month • Increased biosolids dewatering after 20% drop	• Some reduction in biosolids	• No increase or decrease in biosolids measured	• ~35% reduction based on: 160 wet tons/month reduced to 100 wet tons/month and a 32% reduction in dry tons/month
Maintenance Needs	• Occasional waste grease conveyance piping cleaning • No increased digester or engine maintenance	• Occasional waste grease conveyance piping cleaning • No increased digester or engine maintenance	• Routine waste grease conveyance piping cleaning (3-4/year) • Routine rock trap cleaning • Routine holding tank maintenance (break-up solidified grease) • No increased digester / engine maintenance	• Routine rock trap cleaning (2-3 per week) • No increased digester or engine maintenance

Site specific waste grease processing capacity is primarily dependant on available digester capacity (volatile solids loading).

Consistent anaerobic digester performance (biogas production) depends on precise control of key parameters such as temperature, pH, hydraulic detention time and organic loading to the digester. Significant variations in any of these parameters can cause digester instability that requires days or weeks to recover. As the percentage of waste grease in the loading to the digester increases, the need for consistent feeding of the grease increases. In situations where the waste grease represents a small percentage of the organic loading, a consistent feed of the waste grease could help to optimize digester performance.

In facilities where waste grease represents a significant percentage of the organic loading, mixing and feed rate controls have been implemented to optimize digester performance and minimize digester upsets. Thorough mixing of the waste grease and timed injection to the digester are simple solutions that have been successfully implemented.

Mixing is critical to digester performance in general and becomes even more critical with the addition of waste grease. Aside from providing increased microorganism contact with the waste grease, effective mixing helps prevent development of a scum blanket and minimizes settling of fine solids. No reports of increased digester maintenance were identified by any of the four POTWs.

All of the facilities included in this assessment utilize multiple, fixed cover, mesophilic digester configurations. Generally, parallel digester configurations were available that provided the opportunity to closely monitor digester processes and performance. In these cases, one of the parallel digesters was configured to receive waste grease and the other digester was utilized as a control. Performance of both digesters was continuously monitored, providing key data in the evaluation of the waste grease process.

The biogas production results were dramatic and somewhat surprising to most of the POTWs. For the facilities attempting to optimize biogas production (rather than just providing an alternate disposal option), 40% to 100% increases in biogas production were realized with the implementation of Waste Grease to Energy programs. The biogas produced with incorporated waste grease processing also exhibited increased BTU values and methane concentrations.

Increased siloxanes in the biogas is a concern because it may result in increased generator/engine maintenance in lean-burn engines, but an increase in siloxane would be due more to increased biogas production rather than additional sources in the waste grease. While conclusive siloxane data was not provided at these four POTWs, no incidence of increased generator/engine maintenance was observed or reported by any of the POTWs.

Another important result of waste grease processing is the increase in the volatile solids destruction rate. Biosolids reductions as high as 40% have been realized. The surprising increase in destruction rate and subsequent reduction in biosolids is a significant added benefit that far exceeded the expectations of the four facilities.

2.3 Biogas Storage and Utilization

The following biogas storage and utilization data was collected from the four POTWs:

Table 2.3 Biogas Storage and Utilization Data

	Riverside	Oxnard	SBSA	Millbrae
Gas Storage	• Gas storage in digester • 1 hour of external gas storage (100 psi tank) • Excess gas flared • Planning for 24 hours of external gas storage	• Gas storage in digester only	• Gas storage in digester only	• Gas storage in digester only • No space for biogas gas storage
Co-gen Capacity	• 3MW (IC engines) • 1-5% natural gas blending still used • 1MW Fuel cell planned	• (3) 500KW (IC engines) • 60% of plant power provided by Co-Gen	• 500KW (IC Engines) • 25% of plant power provided by Co-Gen	• 250KW (micro turbine) • 15% natural gas blending • 100% of plant power provided by Co-Gen

With the increased biogas production resulting from waste grease processing, utilization and storage issues require additional consideration. The increased availability of biogas from waste grease processing reduces or eliminates the required supplemental natural gas for co-gen operations. If biogas production periodically exceeds the co-gen operations needs, evaluation of increased biogas storage should be considered to minimize natural gas dependence during periods of low biogas production. This can potentially be accomplished using refurbished propane storage tanks and gas pressurization systems.

2.4 Costs, Savings and Revenue

The following costs, savings, and revenue data were collected from the four POTWs:

Table 2.4 Costs, Savings, and Revenue Data

	Riverside	Oxnard	SBSA	Millbrae
O&M Costs	• Minimal O&M costs	• Minimal O&M costs	• Receiving station attendant/ operator (manual operation) • Conveyance piping cleaning	• Minimal O&M costs
Equipment Costs	• $50,000 • In-house design and labor	• Minimal equipment costs	• Minimal equipment costs. Converted existing septic receiving station	• $700,000, included in $5.5M plant upgrade
Annual Cost Savings	• Natural Gas = $1,030,000 • Electricity = $1,300,000 • Biosolids disposal = $500,000	• Marginal energy savings and reduced biosolids disposal costs	• ~$100,000 per year in energy savings and reduced biosolids disposal costs	• ~$350,000 per year in energy savings and reduced biosolids disposal costs
Waste Grease Disposal/Tipping Fees	• $0.03/gal = $300,000 per year	• $200 waste grease pick-up fee charged to participating restaurants	• $25 + $0.10/gal	• $0.00/gal currently; plan to collect $0.10/gal

Substantial cost savings have been achieved by the POTWs incorporating comprehensive Waste Grease to Energy programs. Energy cost savings (natural gas and electricity) are reportedly as high as $2,330,000 per year at the Riverside POTW. Significant additional savings have been realized through reduced biosolids processing and disposal costs. Comparing the data from the four POTWs may suggest that some POTWs will achieve substantially higher biogas production, biosolids reduction, and cost savings per gallon of waste grease processed compared to other POTWs. It is important to keep in mind that some POTWs are just starting to collect this data and there are many site specific factors involved including the microbiology within the digesters, the grease content of the waste grease, and the natural gas and electricity rates.

Though difficult to quantify, increased waste grease processing should result in a reduction in grease in the sewer collection system due to providing a proper disposal site for the waste grease. This should reduce SSO response costs and potentially reduce plant O&M costs (headworks processes).

The O&M costs associated with waste grease processing were not shown to be substantial. Generally, the typical O&M activities, such as pump maintenance and conveyance line cleaning, are minimal.

3.0 Summary and Conclusions

The following summary table was developed focusing on the areas of greatest interest to POTWs who may be considering their own Waste Grease to Energy program:

Table 3.1 Data Summary

	Riverside	Oxnard	SBSA	Millbrae
POTW Facts and Waste Grease Processed	• 40 MGD Plant • Two 1.5 MG Digesters, mesophilic, fixed cover • 3MW Co-gen (IC engines) • 1-5% natural gas blending still used • 27,500 gal of waste grease per day, 7 days per week	• 32 MGD Plant • Three 1.8-2.3 MG Digesters, mesophilic, fixed cover • (3) 500KW Co-gen (IC engines) • 60% of plant power provided by Co-gen • 3,000-5,000 gal of waste grease per day, 5 days per week	• 28 MGD Plant • Two 1.7 MG Digesters, mesophilic, fixed cover • 500KW Co-gen (IC Engines) • 25% of plant power provided by Co-Gen • 3,000-5,000 gal of waste grease per day, 5 days per week	• 3 MGD Plant • Two 0.5 MG Digesters, mesophilic, fixed cover • 250KW Co-gen (micro turbine) • 15% natural gas blending • 100% of plant power provided by Co-Gen • 3,000-6,000 gal of waste grease per day, 7 days per week
Waste Grease Delivery and Receiving	• One contracted grease hauler authorized to deliver waste grease to plant • Received within the plant • Restricted/monitored access	• Only city owned grease hauling vehicles authorized to deliver waste grease to plant • Received within the plant • Accessible to city vehicles only	• Specific wastes (grease and some septic) accepted from permitted haulers • Received within the plant • Restricted/ monitored access	• One contracted grease hauler to be authorized to deliver waste grease to plant • Received outside the plant fence • Restricted/monitored access • Authorization/access to receiving station via card reader

Table 3.1 Data Summary (continued)				
	Riverside	**Oxnard**	**SBSA**	**Millbrae**
Waste Grease Storage and Pretreatment	• Two 10,000 gal heated/mixed holding tanks • Requirement of 3/4" debris screening (by hauler) prior to injection to waste grease holding tanks	• No holding tanks • No screening	• 20,000 gal underground concrete holding tank, unheated, manually mixed • Rock trap and debris removal performed at receiving station	• 0ne 12,000 gal mixed holding tank • Rock trap at inlet to holding tank
Odor Issues	• Holding tanks vented into digester • Minimal odors during operation • Some odors during hauler transfers	• Some odors during hauler transfers	• Receiving station is remotely located • Some odors during hauler transfers	• Air scrubber for holding tank utilized • Minimal odors during operation • Some odors during hauler transfers
Maintenance Issues	• Occasional waste grease conveyance piping cleaning • No increased digester or engine maintenance	• Occasional waste grease conveyance piping cleaning • No increased digester or engine maintenance	• Routine waste grease conveyance piping cleaning (3-4 per year) • Routine holding tank maintenance (break-up solidified grease) • No increased digester or engine maintenance	• Routine rock trap cleaning (2-3 per week) • No increased digester or engine maintenance
Increased Biogas Production / Quality Issues	• 300,000 cubic feet per day • 80-200% increase in gas production compared to the control digester • No reported decrease in quality or increase in siloxanes	• Cubic feet per day not estimated • 5% increase in gas production • No reported decrease in quality or increase in siloxanes	• 70,000 cubic feet per day • ~40% increase in gas production compared to control digester • No reported decrease in quality or increase in siloxanes	• 40,000 cubic feet per day • 100% increase in gas production • No reported decrease in quality or increase in siloxanes
Biosolids Reduction	• 20% reduction in biosolids	• Reduced biosolids, not estimated	• No increase or decrease in biosolids measured	• 35% reduction in biosolids
O&M and Equipment Costs, Cost Savings	• Minimal O&M cost • $50,000 equipment cost • $2,730,000 per year in energy savings and reduced biosolids disposal costs	• Minimal O&M cost • Minimal equipment cost • Marginal energy savings and reduced biosolids disposal costs	• Minimal O&M cost • Minimal equipment cost • ~$100,000 per year in energy savings and reduced biosolids disposal costs	• Minimal O&M cost • $700,000 equipment cost • ~$350,000 per year in energy savings and reduced biosolids disposal costs

The waste grease collected from restaurant grease interceptors and grease traps is proving to be a valuable source of renewable energy. The substantial cost savings due to increased biogas production utilizing waste grease processing quickly offsets initial equipment costs and O&M efforts required to implement a comprehensive Waste Grease to Energy program. The quality of the biogas produced does not appear to be compromised with increased waste grease processing and in some instances, may actually improve the quality (increased BTU value). In addition to the energy savings associated with waste grease processing, reduced biosolids processing is also proving to be a

significant source of cost savings. Potential "Green" credits and energy rebates could also contribute to program savings.

While the design of waste grease receiving/conveyance systems is not trivial, basic solutions have been utilized to address critical processing and maintenance issues. The results have been robust, cost effective systems that require a minimal amount of O&M. Maintaining a homogeneous waste grease solution in holding tanks and conveyance piping utilizing mixing and heating is a critical design consideration. Access to the receiving system is also important. The location should address potential odors and truck traffic issues as well as coordination of off-hour waste grease deliveries.

All of the POTWs exhibited a keen understanding of their anaerobic digester processes and limitations. This understanding is critical in developing the microorganism population required to efficiently and effectively process the waste grease without causing digester instability. Digester mixing and uniform delivery of the waste grease are critical in maximizing biogas production and minimizing O&M issues.

With adequate storage capacity, surplus biogas can be utilized to maintain co-gen operations during periods of low biogas production while minimizing reliance on supplemental natural gas. When co-gen operations can meet the power needs of the facility, dependence on external, expensive power sources is minimized. When biogas production and storage can meet the demands of these co-gen operations, complete independence from outside energy sources can be realized.

The Bottom Line

Based on this Waste Grease to Energy assessment, any POTW with excess digester capacity and co-generation capabilities now, or planned for the near future, will likely receive the following benefits by pursuing a Waste Grease to Energy program:

- Substantial biogas boosting and optimization of biogas production processes resulting in 20-25 cubic feet of biogas production per gallon of waste grease processed.[1]

- The potential for significant increased power generation through co-generation resulting in approximately 50 Watts of power generation per gallon of waste grease.[2]

- Become substantially, or possibly completely, energy independent.

- Up to a 35% reduction in biosolids disposal resulting in significant cost savings and a partial solution to the growing problem of biosolids disposal.

[1] Estimated based on a waste grease volatile solids content of 18% and 15 cubic feet of gas production per pound of volatile solids destroyed in the digester.
[2] Estimated based on 2.2 Watts of power generation per cubic foot of biogas produced. This assumes the energy content of biogas is 600 Btu per cubic foot, and the power is produced using a 30% efficient electric generator (ref: EPA Combined Heat and Power Partnership Rule of Thumb).

- Energy and biosolids disposal cost savings and revenues that will far exceed the project capital and operating costs.

- Greenhouse gases are captured and converted into energy rather than being released into the atmosphere. Waste grease disposed into landfills has a large carbon footprint, due to the uncontrolled release of methane. While digestion and connected energy production systems at POTWs are not currently regulated under greenhouse gas law, there is an additional economic benefit to digesting waste grease. The ability to digest the gas and convert it to methane, which is then converted to carbon dioxide in co-gen engines, provide the opportunity for the POTW to receive environmental credits for carbon footprint reduction. Some agencies in California have been trading these credits with industry through registries and generating new revenues, in some cases over $100,000 per year.

- Potential grants and energy rebates/credits.

- A proper waste grease disposal site in your service area to encourage the proper maintenance of grease interceptors and minimize the potential for illicit waste grease dumping.

- The overall environmental benefit of converting an undesirable and problematic waste into a valuable energy resource.

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix B
Annual FOG Waste Volume Data

Projected FOG Generation
from
San Jose PSA and Neighboring Cities Outside PSA
March 24, 2009

Description	FOG from Grease Interceptors			FOG from Grease Traps				FOG from Grease Interceptors and Grease Traps	
		Current	10-year Projection		Current	10-year Projection		Current Total	10-year Projection
	Number of Grease Interceptors	FOG Annual Volume from Grease Interceptors (gallons)	FOG Annual Volume from Grease Interceptors	Number of Grease Traps	FOG Annual Volume from Grease Traps Total (gallons)	FOG Annual Volume from Grease Traps Total (gallons)	Total Quantity of Grease Interceptors and Grease Traps	FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)	Projected FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)
PSA									
FSEs with Grease Interceptors	1,017	8,890,112	-	-	-	-	1,017	8,890,112	-
Assumptions: Interceptors are pumped on a quarterly basis									
FSEs with Grease Traps	-	-	-	811	320,070	-	811	320,070	-
Assumptions: Traps are pumped on a monthly basis									
PSA Current Program Totals	1,017	8,890,112	0	811	320,070	0	1,828	9,210,182	0
FSEs with Grease Interceptors (Projected increase in next 10-years)									
New FSEs with Interceptors (assumes 2.5% increase per year)	320	-	1,918,758	-	-	-	320	-	1,918,758
FSEs Upgraded with a New Interceptor (assumes 2.5% increase per year)	320	-	1,918,758	-	-	-	320	-	1,918,758
Assumptions: Interceptors will be pumped on a quarterly basis Average interceptor size will be 1500 gallon									
FSEs with Grease Trap (Projected increase in next 10-years)									
New FSEs with Grease Trap	-	-	-	255	-	107,107	255	-	107,107
FSEs Upgraded With a New Grease Trap	-	-	-	255	-	107,107	255	-	107,107
Assumptions: Grease traps will be pumped on a monthly basis Average grease trap size will be 35 gallons									
PSA Change in 10-years Totals	640	-	3,837,515	510	-	214,214	1,150	-	4,051,729
PSA Projected Totals	1,657	-	12,727,627	1,321	-	534,284	2,978	-	13,261,911

Projected FOG Generation
from
San Jose PSA and Neighboring Cities Outside PSA
March 24, 2009

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Outside PSA									
City of Mountain View									
FSEs with Grease Interceptors	22	66,000	-	-	-	-	22	66,000	-
Assumptions: Interceptors are pumped on a quarterly basis Average grease interceptor size is 750 gallon									
FSEs with Grease Traps	-	-	-	232	139,200	-	232	139,200	-
Assumptions: Traps are pumped on a monthly basis Average grease trap size is 50 gallons									
Mountain View Current Program Totals	22	66,000	0	232	139,200		254	205,200	0
FSEs with Grease Interceptors (Projected increase in next 10-years)									
New FSEs with Interceptors (assumes 2.5% increase per year)	7	-	20,754	-	-	-	7	-	20,754
FSEs Upgraded with a New Interceptor (assumes 2.5% increase per year)	7	-	20,754	-	-	-	7	-	20,754
Assumptions: Interceptors will be pumped on a quarterly basis Average interceptor size will be 750 gallon									
FSEs with Grease Trap (Projected increase in next 10-years)									
New FSEs with Grease Trap	-	-	-	73	-	43,771	73	-	43,771
FSEs Upgraded With a New Grease Trap	-	-	-	73	-	43,771	73	-	43,771
Assumptions: Grease traps will be pumped on a monthly basis Average grease trap size will be 50 gallons									
Mountain View Change in 10-years Total	14	0	41,507	146	0	87,542	160	-	129,049
Mountain View Projected Totals	36	66,000	107,507	378	139,200	87,542	414	-	334,249

Projected FOG Generation
from
San Jose PSA and Neighboring Cities Outside PSA
March 24, 2009

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		Current	10-year Projection		Current	10-year Projection		Current Total	10-year Projection
	Number of Grease Interceptors	FOG Annual Volume from Grease Interceptors (gallons)	FOG Annual Volume from Grease Interceptors	Number of Grease Traps	FOG Annual Volume from Grease Traps Total (gallons)	FOG Annual Volume from Grease Traps Total (gallons)	Total Quantity of Grease Interceptors and Grease Traps	FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)	Projected FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)
City of Sunnyvale									
FSEs with Grease Interceptors	31	286,800	-	-	-	-	31	286,800	-
Assumptions: Interceptors are pumped on a quarterly basis									
FSEs with Grease Traps	-	-	-	150	37,474	-	150	37,474	-
Assumptions: Traps are pumped on a monthly basis									
Sunnyvale Current Program Totals	31	286,800	0	150	37,474	0	181	324,274	0
FSEs with Grease Interceptors (Projected increase in next 10-years)									
New FSEs with Interceptors (assumes 2.5% increase per year)	10	-	61,565	-	-	-	10	-	61,565
FSEs Upgraded with a New Interceptor (assumes 2.5% increase per year)	9	-	55,409	-	-	-	9	-	55,409
Assumptions: Interceptors will be pumped on a quarterly basis Average interceptor size will be 1500 gallon									
FSEs with Grease Trap (Projected increase in next 10-years)									
New FSEs with Grease Trap	-	-	-	47	-	19,810	47	-	19,810
FSEs Upgraded With a New Grease Trap	-	-	-	47	-	19,810	47	-	19,810
Assumptions: Grease traps will be pumped on a monthly basis Average grease trap size will be 35 gallons									
Sunnyvale Change in 10-years Total	19	-	116,974	94	-	39,620	113	-	156,594
Sunnyvale Projected Totals	50	-	403,774	244	-	77,094	294	-	480,868

Projected FOG Generation
from
San Jose PSA and Neighboring Cities Outside PSA
March 24, 2009

Description	FOG from Grease Interceptors			FOG from Grease Traps				FOG from Grease Interceptors and Grease Traps	
		Current	10-year Projection		Current	10-year Projection		Current Total	10-year Projection
	Number of Grease Interceptors	FOG Annual Volume from Grease Interceptors (gallons)	FOG Annual Volume from Grease Interceptors	Number of Grease Traps	FOG Annual Volume from Grease Traps Total (gallons)	FOG Annual Volume from Grease Traps Total (gallons)	Total Quantity of Grease Interceptors and Grease Traps	FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)	Projected FOG Annual Volume for Disposal from Grease Interceptors and Grease Traps (gallons)
City of Palo Alto									
FSEs with Grease Interceptors									
Assumptions: Interceptors are pumped on a quarterly basis	74	724,840	-	-	-	-	74	724,840	-
FSEs with Grease Traps	-	-	-	189	137,793	-	189	137,793	-
Assumptions: Traps are pumped on a monthly basis									
Palo Alto Current Program Totals	74	724,840	0	189	137,793	0	263	862,633	0
FSEs with Grease Interceptors (Projected increase in next 10-years)									
New FSEs with Interceptors (assumes 2.5% increase per year)	24		142,585				24		142,585
FSEs Upgraded with a New Interceptor (assumes 2.5% increase per year)	23		136,644				23		136,644
Assumptions: Interceptors will be pumped on a quarterly basis Average interceptor size will be 1500 gallon									
FSEs with Grease Trap (Projected increase in next 10-years)									
New FSEs with Grease Trap	-	-	-	59	-	22,285	59	-	22,285
FSEs Upgraded With a New Grease Trap	-	-	-	59	-	22,285	59	-	22,285
Assumptions: Grease traps will be pumped on a monthly basis Average grease trap size will be 35 gallons									
Palo Alto Change in 10-years Total	47	-	279,229	118	-	44,570	165	-	323,799
Palo Alto Projected Totals	121	-	1,004,069	307	-	182,363	428	-	1,186,432
Total Grease Waste Volume for PSA and Cities Outside PSA								**10,602,289**	**15,263,460**

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix C
Illicit Dumping Documents

Illicit Dumping

1. Illicit Dumping first incident

- Date September 2000
- Location: (El Camino Real in Los Altos) Palo Alto

Description:

During September 21, 2000 Thrifty Best Services was hired to pump a grease interceptor at El Torito. When they arrived onsite in the middle of the night the two tanker trucks started dumping grease into a restaurants storm drain manhole. Total gallons pumped from the trucks into the restaurants storm drain manhole was 8,000 gallons. The grease seeped from the manhole into adobe Palo-Alto creek.

2. Illicit Dumping Second incident

- Date May 21 2001
- Location: Cupertino

Description:

During May 21, 2001 Carl Beckman with Cupertino Sanitation District (CSD) caught Pioneer Liquid Transport dumping grease into a grease interceptor at Baja Fresh Restaurant on Bandley at Stevens Blvd.

3. Illicit Dumping Third Incident

- Date December 3, 2001
- Location: Palo-Alto

Description:

A-1 Septic Tank Service is a liquid waste hauling business based in Hayward. On December 3, 2001, A-1 Septic employees Medeiros, Murillo, and Hetrick cleaned a substantial amount of grease from the Palo Alto Hills Golf and Country Club. Instead of lawfully disposing it at a treatment plant or landfill, they discharged the grease into a pipe that emptied into the city sewer. The grease overflowed several manholes near the corner of Alexis Drive and Page Mill Road into Matadero Creek. A cyclist slipped on the grease, a truck was disabled when it hit one of the open manholes, and city crews spent hours attempting to clean up the pollution.

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: Phil McGinnis **FROM:** Jack Dickinson

SUBJECT: Week Ending May 18, 2001 **DATE:** May 21, 2001

1. **Cupertino:** Carl Beckham of CSD called me at around 0745 on Tuesday morning to report that their collection crew had caught Pioneer Liquid Transport dumping into an interceptor at the Baja Fresh Restaurant on Bandley at Stevens Creek Blvd. . Mharr and I responded as well as Wayne Yipp from the DA's Office.. Mr. Yipp is handling the case.

   At the request of the Property Manager and CSD, I returned to the site in the afternoon to assist them with internal pollution prevention efforts. (7 hours total)

2. **New IU Logs:** Several hours were spent updating IU Track per Kort's instructions. (3 hours)
3. **BOC Edwards:** Received an updated Discharge Permit Application. Inspected the site. Will resume processing their permit. (3 hours)

	Hours
Permit writing, amending, correcting	2
Source Control and Trib Team meetings and notes	2
* Inspection: Preparation for next week	1
* Sampling	1
* Permitted IU paperwork, SMR, sample reports	4
* IU Database entry: tracking, notes, information, Annual and Quarterly reports	3
* Other paperwork, FAS, business lists, plan checks, phone duty, etc.	1
Administrative: timesheet, Email, logging	4
* Special Assignments (list)	
• Cupertino: Dumping response.	7
• CMOM/MP&M:	2
• Training: WEF/EPA paperwork (Atlanta)	3
•	
•	
* Compliance Inspections (list and attach copies of reports)	5
✓ Sorrento Cheese	
✓ SVPC	
✓ BOC Edwards	
✓	
✓	

Office of the
DISTRICT ATTORNEY

Grease Dumped in Palo Alto Creek Fresno Men to Serve 4 Months in Jail for Felony Conviction

FROM: Karyn Sinunu, Assistant District Attorney

CONTACT PERSON: Bud Porter, Deputy District Attorney
Environmental Protection Unit
(408) 792-2962

For immediate release on July 12, 2002

GREASE DUMPED IN PALO ALTO CREEK—FRESNO MEN TO SERVE 4 MONTHS IN JAIL FOR FELONY CONVICTION

Santa Clara County District Attorney George W. Kennedy announced today that two Fresno-area men were convicted of felony water pollution for dumping thousands of gallons of grease into a Palo Alto creek. The grease slimed a half-mile stretch of Adobe Creek and took crews two days to clean up.

The defendants, Abraham Gomez and Angel Leal Mancilla, pleaded no contest to all charges yesterday as the jury trial was scheduled to begin. Sentencing is set for September 16 in Department 58 of the Superior Court in Santa Clara. The defendants will be ordered to serve four months in county jail, perform 250 hours of clean-up work for the community, and reimburse the City of Los Altos $7,683 for the cost of cleaning up Adobe Creek. Each defendant must also pay a $27,000 fine.

The charges were based on an incident that occurred around 1 a.m. on September 21, 2000, when the defendants opened a manhole on El Camino Real in Los Altos and dumped a tanker of restaurant grease inside the storm drain. The defendants are employed by Thrifty Best Service of Fresno.

The illegal disposal of restaurant grease is a statewide problem. Restaurant grease suffocates fish and is

NEWS RELEASE

FROM: JOHN D. PHILLIPS

District Attorney of San Joaquin County

FOR IMMEDIATE RELEASE ON JULY 16, 2003

DISTRICT ATTORNEYS REACH $900,000 SETTLEMENT WITH ONE OF CALIFORNIA'S LARGEST GREASE HAULING BUSINESSES

A civil enforcement action charging a large Fresno-based grease hauling business with violations of water pollution laws was settled today in Stockton, San Joaquin County District Attorney John D. Phillips announced. The case was based on the work of a statewide taskforce created by the California Environmental Protection Agency to focus enforcement efforts on the illegal disposal of waste grease in California. The complaint was filed in January 2003 in San Joaquin County with the action joined by 12 other counties throughout California including Fresno, Kings, Madera, Merced, Monterey, Sacramento, San Bernardino, Shasta, Solano, Sonoma, Stanislaus, and Tehama Counties.

The complaint alleged that Thrifty Best Service, a company operated by Central California Wastepaper Incorporated, violated provisions of the State Water Code and Fish and Game Code, created a public nuisance and engaged in unfair business practices including false advertising, by illegally dumping inedible kitchen grease into public sewers and storm drains. Ameriguard Maintenance Service, LLC, a successor company to Thrifty Best, was later added to the complaint after Thrifty Best Services ceased doing business in California.

While the defendants did not admit the allegations in the complaint, as part of the civil settlement, Thrifty Best did admit nine counts of contempt for violating restraining orders

issued in the case. The $900,000 settlement in the case represents $620,400 in penalties and $279,600 in costs. Prosecutors also obtained a court order preventing Thrifty Best Service and its owner, William Shubin, from doing business in California forever. Ameriguard Maintenance Services and its owner, Michael Bessonov, are required by the court order to comply with all applicable laws and to provide the prosecutors with information verifying that fact.

The illegal disposal of restaurant grease is a significant statewide problem causing damage to publicly owned sewage treatment facilities, expensive sewer back-ups and damage to the environment including water pollution. Businesses contracting with Thrifty Best for waste grease services expected the company to properly dispose of the waste through sewage treatment plants, rendering plants or recycling facilities and were likely unaware of the alleged unlawful disposals. The complaint alleged that Thrifty Best Service employees violated the law in at least seven incidents occurring in seven different locations ranging from Redding to Rancho Cucamonga.

The District Attorneys joining in today's filing include:

ELIZABETH EAGAN
District Attorney of Fresno County

RONALD L. CALHOUN
District Attorney of Kings County

ERNEST J. LICALSI
District Attorney of Madera County

GORDON SPENCER
District Attorney of Merced County

DEAN FLIPPO
District Attorney of Monterey County

JAN SCULLY
District Attorney of Sacramento County

MICHAEL RAMOS
District Attorney of San Bernardino County

JOHN D. PHILLIPS
District Attorney of San Joaquin County

McGREGOR SCOTT
District Attorney of Shasta County

DAVID W. PAULSON
District Attorney of Solano County

STEPHAN PASSALACQUA
District Attorney of Sonoma County

JAMES C. BRAZELTON
District Attorney of Stanislaus County

GREG COHEN
District Attorney of Tehama County

CONTACT PERSON: – David J. Irey, Deputy District Attorney, Environmental Prosecutions Unit, at (209) 468-2470 or by pager at (209) 983-7637

A-1 Illicit Dumping

PALO ALTO GREASE DUMPERS CONVICTED OF FELONIES

After a trial that spanned six weeks, yesterday Superior Court Judge Eugene Hyman convicted Thomas Medeiros of felony and misdemeanor charges for dumping restaurant grease into the Palo Alto sanitary sewer. Medeiros' former employer, A-1 Septic Tank Service, Inc., and coworkers Richard Murillo and Mark Hetrick, Jr. previously pleaded no contest to the same charges.

A-1 Septic Tank Service is a liquid waste hauling business based in Hayward. On December 3, 2001, A-1 Septic employees Medeiros, Murillo, and Hetrick cleaned a substantial amount of grease from the Palo Alto Hills Golf and Country Club. Instead of lawfully disposing it at a treatment plant or landfill, they discharged the grease into a pipe that emptied into the city sewer. The grease overflowed several manholes near the corner of Alexis Drive and Page Mill Road into Matadero Creek. A cyclist slipped on the grease, a truck was disabled when it hit one of the open manholes, and city crews spent hours attempting to clean up the pollution.

A-1 Septic Tank Service, Murillo, and Hetrick pleaded before trial. A-1 will pay a fine and penalty assessment of $108,000. Murillo and Hetrick will each serve 90 days in jail, perform 300 hours of community service, and pay a $13,500 fine and penalty assessment.

Medeiros will be sentenced on the felony and misdemeanor convictions on May 12th. The maximum sentence is three years in prison and a $50,000 fine.

This case is the third successful prosecution of a grease hauler by the Santa Clara County District Attorney's Office in the last three years. The illegal disposal of restaurant grease is a statewide problem. Legislation to address it is currently pending.

The District Attorney's Environmental Protection Unit investigated and prosecuted the case, assisted by the City of Palo Alto Water Pollution Control Plant and Public Utilities Department.

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INSIDE

Feds predict huge deficit

The White House yesterday predicted this year's federal deficit will hit $165 billion. See page 7

School fire suspicious

Grease guys cop plea

BY CHRISTINA BELLANTONI
DAILY NEWS STAFF WRITER

Two men who dumped 8,000 gallons of restaurant grease into the Adobe Creek in Los Altos in September 2000 pleaded no contest in a Santa Clara County court to charges of felony water pollution Thursday, and will likely serve four months in jail and be subject to at least $31,000 in fines each, officials said.

Abraham Gomez, 34, and Angel Mancilla, 33, were employees of Thrifty Best Service at the time of the crime, and worked pumping restaurant grease out of underground tanks, said Deputy District Attorney for Santa Clara County Bud Porter, who focuses on environmental crime.

It is a standard practice for restaurants to hire truck drivers to vacuum the grease out of a manhole in the middle of the night and then leave a bill on the restaurant's front door.

The felony water pollution occurred at the now-closed El Torito Restaurant at 4470 El Camino Real in Los Altos on Sept.

See GREASE, Page 53

GREASE

FROM PAGE 1

21, 2000, said Porter. "This wasn't any accident. This was evil, intentional nasty stuff," said Porter.

Mancilla and Gomez were hired to clean out the restaurant's grease in the middle of the night but instead used their two tanker trucks to dump 8,000 gallons of grease — enough to fill a small above-ground swimming pool — from other restaurants into a manhole.

The men then left a bill for El Torito for work they did not do and drove away.

The stinky grease seeped from the manhole into the very low Adobe Creek and coated a half-mile stretch with a milk-shake-like batter by early morning.

"It basically became a creek of grease," said Porter.

A Palo Alto sewer worker traced the smell and the grease trail back to the restaurant's manhole, which had been left ajar.

The Los Altos Police Department investigated and found the bill Mancilla and Gomez had left and that the men did not remove El Torrito's grease.

It took two days for city workers and volunteers to clean it up, costing Los Altos $8,000.

The grease can kill fish, birds and plants.

After an extensive search and seizure of Thrifty Best's computers, Mancilla and Gomez were arrested.

Yesterday the men admitted guilt and Santa Clara County Superior Court Judge Robert Ambrose told them they would likely be sentenced to four months in Santa Clara County Jail, fined $27,000 each, being divided between the state of California and Santa Clara County, fined $8,000 to the city of Los Altos for cleanup costs — which will likely have to be paid first — and 250 hours of community service.

Porter said Ambrose told Mancilla and Gomez they would be doing cleanup work and would be on probation for three years.

If the men — who Porter said are not U.S. citizens — don't pay the fine, the company might have to pay. If they don't pay it, that would be a violation of their probation, said Porter.

Neither Mancilla nor Gomez could be reached for comment. Defense attorney Eddie Ruiz declined to comment.

Thrifty Best has not been charged with a crime, but is not off the hook yet, said Porter.

The grease dumping company, established in 1963, is still operating out of Fresno.

Mancilla and Gomez are scheduled for sentencing on Sept. 16 in Superior Court Department 58 in Santa Clara.

"There is a real need for stronger laws to track this stuff," said Porter, who had never seen a case involving such a large amount of grease. Porter is prosecuting a similar case against a San Jose company that dumped grease into a sanitary sewer in Cupertino.

Porter said he was initially tipped off to the crime by an article on the creek spill in the Palo Alto Daily News on Sept. 22, 2000, titled "Adobe Creek slimed by nasty grease spill."

"I saw a copy of the story and I said the spill was no accident. Someone committed a felony," said Porter.

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21, 2000, said Porter. "This wasn't any accident. This was evil, intentional nasty stuff," said Porter.

Mancilla and Gomez were hired to clean out the restaurant's grease in the middle of the night but instead used their two tanker trucks to dump 8,000 gallons of grease — enough to fill a small above-ground swimming pool — from other restaurants into a manhole.

The men then left a bill for El Torito for work they did not do and drove away.

The stinky grease seeped from the manhole into the very low Adobe Creek and coated a half-mile stretch with a milk-shake-like batter by early morning.

"It basically became a creek of grease," said Porter.

A Palo Alto sewer worker traced the smell and the grease trail back to the restaurant's manhole, which had been left ajar.

The Los Altos Police Department investigated and found the bill Mancilla and Gomez had left and that the men did not remove El Torrito's grease.

It took two days for city workers and volunteers to clean it up, costing Los Altos $8,000.

The grease can kill fish, birds and plants.

After an extensive search and seizure of Thrifty Best's computers, Mancilla and Gomez were arrested.

Yesterday the men admitted guilt and Santa Clara County Superior Court Judge Robert Ambrose told them they would likely be sentenced to four months in Santa Clara County Jail, fined $27,000 each, being divided between the state of California and Santa Clara County, fined $8,000 to the city of Los Altos for cleanup costs — which will likely have to be paid first — and 250 hours of community service.

Porter said Ambrose told Mancilla and Gomez they would be doing cleanup work and would be on probation for three years.

If the men — who Porter said are not U.S. citizens — don't pay the fine, the company might have to pay. If they don't pay it, that would be a violation of their probation, said Porter.

Neither Mancilla nor Gomez could be reached for comment. Defense attorney Eddie Ruiz declined to comment.

Thrifty Best has not been charged with a crime, but is not off the hook yet, said Porter.

The grease dumping company, established in 1963, is still operating out of Fresno.

Mancilla and Gomez are scheduled for sentencing on Sept. 16 in Superior Court Department 58 in Santa Clara.

"There is a real need for stronger laws to track this stuff," said Porter, who had never seen a case involving such a large amount of grease. Porter is prosecuting a similar case against a San Jose company that dumped grease into a sanitary sewer in Cupertino.

Porter said he was initially tipped off to the crime by an article on the creek spill in the Palo Alto Daily News on Sept. 22, 2000, titled "Adobe Creek slimed by nasty grease spill."

"I saw a copy of the story and I said the spill was no accident. Someone committed a felony," said Porter.

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix D
Permits/Licenses and Manifests

STATE OF CALIFORNIA

DEPARTMENT OF FOOD AND AGRICULTURE

Meat and Poultry Inspection Branch
1220 N Street, Room A-125
Sacramento, California 95814
(916) 654-0504

LICENSE TO OPERATE AS A RENDERER

POST IN CONSPICUOUS PLACE
THIS LICENSE IS NOT TRANSFERABLE

RECEIVED
JAN - 8 2009
DARLING INTERNATIONAL
SAN FRANCISCO

Mailing Address

GORDON LEE
P.O. BOX 880006
SAN FRANCISCO CA 94188-

Facility Address

DARLING INTERNATIONAL
429 AMADOR STREET
SAN FRANCISCO CA 94124

Est. No. **A543**

Expires on December 31, 2009

STATE OF CALIFORNIA

DEPARTMENT OF FOOD AND AGRICULTURE

Meat and Poultry Inspection Branch
1220 N Street
Sacramento, CA 95814
(916) 654-0504

79-012A (Rev 04/07)

Registration Fee $100.00

PLUS Enforcement fee of $300.00 per vehicle up to a maximum of $3000.00 per year.

Date _____

INEDIBLE KITCHEN GREASE TRANSPORTER REGISTRATION APPLICATION

I hereby apply to register as a Transporter of Inedible Kitchen Grease in accordance with Sections 19215 through 19316 of the California Food and Agricultural Code. I agree to abide by Sections 19303(b) through 19306 pertaining to requirements to keep and make available records for two years.

Section 19310(c)(1)(2)(3) requires that proof of liabilty insurance or a surety bond of not less than $2,000,000 be provided prior to the issuance of the registration. Transporters operating only one vehicle of less than 10,000 pounds GVW rating must only provide proof of liability insurance or a surety bond of not less than $1,000,000.

Please Print or Type

Name of Business	Phone Number	FAX Number
Mailing Address	Location (if different)	
City, State, Zipcode	City, County, Zipcode	
Name of Owner - Please Print or Type		
Name of Applicant / Contact Person(s) (if different from owner) - Please Print or Type		

Use Additional Sheets if Necessary to Answer the Following Information:

Drivers' Names	Drivers' License Number	Drivers' Names	Drivers' License Number

LICENSE PLATE NUMBERS OF VEHICLES

Destination of Grease _____

Address of Destination _____

Any changes in the information given must be reported to the Meat and Poultry Inspection Branch within 15 days. Changes may be mailed to the address shown below, faxed to (916) 654-2608 or e-mailed to MPI@cdfa.ca.gov

Printed Name of Authorized Representitive _____

Signature of Authorized Representative _____

Title _____

I declare under penalty of perjury that the information provided on this application is true and accurate to the best of my knowledge.

*

SUBJECT: HAULED LIQUID WASTE DISCHARGE PERMIT - INQUIRY APPLICATION & GUIDELINES

Dear :

This letter is in reply to your inquiry regarding applying for a permit to discharge hauled liquid waste.

In order to hold a Hauled Liquid Waste Discharge Permit to discharge hauled septic tank waste, portable toilet pumpings, or grease trap wastes at the Palo Alto Regional Water Quality Control Plant, the following policies and procedures are to be adhered to:

1. Prior to submitting your application, it is advisable to visit the plant to inspect the plant's discharge area, specifically the grease pit, in order to examine the type of apparatus used in order to insure compatibility with your own equipment.

2. Permit Fee - $40.00. Payment is to be submitted in the form of a check made payable to the City of Palo Alto. A copy of the discharge procedures will be sent to you upon issuance of the discharge permit.

3. Post a $2,000 bond or cash deposit (check) with the City of Palo Alto.

4. Provide and maintain general and automobile liability insurance and a hold harmless clause with the City of Palo Alto as certificate holder and **additional insured**. Insurance must remain valid for one year.

5. Acquire the proper documents and forms from the Santa Clara County Health Department (Tel. No. 408/299-6930).

6. Submit a legible copy of each valid Public Health Permit issued by the Santa Clara County Health Department with your application.

7. Hauled liquid waste being discharged at the Plant shall be accepted **only** from locations within the Plant's service area. This covers Palo Alto, East Palo Alto, Los Altos, Los Altos Hills, Mountain View and Stanford.

8. Submit a list of addresses to all pick-up locations with your application.

9. The scheduled hours for hauled liquid waste discharge at the Plant is from 8:00 a.m. to 4:00 p.m., Monday through Friday. If a discharge visit is necessary outside of these scheduled hours and during weekends and holidays, please call the Operations Center at (650)329-2598 to request an appointment for access to the Plant. An operator on duty will meet the driver at the entrance gate to the Plant at a prearranged time.

10. The scheduled hours for grease trap waste discharge is the same as for septic waste discharge. However, it is advisable to telephone the Operations Center prior to your visit to assure that the receiving pit is able to accommodate your load. Occasional maintenance work is performed on it and becomes unavailable during this time. Also, it has been known to fill up to capacity in a short period of time and will not allow for further discharge until clearance is given.

11. The disposal report form obtained from the Santa Clara County Health Department must be thoroughly completed and submitted with each discharge visit. During the initial discharge visit, the driver will be oriented with the proper procedures: (a) completion of disposal report form by the Office Specialist, and, (b) discharge procedures by a Plant operator. It is suggested that the Operations Center be informed by telephone prior to this visit.

12. The hauler must provide a sample of the contents of each tank to be discharged. The nature and source of the waste will be verified before the truck is permitted to unload. If laboratory analysis indicates that the material is not as represented (hauled liquid waste from a domestic source), the hauler's permit may be revoked.

13. All hauled liquid waste discharged must be identified from one specific location, per load. No loads may be mixed with the exception of portable toilet pumpings.

14. The City reserves the right to reject any load of hauled liquid waste under the following conditions:

    (a) If the waste is not properly identified.
    (b) If there is not sufficient storage capacity at the plant for the load.
    (c) For reasons of public health or safety at the discretion of the Manager, Water Quality Control Plant.
    (d) If the load contains waste materials not authorized by these regulations.

15. **<u>Under no circumstances</u>** does the Plant accept any hazardous materials or hazardous waste of any kind.

16. Waste haulers will be billed directly. The rates for hauled liquid waste discharge is calculated as follows:

Per load of 1,000 gallons or less	$40.00
Each additional 500 gallons or portion thereof	$20.00

I am enclosing a Hauled Liquid Waste Discharge Permit application and regulations for your use. Please complete, sign and submit it with the required permit fee, bond or cash deposit (check) and insurance to Bill Miks, Water Quality Control Plant Manager. The address is 2501 Embarcadero Way, Palo Alto, CA 94303. Your application will be reviewed and your permit will be issued provided all information is in order.

If you have any questions, please contact me at 650/329-2598.

Sincerely,

Sandra Domingo
Staff Secretary

Enclosure

HAULED LIQUID WASTE DISCHARGE PERMIT
(Trucker's Discharge Permit)

City of Palo Alto
Public Works Department
Regional Water Quality Control Plant

Special Wastewater Utility Regulations
Rule & Regulation 23 & S-4

Permit No._____
Issued by Santa Clara County

Hauler's Name_____
Street_____
City_____
Tel. No._____ Fax No._____

Certificate of Insurance - Expiration Date _____

$2,000 Bond - Date Issued_____ $2,000 Cash Deposit – Check No._____

This permit entitles the permittee to discharge hauled liquid waste at the Palo Alto Regional Water Quality Control Plant for a period of one year from the issue date, unless sooner revoked by the Manager of the Regional Water Quality Control Plant.

The permittee affirms that their agents and employees shall conduct hauled liquid waste discharge operations in accordance with the City of Palo Alto, Utility Rule and Regulation 23 and S-4, in accordance with applicable federal, state and county regulations.

The permittee further agrees to hold the City of Palo Alto, its officers, agents, and employees, harmless from all costs and damages which might arise from the permittee's use of City of Palo Alto facilities. This permit may be revoked at any time for violation of the above conditions.

_____ _____
Permittee's signature Permittee's Name - Please Print

_____ _____
Permit Issued by: William D. Miks
Plant Manager
Regional Water Quality Control Plant
2501 Embarcadero Way
Palo Alto, CA 94303

Issue Date

_____
Expiration Date

10/27/98

09-11893

WASTEHAULER MANIFEST FORM

To be completed by the wastehauler before entry to the Orange County Sanitation District's (OCSD) facility. Please print — incomplete or illegible forms will not be accepted and access to the wastehauler station will be denied.

Wastehauler Company Name: _____

Address: _____

Telephone No.: ( ) _____ Truck License No.: _____

Truck Decal No.: _____ OCSD's Permit No.: _____ Truck Capacity: _____

Person Making Delivery: _____
(Print) First Name Last Name

GREASE MIXED WITH OTHER WASTE IS PROHIBITED.

Is waste from a single source? ☐ Yes ☐ No
If no, please attach additional forms for each source. Verification will be made by OCSD.

DISCHARGE SOURCE OR WASTE GENERATOR:

Company Name: _____ Telephone No.: ( ) _____

Name of Responsible Party at Site: _____

Address: _____ City: _____ Zip Code: _____

COUNTY: _____ MAJOR CROSSROADS: _____ and _____

TYPE OF WASTE:

☐ Septic Tank ☐ Cesspool ☐ Chemical Toilet ☐ Grease trap ☐ Brine Water

Date of pick-up: _____ Time of pick-up: _____ AM/PM

pH of Load: _____ Volume: _____ gallons picked-up

I, the below-signed wastehauler, declare under penalty of perjury that to the best of my knowledge I have accurately described the type, quantity, and source of all waste that I now request to dispose of at OCSD's treatment plant. I further declare under penalty of perjury that I was personally informed by the owner, owner's agent, or occupants of the property where this waste was received or have personal knowledge that this waste contains NO hazardous or industrial waste as defined in the OCSD's Wastewater Discharge Regulations. I also declare under the penalty of perjury that the truck(s) used to transport this waste was free of all materials characterized by law as hazardous waste or substance at the time of said use. I am aware of the conditions and requirements of the Wastehauler Permit. Furthermore, I understand that failure to accurately describe the information above or failure to comply with the Wastehauler Permit and/or any applicable OCSD regulations may result in the immediate suspension of the Wastehauler Permit and/or other penalties as may be allowed by law.

_____ _____ Source Control/Guard Initials: _____
Wastehauler Signature Date

WHITE COPY TO SOURCE CONTROL: YELLOW COPY TO WASTEHAULER
OCSD • P.O. Box 8127 • Fountain Valley, CA 92728-8127 • (714) 962-2411

08- 08231

JAN 7 2009 06:57

WASTEHAULER MANIFEST FORM

To be completed by the wastehauler before entry to the Orange County Sanitation District's (OCSD) facility. Please print — incomplete or illegible forms will not be accepted and access to the wastehauler station will be denied.

Wastehauler Company Name: DARLING INT INC

Address: 2624 E HUNTINGTON ST

Telephone No.: (714) 556-7867 Truck License No.: 7F8 M38

Truck Decal No.: 75 OCSD's Permit No.: 117 Truck Capacity: 3000

Person Making Delivery: MAURICIO DARLING
(Print) First Name Last Name

GREASE MIXED WITH OTHER WASTE IS PROHIBITED.

Is waste from a single source? ☒ Yes ☐ No

If no, please attach additional forms for each source. Verification will be made by OCSD.

DISCHARGE SOURCE OR WASTE GENERATOR:

Company Name: RALPHS. Telephone No.: ( )

Name of Responsible Party at Site: MANAGER

Address: 1121 N HARBOR City: FULLERTON Zip Code:

COUNTY: Orange MAJOR CROSSROADS: and

TYPE OF WASTE:

☐ Septic Tank ☐ Cesspool ☐ Chemical Toilet ☒ Grease trap ☐ Brine Water

Date of pick-up: 1/7/09 Time of pick-up: 5A AM/PM

pH of Load: 6 Volume: 3000 gallons picked-up

I, the below-signed wastehauler, declare under penalty of perjury that to the best of my knowledge I have accurately described the type, quantity, and source of all waste that I now request to dispose of at OCSD's treatment plant. I further declare under penalty of perjury that I was personally informed by the owner, owner's agent, or occupants of the property where this waste was received or have personal knowledge that this waste contains NO hazardous or industrial waste as defined in the OCSD's Wastewater Discharge Regulations. I also declare under the penalty of perjury that the truck(s) used to transport this waste was free of all materials characterized by law as hazardous waste or substance at the time of said use. I am aware of the conditions and requirements of the Wastehauler Permit. Furthermore, I understand that failure to accurately describe the information above or failure to comply with the Wastehauler Permit and/or any applicable OCSD regulations may result in the immediate suspension of the Wastehauler Permit and/or other penalties as may be allowed by law.

MPS 1/7/09

Wastehauler Signature Date

Source Control/Guard Initials: MC

WHITE COPY TO SOURCE CONTROL: YELLOW COPY TO WASTEHAULER
OCSD • P.O. Box 8127 • Fountain Valley, CA 92728-8127 • (714) 962-2411

CITY OF VACAVILLE-LIQUID WASTE MANIFEST

Easterly Wastewater Treatment Plant
6040 Vaca Station Road, Elmira, CA 95625
(707) 449-6263

MANIFEST NUMBER 18500

TIME OF DISPOSAL

Must be officially time stamped at treatment and disposal facility

WASTEHAULER COMPANY NAME

WASTEHAULER VEHICLE INFORMATION

VEHICLE IDENTIFICATION NUMBER

RATED CAPACITY OF VEHICLE gallons

SITE ADDRESS

Name_____

Address/City_____

VOLUME OF GENERATED WASTE **GALLONS**

SITE ADDRESS

Name_____

Address/City_____

VOLUME OF GENERATED WASTE **GALLONS**

SITE ADDRESS

Name_____

Address/City_____

VOLUME OF GENERATED WASTE **GALLONS**

TREATMENT AND DISPOSAL FACILITY INFORMATION (CONTROL AUTHORITY)

DISPOSAL METHOD

☐ Single Source ☐ Multiple Source

TOTAL VOLUME IN THIS LOAD _____ **gallons**
(disposal charge is for rated capacity of vehicle)

WASTE CLASSIFICATION

☐ Domestic Septic Tank
☐ Domestic Holding Tank
☐ Domestic Septic/Holding Tank
☐ Food Preparation Grease Trap/Interceptor
☐ Commercial Waste (describe)
☐ Portable Toilet
☐ Other(must receive prior approval from Control Authority)
Describe_____

SAMPLE TAKEN? ☐ YES ☐ NO (USE MANIFEST NUMBER AS SAMPLE IDENTIFICATION NUMBER)

CERTIFICATION STATEMENTS

GENERATOR'S CERTIFICATION: I hereby certify that the contents of this consignment are fully and accurately described and contain no hazardous wastes.
SIGNATURE: DATE:

WASTEHAULER'S CERTIFICATION: I hereby certify that the above information is true and correct, and that the truck contains the listed waste only. I acknowledge the dumping of hazardous wastes is strictly prohibited by law and drivers who knowingly discharge hazardous wastes or materials may be subject to fines and imprisonment. I certify that I have read and understand the regulations governing the disposal of wastes as issued by the Control Authority.
SIGNATURE: DATE:

White - Treatment & Disposal Facility (TDF) Pink - County Yellow - Wastehauler

TDF SENDS COPY TO COUNTY WITHIN 60 DAYS

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix E
FOG Waste to Energy Documents

FOG Control & Beneficial Reuse:

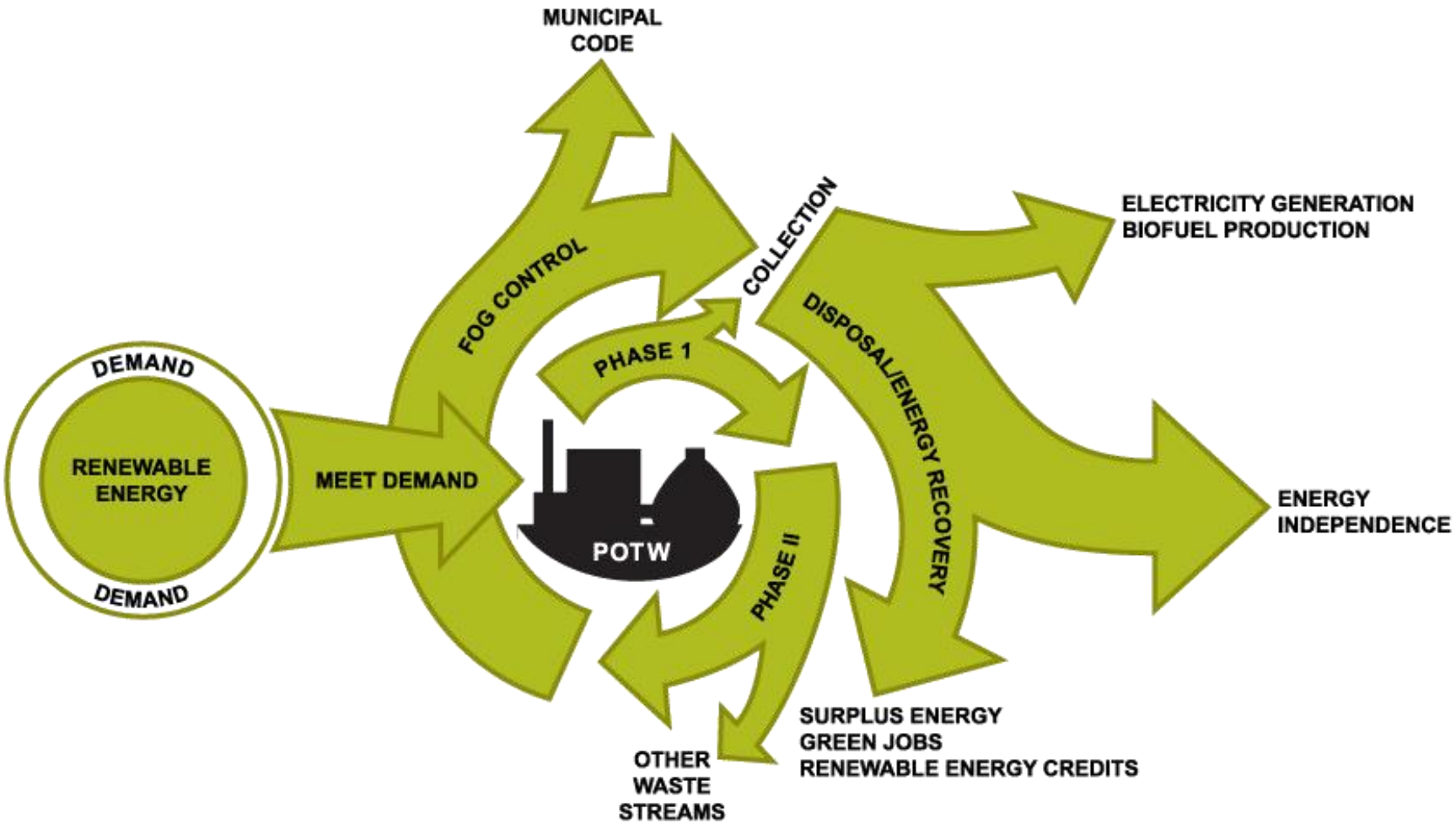
A Case Study in San Francisco

Puget Sound Brown Grease Symposium
April 15, 2009

What we're going to talk about

- FOG Control & Beneficial Reuse Cycle
- Regulatory Drivers
- Characteristics of Brown Grease
- San Francisco's Comprehensive FOG Program: Present & Future
- Questions?

FOG Control & Beneficial Reuse Cycle



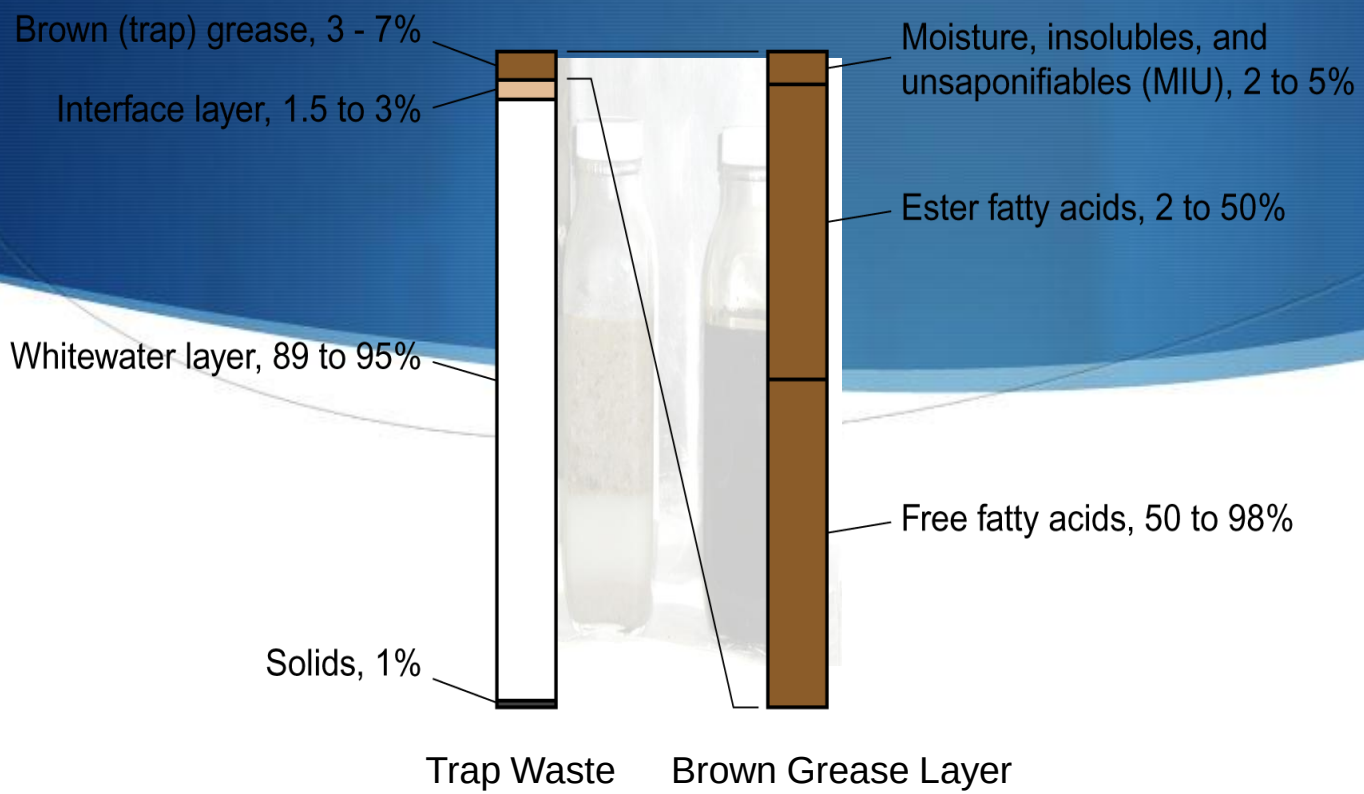
Regulatory Drivers
CA FOG-to-Biofuel Programs

- Federal
  - Clean Water Act
  - U.S. EPA
    - Requires elimination of dry weather stoppages (i.e., FOG blockages)
    - CMOM – grease control program
- California State Laws
  - Statewide WDR: requirement to develop SSMP to reduce SSOs
  - AB 1333: outlaws improper grease disposal & decanting; requires full pump-out of interceptors
  - AB 1065: authorize Depart of Food & Agriculture to establish a manifest system for tracking transportation of inedible kitchen grease
  - AB 32: Global Warming Solutions Act of 2006
  - AB118: Alternative & Renewable Fuel & Vehicle Technology Program

What is Brown Grease?

- Fats, Oils, and Grease (FOG) that have come into contact with graywater
- High free fatty acid (FFA) Content: 50-100%
- Found in restaurant grease traps and interceptors

Trap
San Fr



- Estimated COD concentration by volume (mg/L)*:
  - Brown Grease Layer: 2,610,000
  - Interface Layer: 292,000
  - Whitewater Layer: 3,000 – 5,000

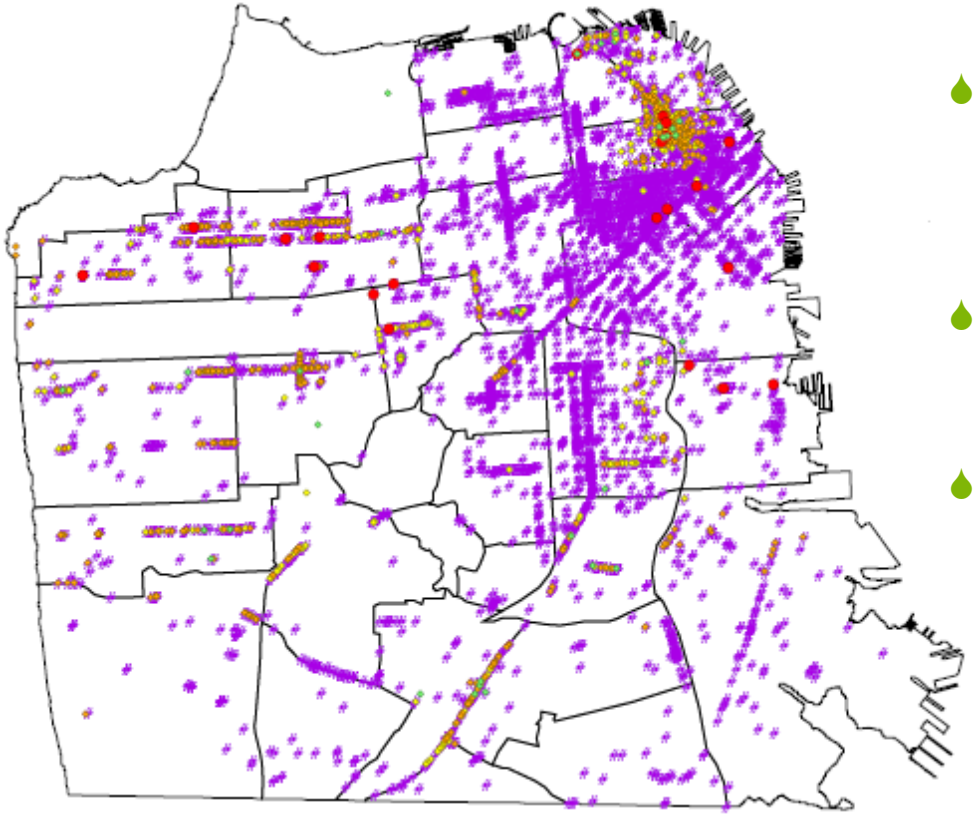
*Oleic acid ($C_{18}H_{34}O_2$) was used to represent chemical composition of brown grease

How much brown grease is there?

- NREL estimates 13.37 lbs/person produced each year in cities
- Recoverable brown grease is typically less than 30% of produced brown grease
  - Restaurants produce a collectable, concentrated stream
  - Households produce a distributed, dilute stream

How often does trash disposal *REALLY* happen at home?

San Francisco Restaurants & Grease Incidents



- There are 2,600 grease producing restaurants in the City of San Francisco
- SFPUC spends >$3.5 million/yr on grease-related service calls
- Restaurants are the largest controllable source of grease in San Francisco

How much brown grease is in

City of San Francisco

What is San Francisco doing about it?

NOW:

- New FOG Control Ordinance
- SF GreaseCycle Program
- FOG-to-Biodiesel Demonstration Project
- Automatic Grease Recovery Device Technology Demonstration

FUTURE:

- Rebates and/or reduced sewer rates to encourage compliance; estimated ROI is 3-4 yrs
- Household waste grease collection program
- Commercial Scale FOG-to-Biodiesel Facilities; Bioenergy Park; Flow Control?
- All municipal fleets will run on FOG-derived biofuel

San Francisco's New FOG Control Ordinance (2009)

Installed AGRD

Typical grease trap

- Restaurants must install/upgrade to Automatic Grease Recovery Devices (AGRDs) within 3 years
  - AGRDs ensure daily recovery, dewatered grease, easy collection
- AGRDs must be serviced & inspected every 90 days
- Ordinance establishes new BMPs
- All recovered FOG must be beneficially reused

SF GREASECYCLE

- Free pickup of yellow grease from any City restaurant; program launched in late 2008
- Currently collecting 35,000 gal/mo from 600 restaurants
- 95% of program participants had no previous grease pickup
- Many private haulers now also provide free yellow grease pickup

AGRD Testing & Demonstration

- 12 Restaurants in San Francisco currently have installed AGRDs
  - SFPUC began performance sampling in November 2008
  - Early analytical results are inconclusive
    - Finding: AGRDs are not being properly maintained
- GOSLYN™ AGRD installed at SF Restaurant in November 2008
  - 50 gallon device; installed cost: $5,500
  - SFPUC began performance sampling in Nov. 2008
  - 3 rounds of composite sampling have been completed; early results are inconclusive

FOG-to-Biodiesel Demonstration Project

SFPUC
WATER
HETCH HETCHY WATER & POWER
CLEAN WATER

URS

STATE OF CALIFORNIA ENERGY COMMISSION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Recovery Solutions, Inc.
BIOLOGISTS | CHEMISTS | ENGINEERS

WESTECH
an employee-owned company

BLACKGOLD BIOFUELS

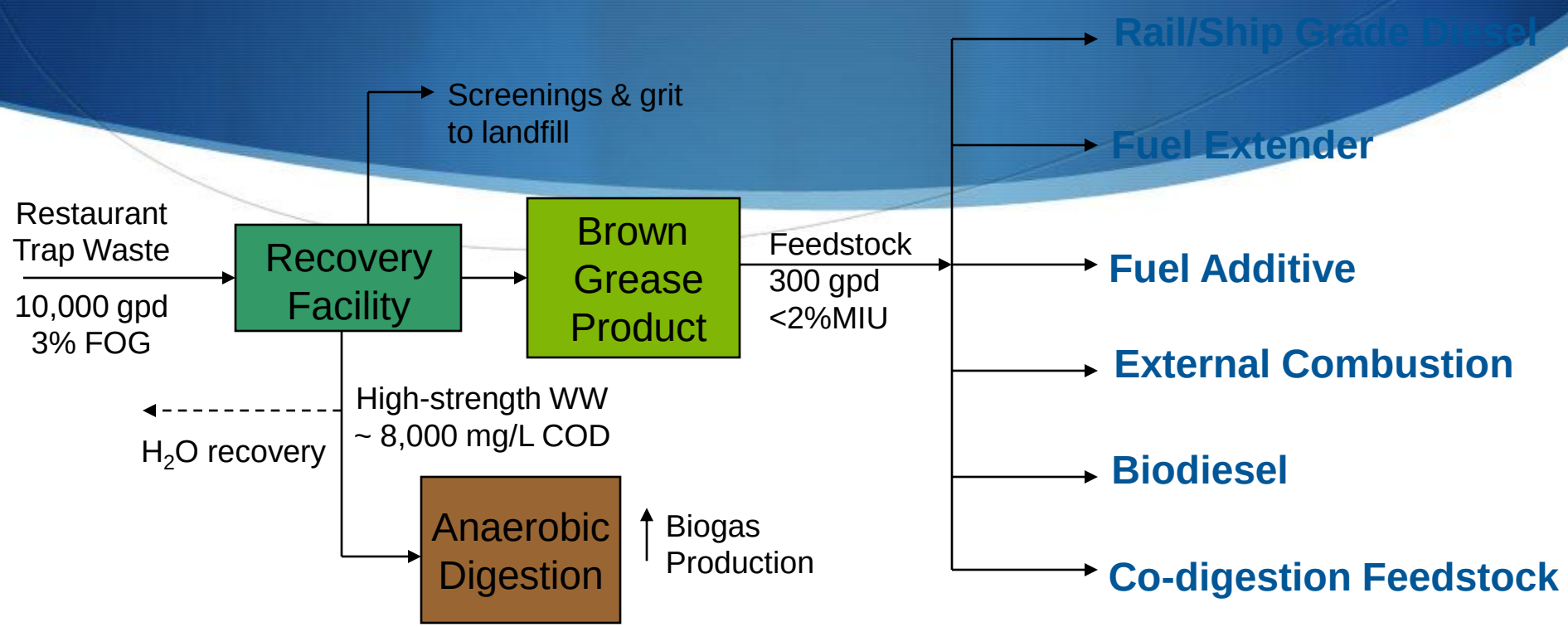
Demonstration Project Funding

- $2 million
  - $1 million Match & In-kind
  - $1 million Federal Appropriation
- $1 million Grant
  - Public Interest Energy Research
- $100,000+ In-kind
  - Professional Engineering Services
- $175,000 Match
  - EPA West Coast Collaborative

FOG-to-Biodiesel Demonstration Project Goals

- Brown Grease Recovery at <2%MIU
  - Process 10,000 gal/d trap waste
- Biodiesel Production Using Brown Grease Feedstock
  - Produce 300 gal/d
  - Meet ASTM Standards and ultra low sulfur requirements
- Produce 85,000 scf/d renewable pipeline quality gas ("green gas) for use as vehicle fuel (RESCO)
- Develop Business Case to Facilitate Program Replication
  - Cost/Benefit Analysis (economic, socioeconomic, GHG Impacts)
- Establish Engineering Design Standards
  - Facility integration, digester loading rates, etc.

Brown Grease Recovery Facility



The brown grease recovery technology being demonstrated uses a series of settling tanks & screens at an elevated temperature to separate brown grease from the wastewater & solids in trap waste.

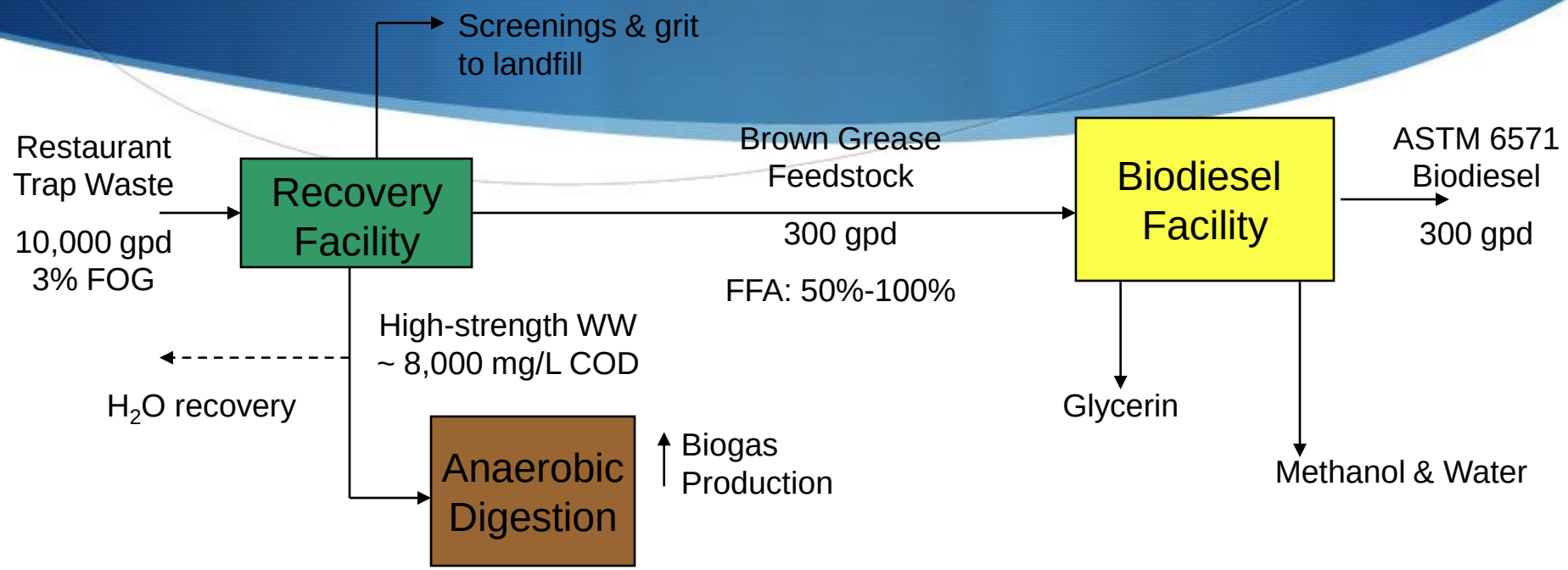
Brown Grease Recovery from Trap/Interceptor Waste

- BWI Equipment, Inc. (Vancleave, MS)
- Hydrasep, Inc. (Hernando, MS)
- Liquid Environmental Solutions (Phoenix, AZ)
- Planet Resource Recovery, Inc. (Houston, TX)
- Recovery Solutions, Inc. (Modesto, CA)

FOG Recovery Pilot Plant at POTW

1.2 MMgal/mo @ $.115/gal tipping fee
WWTP experienced significant increase in digester gas production
Facility can be operated using waste heat & recycled water

FOG-to-Biodiesel Facility



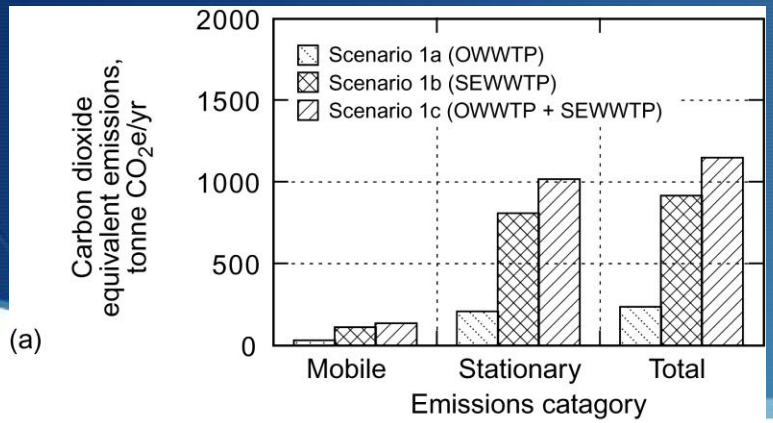
The biodiesel technology being demonstrated uses a single reactor and single catalyst at an elevated temperature and pressure to process the brown grease feedstock. Transesterification of the triglycerides and esterification of the free fatty acids occur concurrently. Glycerin and water are decanted as the process proceeds.

Brown Grease to Biodiesel

- Alphakat GmBH (Buttenheim, Germany)
- BioFuelBox Corporation (San Jose, CA)
- Biox Corporation (Hamilton, Ontario, Canada)
- BlackGold Biofuels (Philadelphia, PA)
- NOVA Biosource Fuels, Inc. (Butte, MT)
- Renewable Products Development Laboratories, Inc. (Milwaukie, OR)
- TDA Research, Inc. (Wheat Ridge, CO)
- UOP, LLC (Des Plaines, IL)

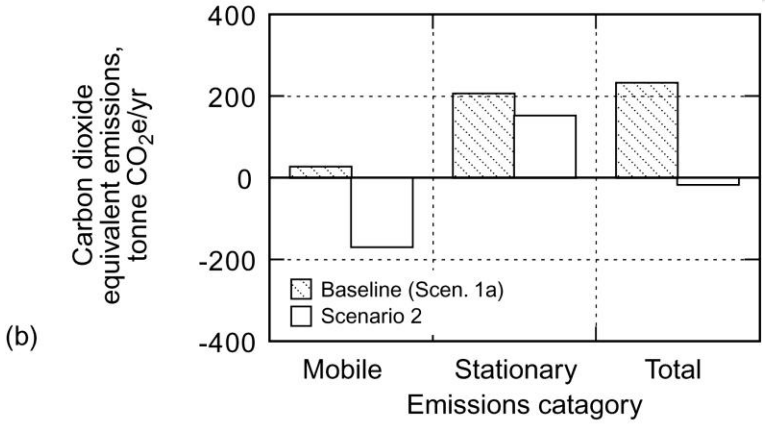
Benefits of Co-location

- Allows streams to be shared between processes, utilizing wastes and conserving energy and materials - steam heat, recycled water, natural gas, electricity, low-quality glycerol
- Brown grease recovery process provides high COD waste stream for enhanced digester gas production
- WWTP receives less FOG at headworks → increased wet-end treatment capacity
- Results in reduced FOG control carbon footprint



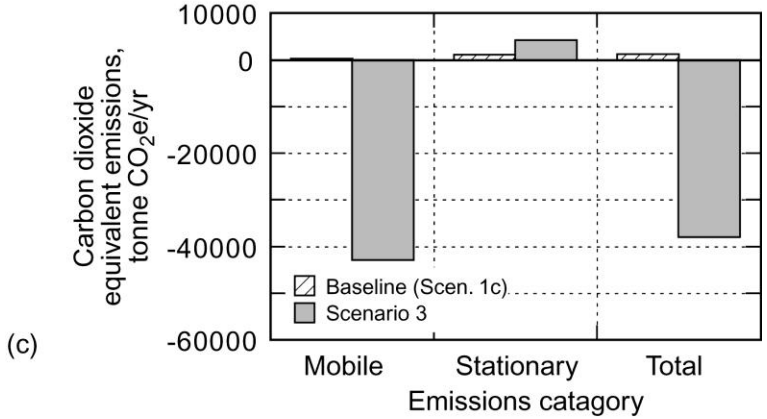
San Francisco's current FOG control program GHG emissions

Baseline:
1,145.9 tonne CO_2e/yr



Demonstration project: Impact to GHG emissions

Change from Baseline:
-249.0 tonne CO_2e/yr



Commercial FOG-to-biodiesel facility: Impact to GHG emissions

Change from Baseline:
-39,314.2 tonne CO_2e/yr

Future: All San Francisco Municipal Fleets will run on FOG-Derived Biofuels

All SF GreaseCycle trucks currently run on B99 produced from waste grease collected from San Francisco Restaurants

Maintenance Building
Research, Development & Demonstration Facility
Switch Yard
Overflow Parking
Cogeneration, Power Production & Storage
Fueling Station
Compressed Biogas Facility
Drying
Digesters
Wind Turbines
Parking
(Underground)
Biofuel Production
Waste Grease Preprocessing
MSW Preprocessing
Tank Farm
Visitor Center
Surplus Storage
Operations & Control Center
Recycled Water Facility
Pellet Storage
Residuals Storage
(Underground)
(Underground)
(Underground)
Reclaimed Water Pipeline

VIDEO

Contact Information:

Mary Martis – URS SF Bay Area

(510) 874-3142

mary_martis@urscorp.com

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URS

BLACKGOLD BIOFUELS

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CONVERTING OUR CRUDEST WASTES INTO OUR CLEANEST FUELS

Biodiesel For Municipalities, Commercial Fleets, and Utilities

Switching to biodiesel is a cost-effective way of reducing both pollution levels and our dependence on foreign oil, Biodiesel can be used in any diesel engine or boiler without requiring new equipment. Using biodiesel demonstrates to your community that you care about their health, the environment and the American economy. Additionally, biodiesel attracts positive media attention and public support because it is renewable and environmentally friendly.

With Biodiesel, it's Easy to be Green

Now more than ever there is reason to go green, and biodiesel is one of the easiest, cost-effect ways to reduce greenhouse gas emissions and lessen your carbon footprint. This is especially so with biodiesel made from recycled brown greases—you're removing a pollutant from our waterways and offsetting fossil fuel use. Biodiesel not only significantly reduces harmful emissions, it's also biodegradable and non-toxic. Since biodiesel and conventional diesel can be used interchangeably in regular diesel equipment, the transition is quick, simple, and seamless.

Spotlight: *rabbittransit* in York County, PA

This public transportation system has been using biodiesel since 2005. Their 73 vehicle fleet serves 1.7 million riders a year on B5 and B20. Executive Director Richard Farr says: "The implementation was incredibly simple because it requires no alteration to the vehicle. **It runs and operates just like diesel. You're improving the air quality and you don't have to do anything to the vehicle—the staff didn't even need extra training.** It was really truly a big deal; people are still calling in asking us about it."

Treat Your Engine Right

Fleets also choose biodiesel for performance reasons. Biodiesel provides exceptional lubricity, which in turn can lower maintenance costs, lessen equipment downtime and lengthen equipment life. Biodiesel offers fleet operators a safer, cleaner alternative to petroleum diesel with similar horsepower, torque and mileage.

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Create a Safer Environment for Your Operators & Community

Switching to biodiesel can be attractive to communities that experience heavy truck traffic and are worried about diesel's health implications. Biodiesel dramatically reduces the emissions of unpleasant and unhealthy soot and aromatics, which also creates a healthier working environment for operators. Biodiesel is one of the safest fuels for fleets to handle, use, and store. Biodiesel emissions are cleaner than those from petroleum diesel, which can translate into increased worker productivity, a cleaner environment for citizens, and improved public health.

Pennsylvania Turnpike Commission

"The Turnpike has been using biodiesel since 2001; we have over 300 vehicles using biodiesel throughout the state. I like the fuel because its **high lubricity is valuable for the operation and extended life** of the engine. It's cleaner burning, which obviously helps the environment, but also **provides a much healthier work environment** for our operators and mechanics."
-Mike McClurkin, Fleet Manager, PA Turnpike 2005

Cost-Effective EPAct Compliance

For federally regulated fleets, biodiesel usage is one of the most cost-effective means of complying with EPAct. Tax-exempt fleets of 10 vehicles or more can meet up to 50% of their AFV acquisition credits by using biodiesel. Under EPAct's biodiesel fuel-use credits provision, fleets may choose to operate existing diesel vehicles that weigh more than 8,500 lbs. on blends of biodiesel instead of purchasing a new alternative fuel vehicle.

Profile: Temple University

Temple University ran B20 using fuel produced at BlackGold Biofuels' pilot plant in North Philadelphia. "BlackGold's biodiesel ran really well in our fleet. We didn't observe any difference in performance and would really like to use more biodiesel made from trap grease." - Mark Gottlieb, Superintendent Service Operations

Reliable, Stable-Priced Energy

We live in times of unprecedented energy pricing volatility and supply uncertainty. Producing biodiesel locally with local resources is one of the few actions you can take to insulate your operations from these challenges. By using BGB's technology to produce fuel from low-value waste streams, you reduce your reliance on global commodity markets that are easily spooked by unpredictable events like weather and politics. Instead, local biodiesel production builds stability, energy independence, and strengthens the economy in your own community.

BlackGold Biofuels provides technology to convert nuisance waste streams into high-value biofuels, thereby mitigating skyrocketing energy costs, meeting the growing demand for environmentally sustainable fuels, and addressing costly pollutant disposal problems. Prefabricated processing equipment using BlackGold's patent-pending technology produce high-quality biodiesel from restaurant trap grease, brown, and yellow greases and can be co-located at wastewater treatment plants.

BLACKGOLD BIOFUELS

BlackGold Biofuels' extensive pilot plant work has earned it a national reputation as the only proven technology for converting brown greases to biodiesel. With the ability to produce high-value, renewable biodiesel for internal use or for sale, a nuisance pollutant is transformed into a revenue stream. So everyone profits – including the environment.

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Biodiesel Basics

"The use of vegetable oils for engine fuels may seem insignificant today. But such oils may become in course of time as important as petroleum and the coal tar products of the present time." *- Rudolf Diesel, 1912*

What Is Biodiesel?

Biodiesel is a cleaner-burning, renewable fuel for diesel engines derived from vegetable oils and animal fats instead of petroleum. Since biodiesel is made from home-grown, American products like soybean oil and recycled restaurant grease, using biodiesel strengthens our domestic economy and increases our energy independence. Biodiesel can be used as a pure fuel, referred to as B100, or it can be blended with petroleum diesel at any percentage. The most common blend is B20 (20% biodiesel, 80% petroleum diesel). Biodiesel is simple to use, biodegradable and nontoxic.

Where Can I Use Biodiesel?

Anyone with a diesel engine – from an 18-wheeler to a home heating oil furnace – can use biodiesel. In fact, biodiesel can be used in most diesel engines without any retrofitting. The original diesel engine designed by Rudolph Diesel in the 1890's used peanut oil. Both biodiesel and petroleum diesel can be interchanged from fill-up to fill-up, so there is no risk to trying biodiesel.

Is it Better for My Engine?

Biodiesel has greater lubricity and cetane value than petroleum diesel and won't compromise fuel efficiency, horsepower, torque, and hauling rates.

Is it Better for the Environment?

Biodiesel decreases unhealthy air emissions associated with regular diesel, like particulates (soot), carbon dioxide (which contributes to global warming), and sulfur dioxides (which contribute to acid rain). Biodiesel also lowers levels of potential cancer-causing compounds (PAH and nPAH) in exhaust. According to the EPA, particulate emissions are reduced by 47% for pure B100 biodiesel, and by 12% for a B20 blend (20% biodiesel, 80% petro-diesel) compared to low-sulfur diesel.

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Will Biodiesel Replace Petroleum?

Biodiesel is not a silver bullet for all of our fuel security and environmental problems. Without significant advances in processing technology, the US cannot replace our fossil fuel consumption with biodiesel. And why should it? In the past, single-source reliance has resulted in political and physical supply woes, environmental degradation, and price volatility. If we work towards a future of diverse energy sources, we can protect ourselves against all of these issues. While biodiesel is not a cure-all for our energy problems, it is a tremendous step in the direction of economic and environmental sustainability. And it is here now, ready for consumers to use safely and easily.

What is the Difference Between Biodiesel, Straight Vegetable Oil and Ethanol?

Fuel-grade biodiesel is produced to strict industry specifications (ASTM D6751) in order to ensure proper performance. Biodiesel that meets ASTM D6751 is registered with the Environmental Protection Agency as a legal motor fuel. Straight vegetable oil has not undergone the chemical reaction necessary to meet biodiesel fuel specifications, is not registered with the EPA, and is not a legal motor fuel. Ethanol is an alternative fuel, like biodiesel, but can only be used in gasoline "Flex Fuel" vehicles. Ethanol is an alcohol-based fuel derived primarily from corn, rather than an oil-based fuel like biodiesel.

Is Biodiesel Energy Efficient & Sustainable?

A study co-sponsored by the U.S. Department of Energy and the U.S. Department of Agriculture found that "biodiesel yields 3.2 units of fuel product energy for every unit of fossil energy consumed in its life cycle. By contrast, petroleum diesel's life cycle yields only 0.83 units of fuel energy per unit of fossil energy consumed." This means that biodiesel is one of the most energy-efficient transportation fuels available. Biodiesel also reduces dangerous emissions compared to its fossil fuel counterpart, improving air quality and reducing our carbon footprint.

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CONVERTING OUR CRUDEST WASTES INTO OUR CLEANEST FUELS

Convert Your Liabilities to Assets

What if you could turn your garbage into cash instead of throwing it away each week? Now you can do just that: BlackGold Biofuels' (formerly Philadelphia Fry-o-Diesel) innovative, patent-pending technology enables you to convert brown greases into high-value biodiesel fuel. Low-quality fats, oils and greases (FOG) are nuisance pollutants, costing water quality agencies billions of dollars annually. Meanwhile, businesses, townships, and utility agencies struggle with skyrocketing energy costs. Instead, there is an alternative option: convert this nuisance FOG into cleaner, valuable biofuels.

Trap grease is collected by pumpers and wastewater treatment plants.

BlackGold's technology converts this waste into biodiesel and biobunker fuel.

Biodiesel can be used in any diesel engine and reduces emissions.

For Your Treatment Plant, Transfer Station, or Dewatering Facility

Skid-mounted processing equipment from BlackGold Biofuels converts sewer scum into cleaner burning biofuels that can be used in place of fossil fuels. Like a Humvee that can tackle the roughest terrain and still cruise on the highway, BlackGold's patent-pending process can convert the crudest, lowest-quality FOG just as easily as the purest fryer grease or plant oils. For municipalities and pumpers wresting with FOG, this flexibility means that licensing BlackGold's FOG-to-Fuel™ equipment or partnering to have this equipment at your plant site creates a novel disposal pathway for many different FOG types. New FOG streams can be accepted on-site, diversifying revenue from trucked in waste and/or reducing internal disposal costs. Biodiesel produced using BlackGold Biofuels' technology meets all the requirements of the national biodiesel quality standard, ASTM D6751.

Proven Technology

BlackGold Biofuels operates a pilot plant in Philadelphia where it developed and currently demonstrates its technology. Biodiesel produced at the pilot plant has been successfully driven over 20,000 miles in all types of diesel vehicles. Temple University is one of the fleets that has used fuel produced from BlackGold's pilot plant. **"BlackGold's biodiesel ran really well in our fleet. We didn't observe any difference in performance and would really like to use more biodiesel made from trap grease."** - Mark Gottlieb, Superintendent Service Operations, Temple University, Philadelphia PA.

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Maximize the Financial and Energy Value of FOG

Low-quality FOG like trap grease is a disposal nuisance that is collected, de-watered and dumped in landfills, land-applied, incinerated, or anaerobically digested. Not only are these disposal options wrought with regulatory, operational, and environmental obstacles, they're like using gold bullion for sheet metal – a waste of resources. They fail to maximize the economic and energy value of the FOG. With fuel prices rising, low-quality FOG should be put to its highest and best use: a diesel fuel replacement for on- or off-road use. This is finally possible with BlackGold Biofuels' processing technology.

Sewer grease clogs pipes like cholesterol in an artery. EPA estimates it's a leading cause of roughly 70% of sewer spills.

Jetting out sewer blockages and grease hot spots costs significant time and money.

Clogs block the lines and cause sewage overflows, releasing untreated contaminants into the environment.

Sewer spills cost billions in clean-up, property damages, fines, and forced infrastructure upgrades.

Create an Incentive to Keep Grease Out of the Sewers

Brown grease disposal is limited, costly, inconvenient, and inefficient for everyone. Pumpers must pay to dispose of trap grease and most wastewater treatment plants lack infrastructure to properly handle this material. Converting this unwanted pollutant into biodiesel with BlackGold's technology offers a new, convenient disposal option. By creating an incentive to get grease out of the sewers you can reduce sewer overflows and all their associated costs. Further, renewable fuels attract significant positive media buzz that can generate public support for and recognition of your FOG-control initiatives.

Reliable, Stable-Priced Energy

We live in times of unprecedented energy pricing volatility and supply uncertainty. Producing biodiesel locally with local resources is one of the few actions you can take to insulate your operations from these challenges. By licensing BlackGold Biofuels' technology to produce fuel from low-value waste streams, you reduce your reliance on global commodity markets that are easily spooked by unpredictable events like weather and politics. Instead, local biodiesel production builds stability, energy independence, and strengthens the economy in your own community.

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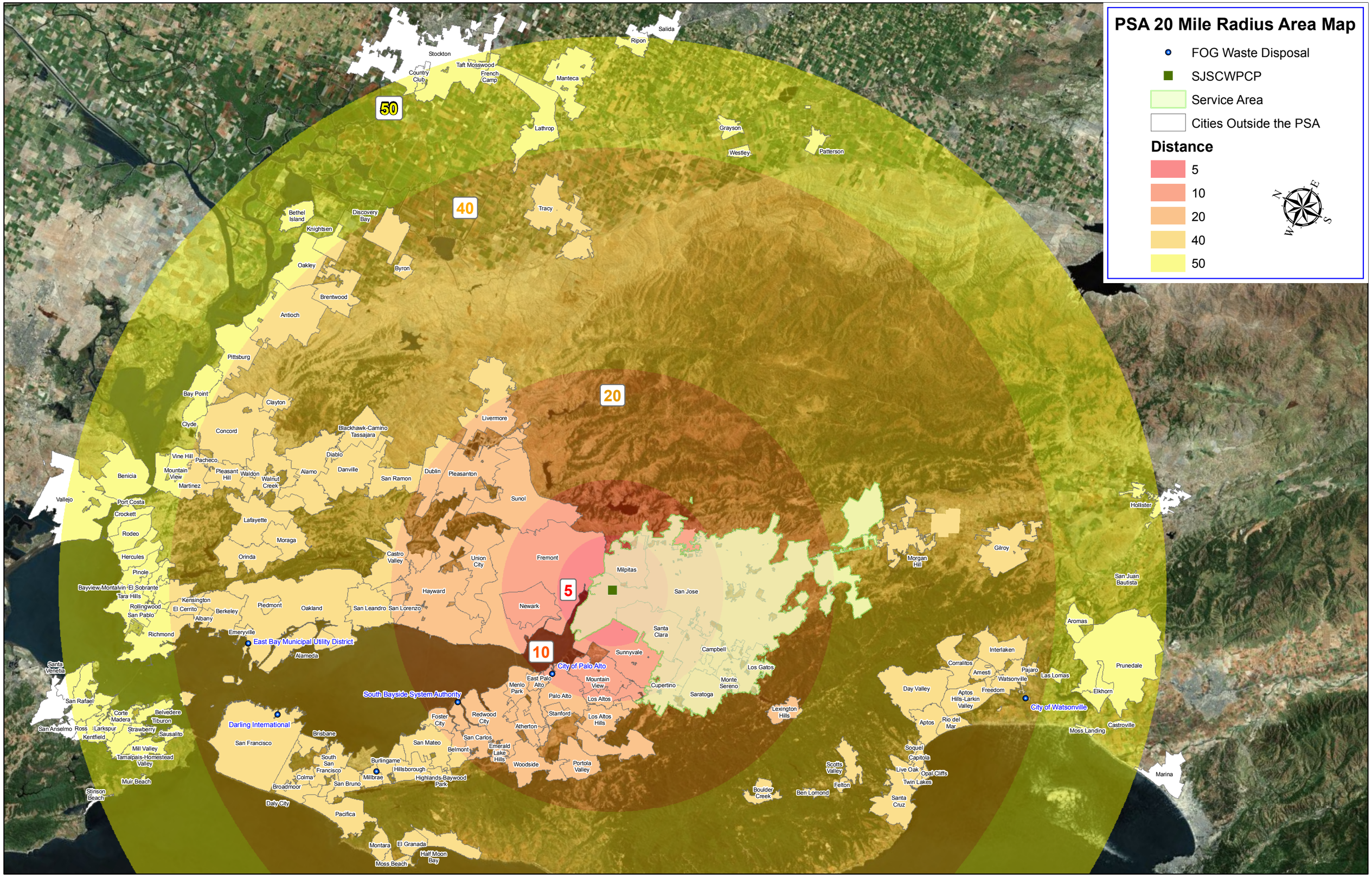
San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix F
PSA 20-Mile Radius Map


PSA 20 Mile Radius Area Map
FOG Waste Disposal
SJSCWPCP
Service Area
Cities Outside the PSA
Distance
5
10
20
40
50
N
E
S
W
50
40
20
5
10
Stockton
Country Club
Taft Mosswood
French Camp
Manteca
Ripon
Salida
Lathrop
Grayson
Westley
Patterson
Tracy
Bethel Island
Discovery Bay
Knightsen
Oakley
Byron
Brentwood
Antioch
Pittsburg
Bay Point
Clayton
Clyde
Concord
Blackhawk-Camino Tassajara
Livermore
Vine Hill
Pacheco
Mountain View
Martinez
Pleasant Hill
Waldon
Walnut Creek
Alamo
Diablo
Danville
San Ramon
Dublin
Pleasanton
Benicia
Vallejo
Port Costa
Crockett
Rodeo
Hercules
Pinole
Bayview-Montalvin
El Sobrante
Tara Hills
Rollingwood
San Pablo
Richmond
Kensington
El Cerrito
Albany
Berkeley
Emeryville
Piedmont
Oakland
Alameda
East Bay Municipal Utility District
Lafayette
Moraga
Orinda
Castro Valley
Union City
Hayward
San Leandro
San Lorenzo
Fremont
Newark
Sunol
Milpitas
San Jose
Santa Clara
Sunnyvale
Campbell
Los Gatos
Monte Sereno
Cupertino
Saratoga
City of Palo Alto
East Palo Alto
Menlo Park
Palo Alto
Mountain View
Los Altos
Los Altos Hills
Stanford
Atherton
Redwood City
Foster City
San Carlos
Belmont
Emerald Lake Hills
Woodside
Portola Valley
San Mateo
Burlingame
Hillsborough
Highlands-Baywood Park
Millbrae
South San Francisco
Colma
San Bruno
Broadmoor
Daly City
Pacifica
Brisbane
San Francisco
Darling International
South Bayside System Authority
Santa Venetia
San Rafael
Corte Madera
Belvedere
Tiburon
San Anselmo
Ross
Larkspur
Kentfield
Strawberry
Sausalito
Mill Valley
Tamalpais-Homestead Valley
Muir Beach
Stinson Beach
Montara
El Granada
Half Moon Bay
Moss Beach
Lexington Hills
Scotts Valley
Felton
Boulder Creek
Ben Lomond
Morgan Hill
Gilroy
Hollister
San Juan Bautista
Aromas
Prunedale
Interlaken
Corralitos
Amesti
Pajaro
Watsonville
Las Lomas
Elkhorn
Day Valley
Aptos Hills-Larkin Valley
Freedom
City of Watsonville
Aptos
Rio del Mar
Castroville
Moss Landing
Soquel
Capitola
Live Oak
Opal Cliffs
Twin Lakes
Santa Cruz
Marina

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix G
FOG Outreach Material

San Jose
FOG Outreach Materials

Managing FATS, OIL and GREASE

"It's Easier than YOU Think!"

THE WRONG WAY
La Forma Incorrecta

1

Do not pour cooking residue directly into the drain.

No tire residuos de cocinar directamente en el desagüe.

2

Do not dispose of food waste into the garbage disposal.

No ponga desperdicios de comida en el moledor de comida.

3

Do not pour waste oil directly into the drain.

No tire aceite usado directamente en el desagüe.

4

Do not wash floor mats where water will run off directly into the storm drain.

No lave tapetes de piso en un lugar donde el agua corra hacia el desagüe.

THE RIGHT WAY
La Forma Correcta

1

Wipe pots, pans, and work areas prior to washing.

Limpie las ollas, sarténes, y áreas de trabajo con una toalla antes de lavarlos.

2

Dispose of food waste directly into the trash.

Deseche los desperdicios de comida en el bote de basura.

3

Collect waste oil and store for recycling.

Junte el aceite usado y guárdelo para que sea reciclado.

4

Clean mats inside over a utility sink.

Limpie los tapetes de piso dentro de una tina o fregador.

Courtesy of Sanitation Districts of Los Angeles County

California Restaurant Association

City of San Jose
Capital of Silicon Valley
Environmental Services

San Jose/Santa Clara Water Pollution Control Plant
(408) 945-3000

KEEP GREASE OUT OF THE SYSTEM

Vapor/Ventilation Hood Cleaning

Why chemicals should not be used for ventilation hood cleaning

To clean vent hoods, filters and/or associated ducting **on-site,** your service provider **may not** use solvents, acids, detergents, caustics, or other similar chemical products. These chemicals dissolve, emulsify or otherwise liquefy grease into the wastewater. Many chemicals cannot be discharged to the sanitary sewer due to their toxicity or flammability. Others require pH treatment to neutralize the water before discharging to sanitary sewer. *Chemicals are not recommended for use when cleaning ventilation hoods.*

Even if the chemicals can be discharged to the sanitary sewer, high concentrations of grease in the wastewater can overwhelm grease traps or interceptors. Excess chemicals could liquefy the grease and cause a violation. Municipal codes prohibit oil and grease in excess of 150 parts per million, or the discharge of any obstructing, viscous substance.

If vent hoods are cleaned ON-SITE:

- **Never** allow vent hood filters to be cleaned in your parking lot, the street or other outdoor paved areas where greasy wastewater can flow to the gutter and storm drain. It is unlawful to discharge polluted waters into a storm drain.
- **Never** discharge wastewater collected from vent hood and duct cleaning to the storm drains.
- **Maintain** records of all vent hood cleanings, including when filters were cleaned, how they were cleaned, who cleaned them, and how greasy wastewater from the cleaning was disposed of. These records are subject to inspection by local officials and you are required to keep such records for at least three years.
- **If you have a grease trap:** consider using a professional cleaning service to clean your vent hood filters off-site. Grease traps and power operated grease removal devices are usually not designed to receive wastewater from vent hood cleanings.
- **If you have a grease interceptor:** Make sure the wastewater collected from vent hood and duct cleaning is disposed of through your grease interceptor.

Even if you have a grease interceptor, it is advisable to contract with a professional cleaning service to have your vent hood filters cleaned **off-site** to prevent the possibility of chemicals being introduced into your grease interceptor which could result in violation of local, state, and federal codes.

Continued on back

*Chemicals and grease can **never** be discharged to storm drains.*

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

If you contract with a professional cleaning service to have your vent hood filters cleaned OFF-SITE:

- Require that the cleaning service provide you with documentation of all vent hood cleanings, including when filters were cleaned, how they were cleaned, who cleaned them, where they were cleaned, and how greasy wastewater from the cleaning was disposed of. These records are subject to inspection and must be kept on-site for at least three years.

- As the owner or operator of the food service facility, you can be held liable for the improper disposal of any waste generated by your facility, even though the actual work was contracted to and performed by a third party.

Keep receipts of cleaning.

It is the responsibility of the food service facility owner or operator, as well as the property owner, to ensure their contractors and service providers comply with all applicable laws relating to the transport and disposal of grease generated at the facility.

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

(408) 945-3000

Tributary agencies served by the treatment plant: San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2-3, Sunol & Burbank Sanitary Districts.

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Environmental Services

In accordance with the Americans with Disabilities Act, City of San José Environmental Services Department materials can be made available upon request in alternative formats, such as Braille, large print, audiotape or computer disk. Requests may be made by calling (408) 945-3000 (voice) or (800) 735-2929 (California Relay Service).

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KEEP GREASE OUT OF THE SYSTEM

Exhaust Hood Cleaning Services

- **AAA Fire Protection Services**
  800-543-5556
- **America Steam**
  408-223-0663
- **American Steam Cleaning Co.**
  408-280-5272
- **Beacon Fire & Safety**
  800-710-5710
- **Carroll's Exhaust Services**
  408-448-7970
- **Clean Vent, Inc.**
  408-448-7970
- **Custom Steam Cleaners**
  408-264-7052
- **Eagle Steam Cleaning Co.**
  408-272-0172
- **H & H Restaurant Services**
  877-993-0816
- **Luis Kitchen Cleaning**
  415-385-4924
- **National Guardian Enterprises, Inc.**
  800-375-1125
- **Universal Steam**
  877-547-8326
- **Vazquez Steam Cleaning**
  408-687-0597

It is in no way to be implied or understood that City of San José Environmental Services Department endorses these companies or their quality of work. These listings are provided as a courtesy, and are not a complete list of all the suppliers of these types of services in this area. It is the responsibility of the person who is hiring any of these companies to verify their qualifications and references, as well as their compliance with regulations on handling and transport of waste. This sheet was designed for use in the greater San José area.

For more information:
City of San José
Environmental Services
Watershed Protection Division
170 W. San Carlos St.
San José, CA 95113
(408) 945-3000
Fax: (408) 277-5775
www.sanjoseca.gov/esd

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

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KEEP GREASE OUT OF THE SYSTEM

Grease Interceptor Maintenance

Tips For Hiring a Maintenance Service Provider

- **Obtain** cost estimates from several different service providers and compare prices. Be wary if a quote is much lower than others — this may be an indication that the waste hauler is illegally dumping.
- **Require** the service to describe their pumping and cleaning procedures, in writing.
- **Require** the service to describe the disposal method and disposal destination for your wastes, in writing. As the food service facility owner or operator, you can be held liable for the improper disposal of any waste generated by your facility, even if the actual work is performed by a third party.
- **Require** the service to include in writing that they intend to comply with all applicable municipal sewer ordinances, federal, state and local regulations relating to grease waste handling and disposal in performance of the work.
- **Require** the service provide advance notice before each scheduled visit if you have a pre-set maintenance schedule with them (e.g., every 90 days). You should have a representative present to confirm that proper pumping is being performed.

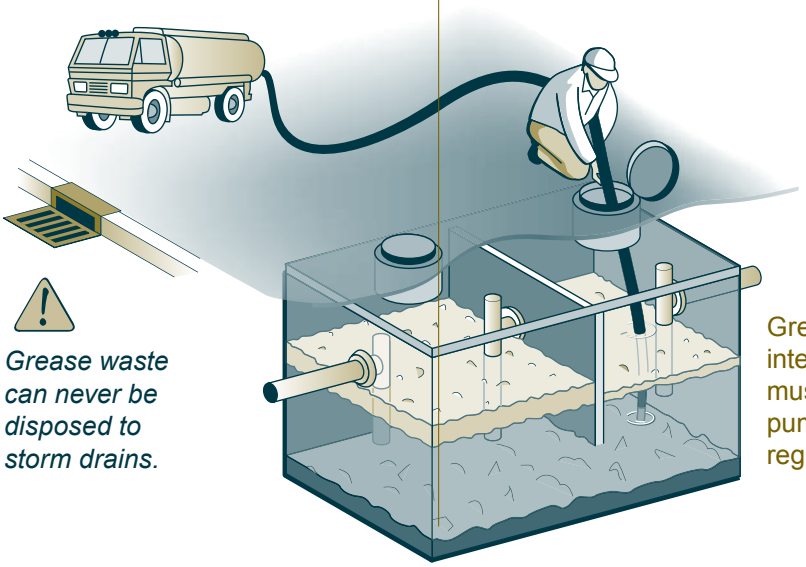
- A visual inspection should be done periodically after pumping, or when plumbers work on laterals, to ensure the interceptor standpipes are undamaged.

Recommended Pumping Practices

Include the following pumping practices in your contract.

- **Require** the service to wash down the grease from the sides and baffles inside the unit so they can be pumped.
- **Require** the interceptor be pumped ***dry,*** removing as much of the floating grease, water, and 'sludge' on the bottom as possible.

Continued on back



Grease waste can never be disposed to storm drains.

Grease interceptors must be pumped dry regularly

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

- **Do not allow** the service to decant wastewater back into the interceptor; the grease and solids content in such water is very high, and may cause odors.
- **Require** the service to refill the interceptor with clean water after pumping dry.

*Solid, semi-solid, or liquefied grease waste should **never** be disposed into **kitchen sinks, mop sinks, floor drains, etc.** which are connected to the sanitary sewer system. Discharging oil and grease to the sanitary sewer system may result in a violation of local sewer use ordinances. Caution should be used in discharging greasy wastewater to the grease interceptor.*

Tips On Cleaning Frequency

- It is important to clean your grease interceptor regularly to prevent fats, oil and grease in water discharged to the sewer from:
  - Exceeding the discharge limit of 150 parts per million set by your local sewer use ordinance.
  - Causing visible floating grease or grease deposits in the piping downstream from the interceptor. If you can see floating grease or grease deposits in a cleanout or discharge pipe 'downstream' of the trap, you need to increase the service frequency.
  - Causing blockages and eventual overflow into your establishment, or to the environment.
- The ***minimum cleaning frequency*** required for grease interceptors installed for food service facilities is ***quarterly***. However, more frequent cleaning intervals may be necessary to prevent your grease interceptor from operating poorly or improperly.
- If you can see floating grease or grease deposits in the sample box or discharge standpipe of the interceptor, you need to increase the service frequency. Make sure your service cleans such deposits off the piping so you can tell when new grease deposits form.

Keep cleaning documentation for a period of not less than three years. See "Maintenance Documentation" sheet for more information.

*Solid, semi-solid, or liquefied grease waste can **never** be disposed to the **storm drain system**. Discharging oil and grease to the storm drain is a violation of local sewer use ordinances.*

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

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CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Environmental Services

In accordance with the Americans with Disabilities Act, City of San José Environmental Services Department materials can be made available upon request in alternative formats, such as Braille, large print, audiotape or computer disk. Requests may be made by calling (408) 945-3000 (voice) or (800) 735-2929 (California Relay Service).

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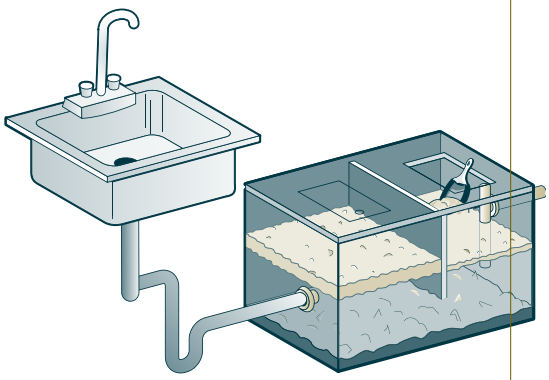
KEEP GREASE OUT OF THE SYSTEM

Grease Trap Maintenance

Tips on cleaning your grease trap

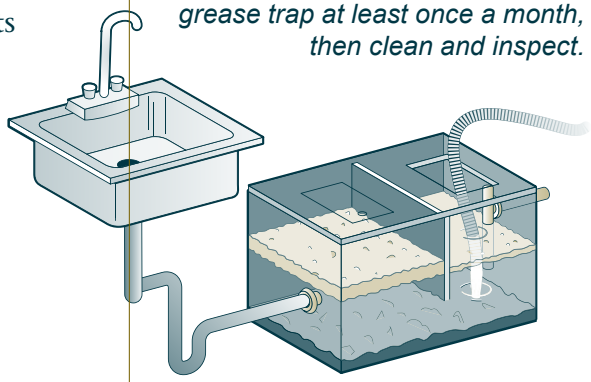
- Prior to cleaning a grease trap, let ice melt into the sink connected to the device. This will reduce odors and cause the grease to congeal, making grease removal easier.
- Remove grease periodically (weekly or more often is suggested), using a plastic scoop. Remove only the grease, and leave the water behind.



Scoop out grease at least weekly.

- At a minimum, clean and empty the entire contents of the grease trap once a month. Remove the grease, water, and any accumulated sludge on the bottom of the trap. Remove the cleanout at the end of the grease trap and perform a visual inspection to check for any grease deposits/build up inside the pipe. Clean any greasy deposits from the piping so you can tell when new grease deposits form, and flush with hot soapy water before closing the cleanout.
  - Make sure the flow directing baffles inside your grease trap are properly replaced after each cleaning.

Empty the entire contents of the grease trap at least once a month, then clean and inspect.



Tips on cleaning frequency

- It is important to clean your grease trap regularly to prevent fats, oil and grease in water discharged to the sewer from:
  - Exceeding the discharge limit of 150 parts per million.
  - Causing visible floating grease or grease deposits in the piping downstream from the grease trap.
  - Causing sewer blockages or overflow into your establishment, or to the environment.

Continued on back

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

- The ***minimum cleaning frequency*** required for grease traps in food service facilities is ***monthly***. However, more frequent cleaning intervals may be necessary to prevent your grease trap from operating poorly or improperly.
- If you can see floating grease or grease deposits in a cleanout 'downstream' of the trap, you need to increase the service frequency.

*Solid, semi-solid, or liquefied grease waste should **never** be disposed into **kitchen sinks, mop sinks, floor drains, etc.** which are connected to the sanitary sewer system. Discharging oil and grease to the sanitary sewer system may result in a violation of local sewer use ordinances.*

Tips on routine maintenance

- Use Allen screws for securing the lid instead of the conventional Phillips or slot screws, which may strip.
- Keep an extra gasket for your grease trap's lid on site to prevent leaks and odors in the event of a gasket failure.
- Develop and keep a grease trap cleaning procedure and maintenance log sheet posted near the grease trap to encourage employees to follow procedures, and to promote proper documentation after each cleaning.

Note:

It is illegal *to connect a dishwasher to a grease trap. The hot, soapy water will wash grease into the sanitary sewer system.*

- ***To ensure proper maintenance, we recommend use of a professional service.*** Facilities experiencing high employee turnover or other factors making regular trap maintenance difficult should consider using a professional service.

Keep cleaning documentation for a period of not less than three years. See "Maintenance Documentation Requirements" sheet for more information.

*Solid, semi-solid, or liquefied grease waste can **never** be disposed to the **storm drain system**. Discharging oil and grease to the storm drain is a violation of local sewer use ordinances.*

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

(408) 945-3000

Tributary agencies served by the treatment plant: San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2-3, Sunol & Burbank Sanitary Districts.

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

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KEEP GREASE OUT OF THE SYSTEM

Power-Operated Grease Removal Devices

Why a power device is different from other grease removal devices

A power device is different from a standard grease trap or interceptor because a power device operates mechanically— automatically skimming floating grease into a storage area. A grease trap or interceptor operates passively—relying on the baffles and pipe arrangement in the device to keep the floating grease out of sewer lines. The maintenance needs for a power device are different from those of standard grease traps or grease interceptors.

> **Note:**
> *Dishwasher or garbage grinder wastewaters are* ***never*** *approved for discharge through a power device.*

Because power devices have moving parts, they are subject to mechanical breakdowns. Periodic maintenance is critical to keep the power device in good operating condition at all times. Unless you have the right replacement parts and expertise on-site to fix any mechanical failures, it is recommended that you have an ongoing maintenance contract to service your power device.

Power devices are generally only approved for a few applications. If you currently have a power device in place at your food service facility that was not approved by the City of San Jose's Environmental Services Department as part of the wastewater plan check process, you need to contact your local building department to obtain a plumbing permit or installation approval. Questions about approved grease removal devices can be answered by calling (408) 945-3000.

The following documentation must be kept on-site in an easily accessible location and made available for inspection upon request by local officials:

- **Maintenance logs for grease collection and removal,** including date/time, person, and company providing the service, kept on-site for at least three years.
- **Maintenance logs for repairs** or preventative maintenance, kept on-site for at least three years.
- **Operating manual, invoices, and maintenance contract** for the power device, *including emergency service contact phone number.*
- **Maintenance logs of solid's trap** associated with power device, where applicable.

Continued on back

Tips on cleaning frequency

- It is important to clean your power device regularly to prevent fats, oil and grease in water discharged to the sewer from either:
  - Exceeding the discharge limit of 150 parts per million.
  - Causing visible floating grease or grease deposits in the piping downstream from the power device. If you can see floating grease or grease deposits in a cleanout or discharge pipe 'downstream' of the power device, you need to increase the service frequency.
  - Causing blockages or overflow into your establishment, or to the environment.

Minimum cleaning frequency

You must, at a minimum, follow the manufacturer's recommended maintenance procedures and cleaning frequencies. However, you will have to maintain and clean more often if needed to keep the power device in proper working condition.

Remember to set an appropriate cleaning frequency for any solids trap in-line with the power device.

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

(408) 945-3000

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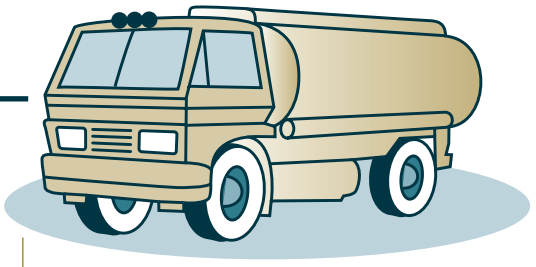
PREVENT SEWER OVERFLOWS

KEEP GREASE OUT OF THE SYSTEM

Grease Trap & Interceptor Cleaning Service



- **A-1 Septic Tank Service**
  408-923-7200
- **Aaron's Grease Trap Service**
  408-371-2350
- **Able Septic Service**
  408-377-9990
- **All Valley Environmental**
  559-498-8387
- **Ameriguard Maintenance Services**
  800-347-7876
- **Burr Plumbing and Pumping**
  408-287-2877
- **Darling International**
  800-473-4890
- **Liquid Environmental Solutions**
  866-694-7327
- **Pioneer Liquid Transport**
  800-804-7327
- **R&D Grease Trap Cleaning**
  707-623-5827
- **Roto-Rooter**
  650-968-5933
- **Trap Recyclers**
  800-994-7867

It is in no way to be implied or understood that City of San José Environmental Services Department endorses these companies or their quality of work. These listings are provided as a courtesy, and are not a complete list of all the suppliers of these types of services in this area. It is the responsibility of the person who is hiring any of these companies to verify their qualifications and references, as well as their compliance with regulations on handling and transport of waste. This sheet was designed for use in the greater San José area.

For more information:
City of San José
Environmental Services
Watershed Protection Division
170 W. San Carlos St.
San José, CA 95113
(408) 945-3000
Fax: (408) 277-5775
www.sanjoseca.gov/esd

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

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CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Watershed Protection Pretreatment Program

Restaurant Equipment Cleaning Log

PREVENT SEWER OVERFLOWS
KEEP GREASE OUT OF THE SYSTEM

Restaurant name and address

Equipment	Qty.	Volume	Vendors/Maintenance Practices	Minimum Requirements
Grease interceptor				• CLEANING: quarterly (required) or more frequent**
Grease trap				• CLEANING: monthly**
Kitchen hood				• NO waste water or cleaning wash water to storm drain system**
Filters				• Identify if filters are exchanged or cleaned on site** • NO waste water or cleaning wash water to storm drain system
Roof top exhaust				• NO waste water or cleaning wash water to storm drain system
Tallow bin				• Clean as needed** • NO waste water or cleaning wash water to storm drain system

RECOMMENDATION: Organize and maintain all records, invoices, receipts, etc. in a binder, and identify each specific service with labeled tabs.

****NOTE: SERVICE INVOICE DOCUMENTATION must be kept on site and readily available for inspector review for 3 years.**

Grease Trap or Interceptor		Vapor Hood: Wipe (W) Steam Clean (S)		Hood Filters: Clean (C) Exchange (E)		Rooftop Exhaust Vents		Tallow Bin		Changes/Comments & Manager's Initials
Date	Init	Date	Init	Date	Init	Date	Init	Date	Init	

Grease Trap or Interceptor		Vapor Hood: Wipe (W) Steam Clean (S)		Hood Filters: Clean (C) Exchange (E)		Rooftop Exhaust Vents		Tallow Bin		Changes/Comments & Manager's Initials
Date	Init	Date	Init	Date	Init	Date	Init	Date	Init	

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8-07/500/950/BF/JM/NCI

KEEP GREASE OUT OF THE SYSTEM

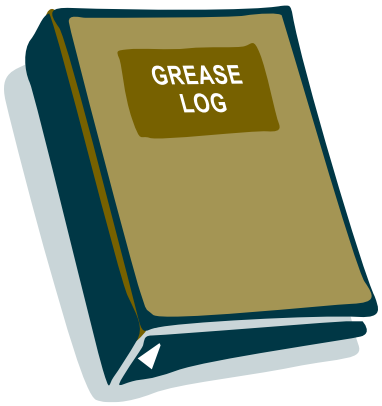
Maintenance Documentation

All food service facility owners or operators are required to document their grease management efforts, including the cleaning and repair frequency for grease removal devices, and grease disposal methods. Maintenance records should be kept on-site in an easily accessible location and must be made available for inspection and copying upon request by local officials. You are required to keep maintenance documentation for a period of not less than three years.

Your maintenance documentation should include the following records:

GREASE REMOVAL DEVICES

- Size/type, make/model and location of your grease removal device (e.g., a 100 lb. ABC® grease trap under the pot sink, or a 2000 gallon XYZ® grease interceptor by the back door.)
- Cleaning instructions for your grease removal device
- Copies of cleaning/service contracts with professional cleaning services, if applicable
- Invoices for cleaning/service visits



Keep cleaning and maintenance records in a binder for easy access.

- A log documenting the cleaning frequency and/or service visits for your grease removal device. It is important to include the following information for each occurrence:
  - Date equipment was cleaned/serviced (provide explanation for service visit if other than routine maintenance/cleaning)
  - Name of person and company performing the cleaning service
  - Description of method by which the equipment was cleaned
  - Volume of wastewater pumped or removed
  - Description of how and where the wastewater and grease solids were disposed of

Continued on back

Grease in the system causes problems in storm drains and sanitary sewers — and increases your operating costs.

Whether you contract with a professional cleaning service, or perform the cleaning/maintenance in-house, you are responsible for keeping and maintaining records of the above information.

VENTILATION HOODS, FILTERS & DUCTS

- Records of ventilation hood, filter, and duct cleaning, and how greasy wastewater from the cleanings are disposed of (See "Ventilation Hood" sheet for more information).

GARBAGE DUMPSTERS AND OUTDOOR PAVEMENT AREAS

- Whether you or your landlord are responsible for cleaning and maintaining the pavement and garbage dumpster area, you must keep records of:
  - The name of the person and company performing the cleaning service
  - The cleaning methods used
  - How the cleaning water was disposed of
  - Steps taken to protect nearby storm drains

Procedures for outdoor cleaning should be kept in writing, in a folder or binder.

Other tips to remember

- Outdoor areas around tallow bins, trash dumpsters or compactors, or grease waste storage must be kept clean of grease, oil or food waste at all times.
- Never store grease outdoors in a way that will cause a discharge if it rains; keep grease in a sealed container resistant to rain, jostling or vandalism.

SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT

(408) 945-3000

Tributary agencies served by the treatment plant: San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2-3, Sunol & Burbank Sanitary Districts.

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Environmental Services

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BAYWISE.ORG

Events

A Plastic Ocean: The Hidden Costs of Plastics on June 2 in San Jose!

Where can I exchange mercury thermometers?

Where can I dispose of unwanted medications?

Find out where you can dispose of Cooking Oil

Where? ZIP Code

Go

Earth 911

Keep cooking grease and oil out of your kitchen drain.

When grease is poured down sinks it can solidify and cause sewer backups into houses or onto streets. The result is a greasy, smelly mess of pollutants entering storm drains, creeks, and the Bay. It harms wildlife both on land and in water and is expensive to clean up!

- Never pour fats, oil, or grease down drains, even if you have a garbage disposal.
- Pour cooking oil and grease into a sealable container with an absorbent such as paper garbage and discard with your other garbage.
- Recycle large amounts of grease or cooking oil (including from deep fryers) at Bay Area grease recycling locations.
- Use food strainers in kitchen sinks to catch food particles and scrape leftover food waste into the garbage or compost container instead of the garbage disposal.
- Wastewater backups require fast attention. To report sewer problems in your neighborhood, call your local non-emergency police department hotline.

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Portal solution by Adammer™

KEEP GREASE OUT OF THE SYSTEM

Limitations on the use of

Chemicals, Enzymes and Bacteria for grease removal

CHEMICALS: The use of chemicals to clean grease traps or interceptors is strictly prohibited!

- Your local sewer use ordinance prohibits the use of chemicals as a cleaning method to dissolve grease from your grease removal devices. Specifically, cleaners, solvents, caustics, or other chemicals cannot be used to dissolve accumulated grease from your grease trap or grease interceptor. Discharging certain regulated chemicals into the sewer system can negatively affect the pH of the sewer stream, and may result in violation of local, state, and federal codes.

Note:

BE WARY...
of vendors claiming their additives are "approved" or otherwise legal.

ENZYMES: The use of enzymes to clean grease traps or interceptors is strictly prohibited!

- Whether produced synthetically or from animals, enzymes are considered to be chemicals. Enzymes cannot be used to dissolve grease from your grease removal device.
- Enzymes may temporarily alter the chemical form of the grease, allowing it to "dissolve" into the water. However, the altered grease will often reform into an obstructing or viscous solid matter in sewer pipes. This altered grease may still result in a violation of the 150 parts per million oil and grease limit in your local sewer use ordinance.

BACTERIA: Bacteria use enzymes to "eat" grease, but bacteria use is problematic and is not a substitute for physically removing grease.

- Bacteria need a stable environment and are sensitive to changes in temperature, pH, oil and grease loading, water flow changes, etc. It is hard to maintain the conditions necessary for bacteria to work in a kitchen environment. Biological expertise and ongoing sampling are often needed to sustain bacteria.
- Even if your bacteria survive and flourish, their effectiveness in removing grease is limited. "Partially eaten" (i.e., not broken down completely) grease may still enter the plumbing and sewer pipes, reforming into an obstructing (viscous) solid matter over time.

Continued on back

In general...

- Greasy wastewater ***cannot*** be discharged to the sanitary sewer system. Your local sewer use ordinance states:

  "No person shall discharge, cause, allow, or permit to be discharged into the sanitary sewer system any liquid or other waste containing floatable and/or dispersed grease, vegetable oil, petroleum oil, non-biodegradable cutting oil, or fat, oil, or grease or products of animals, vegetable or mineral origin, in excess of 150 part per million by weight."

- Floating or solid grease matter must be physically removed from your grease removal device by pumping, scraping, scooping, etc.

- You are expected to maintain your grease removal devices in efficient operating condition by periodic removal of accumulated grease. The use of chemicals, enzymes, or bacteria should not be used as a substitute for physically removing grease. Your local sewer use ordinance states:

  "Grease removal devices shall be maintained in efficient operating condition by periodic removal of the accumulated grease. The use of chemicals to dissolve grease is specifically prohibited. No accumulated grease shall be introduced into any drainage piping or public or private sewer. Users with oil and grease removal devices must maintain them in good operating condition at all times."

- The ***minimum cleaning frequency*** required for **grease interceptors** installed for food service facilities is ***quarterly***. However, more frequent cleaning intervals may be necessary to prevent your grease interceptor from operating poorly or improperly.

- The ***minimum cleaning frequency*** required for **grease traps** installed in food service facilities is ***monthly***. However, more frequent cleaning intervals may be necessary to prevent your grease trap from operating poorly or improperly.

SAN JOSE/SANTA CLARA
WATER POLLUTION
CONTROL PLANT

(408) 945-3000

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CAPITAL OF SILICON VALLEY

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onto the street…

Would you pour dirty water in a creek?

- Storm drains in streets and parking lots connect to creeks without any water treatment.
- It is illegal to allow any substance other than rain water to go down the storm drain.
- For questions on hazardous materials disposal: **(408) 299-7300** or **www.hhw.org**

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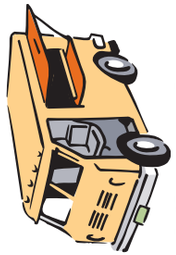
CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Environmental Services
A Certified Green Business

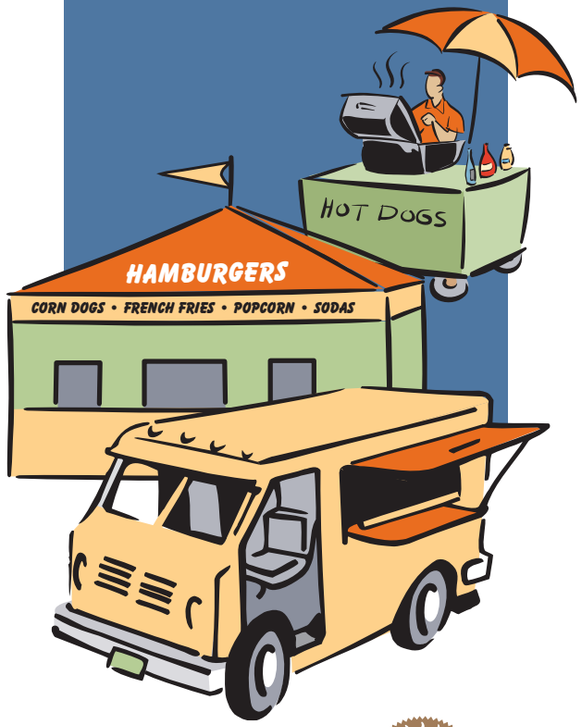
200 E. Santa Clara Street, 10th Floor
San Jose, California 95112



Mobile Food Vendors Environmental Guidelines

Mobile Food Vendors

Environmental Guidelines



CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Environmental Services
A Certified Green Business

What you pour

Mobile Food Vendors

- Mobile Food Vendors, like catering trucks, hot dog stands, street fair booths, and kiosks are mobile businesses that prepare, cook, and serve food to the public.
- They are required to posess a valid health permit.
- They are potential pollution sources to the storm drain unless Best Management Practices are used to prevent pollution.
- For further information or to get answers to any questions call **(408) 945-3000**, or go to: **www.sanjoseca.gov/esd**

East Bay Mud
FOG Outreach Materials

…can get washed straight into the creek.

Here's what you can do to prevent this…

Only rain down the drain.

The storm drain system is only for collecting rain water. All other sources of water and pollutants are prohibited.

For more information

- If you have questions about preventing storm drain pollution, call **(408) 945-3000**.

No dumping.

- Do not pour grease, food waste, wash water, or anything else down the storm drain.
- Any spills must be cleaned up and disposed of immediately.
- A spill kit should be handy for such emergencies.

Spill kit should include:

- Plastic bags, labels
- Broom
- Absorbent like "kitty litter"

Hold all wash water on board.

- All wash water used for cleaning must be held on board until it can be properly discharged at your facility's sanitary sewer connection (e.g.: sink, clean-out, mop sink).
- You must also properly dispose of melted ice water and cooling equipment discharge.

You can be fined.

There are laws against illegally discharging to the storm drain. The first offence can be fined up to $500. It doesn't pay to dump!

No trash in the storm drain.

- Trash is a pollutant, when it enters the storm drain.
- Remember, some trash can be recycled.
- Other items, such as floor cleaners, pesticides, and solvents are toxic. These should not be mixed in with trash, but disposed of as hazardous waste.
- No liquid wastes (water or oil) in the trash. Make the wet waste "dry" by mixing with kitty litter.
- Check around your operation and clean up any trash before leaving the area.

Collection System Agencies

EBMUD treats wastewater for nine communities in its wastewater service area. The sewer systems are owned by the local communities listed below. For information about sewers or the wastewater "collection system," contact your local agency:

City of Alameda	(510) 749-5840	www.ci.alameda.ca.us/publicworks
City of Albany	(510) 524-9543	http://www.albanyca.org/
City of Berkeley	(510) 981-6300	www.ci.berkeley.ca.us/pw
City of Emeryville	(510) 596-4300	www.ci.emeryville.ca.us/publicworks
City of Oakland	(510) 615-5566	www.oaklandpw.com
Piedmont	(510) 420-3050	www.ci.piedmont.ca.us/publicworks/
Stege Sanitary District, serving • City of El Cerrito • Community of Kensington • Richmond Annex	(510) 524-4667	www.stegesd.dst.ca.us

CONTROLLING FOG at FOOD HANDLING FACILITIES

WHAT IS FOG?

FOG refers to Fats, Oils, and Grease from food preparation, food service, and kitchen clean up. It is generated in most types of restaurant and food service establishment kitchens.

WHY IS FOG A PROBLEM?

When poured down the drain, FOG can build up in pipes, pumps, and equipment, causing significant problems in the community sewer collection system and the wastewater treatment plant. Problems include sewer line blockages that can lead to sewer overflows and spills that cause environmental and health hazards.

WHY SHOULD I CARE ABOUT FOG?

Restaurants and food service establishments contribute greatly to the build up of FOG in the sewer lines because of the amount of grease produced during cooking, food preparation, and kitchen cleanup. If your establishment is found to cause sanitary sewer overflows because you have not controlled grease discharge, you may be responsible for cleanup costs and property damage. In addition, you will be required to put in a grease interceptor and maintain it on a regular schedule as required by your EBMUD permit.

WHAT ARE WAYS TO DECREASE THE AMOUNT OF GREASE THAT GOES DOWN THE DRAIN?

It is the responsibility of each food-handling facility to develop an effective FOG management program for recyclable grease (yellow), interceptor and grease trap waste (brown) and solid food waste.

A list of Best Management Practices (BMPs) is included with your permit package. Following these BMPs and your permit requirements will reduce the amount of FOG entering your drain lines.

WHAT IS A GREASE INTERCEPTOR?

A grease interceptor is a large partitioned vault installed to remove floating grease and food waste. Usually interceptors are installed underground outside food service establishments. These differ from grease traps, which are small grease removal devices installed in under counter drain lines.

IS MY FACILITY REQUIRED TO HAVE A GREASE INTERCEPTOR?

At this time, your facility will not be required to install an interceptor unless one or more of the following occurs:

1. Your facility is newly constructed or converts from a non-food handling facility to a food handling facility
2. Your facility submits plans to perform remodels, additions, alterations or repairs valued at $75,000 or more
3. Your facility has caused or contributed to collection system blockages resulting in maintenance requirements or sewage spills

WHAT IF I CANNOT INSTALL A GREASE INTERCEPTOR DUE TO SPACE OR SLOPE RESTRICTIONS OR BECAUSE MY BUSINESS DOES NOT GENERATE GREASE?

A business may apply for a waiver or variance, which may be granted depending upon specific circumstances at the establishment.

EBMUD will be working with the City and Sanitary District agencies in our service area to determine grease interceptor installation needs and sizing criteria. EBMUD will be performing inspections at facilities to determine if pumping frequencies established in your permit are adequate, if BMPs are being implemented, and to respond to grease related overflows.

DO NOT

POUR FATS, OILS OR GREASE DOWN THE DRAIN

HELPING TO PROTECT THE ENVIRONMENT

EAST BAY MUNICIPAL UTILITY DISTRICT ENVIRONMENTAL SERVICES HOTLINE: 510-287-1651

EBMUD

East Bay Municipal Utility District
Environmental Services Division
Telephone (510) 287-1651

EBMUD APPROVED GREASE HAULERS

- A-1 Septic Tank Service, Inc. (510) 886-4455
- A-1 Septic – Little River (707) 937-0496
- Able Septic Tank Service (408) 377-9990
- All Valley Environmental, Inc. (559) 498-8378 or (559) 217-5949
- Ameriguard Maintenance Services (800) 347-7876
- Blue Sky Bio-Fuels (510) 868-9229
- Burr Plumbing and Pumping (408) 287-2877
- Coast Environmental (800) 588-7762
- Darling International, Inc. (415) 647-4890
- Ernie's Plumbing (925) 228-5242
- Joe's Farmers Septic and Grease Service (707) 546-3236
- Liquid Environmental Solutions of California (866) 694-7327
- North Coast Sanitary (707) 884-1095
- Pioneer Liquid Transport (800) 366-6808
- Portosan – Santa Rosa (707) 566-2000
- R & D Grease Trap Cleaning (707) 632-5827
- Roto Rooter Plumbing (510) 483-2324
- SRC Pumping Company (916) 363-1342
- Trap Recyclers (800) 994-7867

Effective February 27, 2008

EBMUD

Helping to Protect the Environment

Best Management Practices (BMPs) for Food Related Fats, Oils and Grease

BMP's	Reason for	Benefits
Train all staff on BMPs.	People are more willing to support an effort if they understand its basis.	Trained staff will be more likely to implement BMPs and work to reduce grease discharges to the sewer.
Post "No Grease" signs above sinks and on the front of dishwashers.	Signs serve as a constant reminder for staff working in kitchens.	Reminders help minimize grease discharge to the sewer or grease removal device.
Check grease interceptor solids depth routinely. The combined thickness of the floating grease and the bottom solids should not be more than 25% of the total interceptor depth.	Grease interceptor will not meet performance standards when solids and floating grease levels exceed 25%.	This will keep grease interceptor working at peak performance.
Collect and recycle waste cooking oil.	These actions reduce grease loading on grease removal devices and the sewer.	This will reduce cleaning frequency and maintenance costs for grease removal devices and reduce the amount of grease entering the drain.
"Dry wipe" pots, pans, and kitchen equipment, before cleaning.	"Dry wiping" will reduce the grease loading on grease removal devices and the sewer.	This will reduce cleaning frequency and maintenance costs for grease removal devices and reduce the amount of grease entering the drain.
Maintain a routine grease trap cleaning schedule.	If grease traps are not routinely cleaned, they do not work properly and do not prevent grease from entering the sewer. If the grease trap is not providing adequate protection, a grease interceptor may be required.	This reduces amount of grease entering the drain and protects sewers from grease blockages and overflows.
Use absorbent paper under fryer baskets.	This reduces the amount of grease during cleanup.	This reduces amount of grease entering the drain and protects sewers from grease blockages and overflows.
Use absorbents such as cat litter or paper towels to pick up oil and grease spills before mopping.	Decreases the amount of grease that will be put down the drain.	This reduces amount of grease entering the drain and protects sewers from grease blockages and overflows.
Do not use emulsifiers or solvents other than typical dishwashing detergents.	Emulsifiers and solvents will break down grease causing a problem in the sewer downstream.	Allows for proper removal of grease.

East Bay Municipal Utility District Environmental Services Division
P.O. Box 24055, MS 702
Oakland, CA 94623-1055
Telephone (510) 287-1727 Fax (510) 287-0621

Grease Interceptor Installation Conditional Variance for facility grease generating capabilities

I, _____
(Business Representative's Name Printed)

Representing _____
(Business Name and Address Printed)
certify that at no time shall any fats, oil, grease, or solids be discharged to the community sewer collection system in quantities that impair wastewater flow. I agree to contact EBMUD Environmental Services Division if operational changes occur that result in the increase of fats, oil, grease, or solids discharge to the community sewer collection system at the business named above. If at any time the business listed above is found to discharge fats, oil, grease, or solids in quantities that impair wastewater flow, I understand that I must install, within ninety (90) days of receipt of notification from EBMUD, a grease interceptor of sufficient size and design to be acceptable to EBMUD, the collection system owner and the regulating Health Department.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The grease interceptor installation conditional variance is not transferable.

The person signing this variance warrants that it has or has obtained the necessary consent and authority to execute this variance and to make this variance binding upon itself.

SIGNED _____ DATE _____

CONTACT PHONE NUMBER _____

Supporting documentation including but not limited to menus and kitchen practices to limit grease discharge to the sewer must be submitted with this application form.

Applicant Please Do Not Write Below This Line

APPROVAL: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR APPROVAL: _____

_____

EBMUD REP _____ DATE _____

REJECTED: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR REJECTION: _____

EBMUD REP _____ DATE _____

Grease Interceptor Maintenance

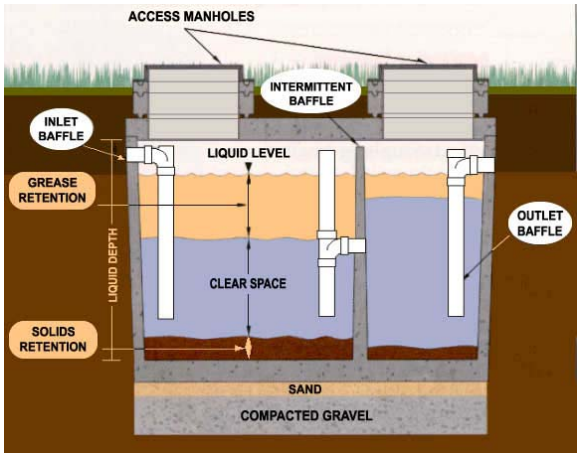
Maintenance of your grease interceptors is required as a condition of your permit and to assure that the unit works properly.

Why do you need a grease interceptor?

A grease interceptor removes fats, oils, and grease that coat city sewer lines and cause sewer overflows. If an overflow occurs, you may be responsible for clean-up costs and property damage.

How does a grease interceptor work?

Wastewater enters the unit after leaving the kitchen. Most of the floating grease remains at the top and the solids settle at the bottom of the first chamber of the unit (see diagram). Water flows into the second chamber where more solids and grease separate out. The remaining water then flows out of the unit to the community sewer.



How often do I need to clean my grease interceptor?

Your permit requires that you clean your interceptor a minimum of every 3 months. It must be cleaned more frequently if the amount of grease discharged causes or contributes to a blockage or overflow in the city collection system. Be sure that your hauler is doing a complete pump out of the unit and checking for repairs at the time of every service. Also be sure that your hauler leaves you a receipt to document that your interceptor has been pumped.

What will an EBMUD inspector look for during an inspection of my grease interceptor?

An EBMUD inspector will look to see that you are maintaining and pumping your grease interceptor frequently enough to comply with your permit and to keep grease from discharging to the city sewer. They will ask to see your pumping records, including the dates that the grease interceptor was pumped and by what hauler. Have these records available for the inspectors to review.

EBMUD

EBMUD Pollution Prevention
Environmental Services Hotline (510) 287-1651
Helping To Protect the Environment

EAST BAY MUNICIPAL UTILITY DISTRICT

Environmental Services Division
(510) 287-1651

Grease Trap Maintenance Log

For

_____
(establishment name)

Date Cleaned	Cleaned By	Where was grease disposed of?	Amount of grease removed (Record in inches)

East Bay Municipal Utility District Environmental Services Division
P.O. Box 24055, MS 702 Oakland, CA 94623-1055
Telephone (510) 287-1727 Fax (510) 287-0621

Grease Interceptor Installation Conditional Variance for Installation Restrictions

I, _____
(Business Representative's Name Printed)

Representing _____
(Business Name and Address Printed)

certify that the facility named above cannot install a grease interceptor because at least one the following conditions apply (please check appropriate box). Supporting documentation must be submitted with the application and plans.

☐ Inadequate slope ☐ Inadequate space

I certify that at no time shall any fats, oil, grease, or solids be discharged to the community sewer collection system in quantities that impair wastewater flow. I agree to put into effect the East Bay Municipal Utility District Food Handling Facility Best Management Practices. If at any time the business listed above is found to discharge fats, oil, grease, or solids in quantities that impair wastewater flow, I understand that I must implement an alternative grease removal method(s) acceptable to East Bay Municipal Utility District, the collection system owner and the regulating Health Department.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The grease interceptor installation conditional variance is not transferable to a new owner or occupant.

The person signing this variance warrants that it has or has obtained the necessary consent and authority to execute this variance and to make this variance binding upon itself.

SIGNED _____ DATE _____

CONTACT PHONE NUMBER _____

Do Not Write Below This Line

APPROVAL: _____(CITY/AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

COMMENTS: _____

_____

EBMUD REP _____ DATE _____

REJECTED: _____(CITY/AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

COMMENTS: _____

EBMUD REP _____ DATE _____

East Bay Municipal Utility District Environmental Services Division
P.O. Box 24055, MS 702
Oakland, CA 94623-1055
Telephone (510) 287-1727 Fax (510) 287-0621

Grease Interceptor Installation Conditional Waiver

I, _____
(Business Representative's Name Printed)

Representing _____
(Business Name and Address Printed)

certify that the business named above does not require a grease interceptor installation because it meets the definitions set forth in the *Food Handling Facility Wastewater Discharge Permit Standard Terms and Conditions, Section D. I.* If at any time non-compliance is detected with the Food Handling Facility Wastewater Discharge Permit issued to the business listed above, I understand that I must install, within ninety (90) days of receipt of notification by EBMUD, a grease interceptor of sufficient size and design to be acceptable to East Bay Municipal Utility District, the collection system owner, and the regulating Health Department.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The Grease Interceptor waiver is not transferable.

The person signing this waiver warrants that it has or has obtained the necessary consent and authority to execute this waiver and to make this waiver binding upon itself.

SIGNED _____ DATE _____

CONTACT PHONE NUMBER _____

Supporting documentation of business type must be submitted with application form

---

Please Do Not Write Below This Line

APPROVAL: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR APPROVAL: _____

_____

EBMUD REP _____ DATE _____

REJECTED: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR REJECTION: _____

EBMUD REP _____ DATE _____

East Bay Municipal Utility District
Environmental Services Division
P.O. Box 24055, MS 702
Oakland, CA 94623-1055
Telephone (510) 287-1651 Fax (510) 287-0621

Grease Interceptor Pumping Frequency Conditional Variance

I, _____
(Business Representative's Name Printed)

Representing _____
(Business Name and Address Printed)
certify that at no time shall any fats, oil, grease, or solids be discharged to the community sewer collection system in quantities that impair wastewater flow. I also certify that the food handling operations taking place at the above named business and address do not generate fats, oil and grease in quantities to require interceptor pumping at the frequency required in the Food Handling Facility Wastewater Discharge Permit (Permit). I understand that the above named business will pump at a schedule that allows all conditions in Standard Terms and Conditions for Food Handling Facilities, Section E. III. to be met at all times. If at any time non-compliance with conditions defined in Standard Terms and Conditions, E. III. occurs, the above named business will immediately resume the pumping frequency established in my Permit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The grease interceptor pumping frequency conditional variance is not transferable.

The person signing this variance warrants that it has or has obtained the necessary consent and authority to execute this variance and to make this variance binding upon itself.

SIGNED _____ DATE _____

CONTACT PHONE NUMBER _____

Supporting documentation must be submitted with application form.

Please Do Not Write Below This Line

APPROVAL: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR APPROVAL: _____

_____

EBMUD REP _____ DATE _____

REJECTED: _____(AGENCY REP.)
PRINT SIGNATURE

DATE _____ CITY/AGENCY NAME _____ CONTACT NO. _____

REASON FOR REJECTION: _____

EBMUD REP _____ DATE _____

Residential Cooking Oil and Grease Drop-Off Program

Not sure what to do with used cooking oil and grease? Thinking of frying a turkey for the holidays? Never wash cooking fats, oil or grease down the drain, as they can cause your sewer line to back up into your home, streets and storm drains that flow to the Bay. Recycle it instead at an EBMUD residential cooking oil and grease drop-off location. No commercial kitchens please. Fifteen (15) gallons per person maximum. Do not mix with automotive wastes.

These locations may also accept other household hazardous wastes -- check the links below for hours, directions and what other wastes are accepted. Remember to keep all wastes in separate containers -- never mix different substances.

Check our frequently asked questions to learn more about cooking oil and grease disposal. For other ways to help protect San Francisco Bay from pollution, see our residential pollution prevention page.

Richmond	West Contra Costa County Integrated Waste Management Authority	Residents of Crockett, El Cerrito, El Sobrante, Hercules, Kensington, Pinole, Port Costa, Richmond, Rodeo and San Pablo only
Martinez	Central Contra Costa County Household Hazardous Waste Collection Program	Residents of Alamo, Blackhawk, Clayton, Concord, Clyde, Danville, Lafayette, Martinez, Moraga, Orinda, Pacheco, Pleasant Hill, San Ramon, Walnut Creek, and Central County unincorporated area only
Oakland	EBMUD Wastewater Treatment Plant 2020 Wake Avenue	All EBMUD residential customers are welcome to use our self-service receptacle. Residential cooking oil and grease only -- no other wastes are accepted. Upon arrival, the guard will direct you to the receptacle.

For questions or more information, please contact CleanBay@ebmud.com or 510-287-1651.

FAQ about Cooking Oil and Grease Disposal & Recycling

Why shouldn't I just pour used cooking oil down the drain?
Cooking oil and grease poured down drains can build up in pipes causing backups at home, into streets and the storm drain system. Proper disposal of your cooking oil and other greases and fats will help prevent a sewage backup in your home. Overflows can pose health and environmental hazards, polluting local creeks and San Francisco Bay.

No cooking oil or grease down the drain!

What about using my garbage disposal, hot water or detergent to wash grease down the drain?
These methods won't prevent grease from building up in sewer pipes. Home garbage disposals do not remove grease from the plumbing system. Hot water will cool down in pipes causing fats and grease to coagulate. Detergents that claim to dissolve grease may cause blockages to occur further down the pipeline.

May I throw cooking oil in the trash?
Small amounts of oil can be placed in tightly sealed, unbreakable containers in the trash. It is not recommended to dispose of large amounts in trash as containers may leak, causing problems with garbage trucks and at solid waste facilities. For more information about avoiding clogs, see our residential fats, oil and grease brochure (1.6 MB), a PDF file that can be viewed and printed through Adobe's free Acrobat Reader. Get Acrobat Reader

How can I recycle cooking oil?
Bring it to an EBMUD residential cooking oil and grease drop-off location! Registered transporters pick up the cooking oil and grease so it can be recycled into livestock feed or into biodiesel, a cleaner-burning alternative fuel for diesel automobiles and trucks.

What should I do with small amounts of fats, oil and grease?
Scrape excess food waste from pots and pans into the garbage after cooking. Wipe pots, pans and cookware "clean" with a disposable towel prior to washing. You can dispose of small amounts of fats, oil and grease in tightly sealed containers in the trash, or save it in a re-sealable container and bring it to an EBMUD residential cooking oil and grease drop-off location.

May I recycle motor oil, too?
Please do NOT combine motor oil or other automotive waste with cooking oil and grease. Motor oil will contaminate cooking oil and grease and then it cannot be recycled. Keep automotive waste separate from cooking fats. Some EBMUD residential cooking oil and grease drop-off locations will also take automotive wastes separately. Links to their websites provide details on what these centers can accept.

I own a restaurant, may I bring my used commercial kitchen cooking oil and grease, too?
No, this is a residential service. EBMUD can direct you to a registered transporter and/or a licensed renderer.

For more information on residential pollution prevention, contact CleanBay@ebmud.com or (510) 287-1651.

Fats, Oils, and Grease are naturally produced during cooking and baking.

Common sources of FOG include:

- Meat fats
- Lard
- Shortening
- Butter
- Dairy Products
- Margarine
- Fatty/greasy food scraps
- Baked goods
- Sauces
- Cooking oil
- Salad dressing

Do Not Put Any of These Items Down The Drain

EAST BAY MUNICIPAL UTILITY DISTRICT
P.O. BOX 24055 • OAKLAND, CA 94623 • (510) 835-3000

Avoid a Clog

Keep Grease Out of Your Drain

EBMUD
POLLUTION PREVENTION
HELPING TO PROTECT THE ENVIRONMENT

EAST BAY MUNICIPAL UTILITY DISTRICT

When fats, oils and grease (FOG) are put down your home drain they can cause many problems further down the sewer pipe. Liquified grease and fat from animal products will solidify and clog pipes much like a clog in a human artery. Liquid oils can also coat pipes and contribute to blockages. Blockages may cause a sewage backup into your home, resulting in expensive clean up costs and repairs to your sewer pipes, home and belongings. Blockages may also trigger an overflow or backup of sewage into the streets, parks or waterways creating a public health risk and threatening the environment.

For more information on the EBMUD FOG Control Program, please call 510-287-1651 or visit www.ebmud.com

You Can Help! Please Do Not Dispose of Any Cooking Oils or Grease Down the Drain

By following the guidelines below you may avoid sewer overflows, backups, and costly repairs

- Pour all cooled cooking fats, oils and grease that will harden (bacon grease, meat drippings) into an old milk carton, can or container with a lid and dispose of it in the garbage.
- Mix small volumes of liquid grease with an absorbent material such as cat litter, place in a lidded container and dispose of in the garbage.
- Wipe down greasy pots, pans or dishes with a disposable cloth before washing. Dispose of cloth in the garbage.
- Scrape greasy food scraps from pots, pans, and dishes into the garbage, not a garbage disposal.
- Do not use warm water and soap to wash grease down the drain.

FOOD HANDLING FACILITY WASTEWATER DISCHARGE PERMIT

EBMUD

Effective Date:

Expiration Date:

Terms and Conditions

I. Grease interceptors are required for food handling facilities that meet any of the following criteria:
- New construction
- Remodels, additions, alterations or repairs valued at or greater than $75,000
- Has caused or contributed to a grease related collection system blockage resulting in maintenance requirements and/or a sewage spill

II. A food handling facility may be granted a waiver or conditional variance from grease interceptor installation and pumping requirements if conditions in *Standard Terms and Conditions for Food Handling Facilities, Section D. and E.* are met.

III. All new grease interceptors shall be designed, constructed and installed in accordance with the California Plumbing Code, Title 24, Part 5 (current version) and shall have a sampling access point located downstream of the interceptor.

IV. Each grease interceptor shall be maintained
- By removing the entire contents of the interceptor each time the interceptor is pumped.
- To ensure proper operation, maintenance and performance.
- At a minimum pumping frequency of once per three-month period, or more frequently to ensure that the facility discharge does not cause or contribute to a grease related collection system blockage resulting in maintenance requirements and/or a sewage spill.
- Through pumping by an EBMUD approved food handling facility waste grease hauler.

V. The Permit Holder shall retain maintenance records with the following information for each grease removal device located on the premises. The records shall be kept a minimum of three years and provided to EBMUD upon request.
- Date of service
- Volume pumped (gallons)
- Name of EBMUD approved food handling facility waste grease hauler
- Approved waste grease disposal location

VI. The Permit Holder shall notify EBMUD-Environmental Services Division at (510) 287- 1651 of any
- Sale, lease, or transfer of the operation for which the permit was issued
- Change of facility name
- Changes to a grease removal device(s).
- Remodels, additions, alterations or repairs valued at or greater than $75,000

VII. Access to the facility shall be granted to EBMUD personnel to conduct wastewater compliance inspections and to collect wastewater discharge samples.

VIII. EBMUD will conduct random, unannounced inspections to verify compliance with the terms and conditions of this Food Handling Facilities Wastewater Discharge Permit.

IX. EBMUD will pursue enforcement and penalties as authorized by EBMUD Ordinance No. 311A-03, Title VI.

AUTHORIZATION

The above named Permit Holder is hereby authorized to discharge wastewater to the community sewer, subject to Permit Holder's compliance with these Permit Terms and Conditions, EBMUD Ordinance No. 311A-03, and the Food Handling Facility Wastewater Discharge Permit Standard Terms and Conditions. EBMUD may amend this Permit to include revisions during the term of the Permit.

_____

DAVID R. WILLIAMS, Director of Wastewater
EBMUD, P.O. Box 24055, MS 702, Oakland, CA 94623-1055

Orange County Sanitation District
FOG Outreach Materials

Information and Instructions for Obtaining a

Fats, Oils, and Grease Wastewater Discharge Permit for Owners of Commercial Properties with Multiple Food Service Establishments

THIS PERMIT APPLICATION PACKET CONTAINS INFORMATION ON:

I. Fats, Oils, and Grease (FOG) Wastewater Discharge Permit Program . . . . . Page 2

II. Permit Requirements for Discharging Wastewater from Food Service Establishments. . .Page 2

III. Entities that Require a FOG Wastewater Discharge Permit . . . . . Page 2

IV. Facilities Exempt From Obtaining a FOG Wastewater Discharge Permit . . . . . .Page 3

V. Penalties for Discharging Without a Valid FOG Wastewater Discharge Permit. . . . . Page 3

VI. FOG Wastewater Discharge Permit Conditions and Requirements . . . . . Page 3

VII. Permit Conditions and Requirements for Owners of Commercial Properties with Food Service Establishments . . . . . .Page 4

VIII. FOG Wastewater Discharge Permit Duration and Renewals . . . . . Page 4

IX. FOG Wastewater Discharge Permit Fee . . . . . .Page 5

X. Facilities Requirements for Owners of Commercial Properties . . . . . .Page 5

XI. Applying for a FOG Wastewater Discharge Permit . . . . . .Page 5

XII. Where to Get Additional Information . . . . . .Page 6

XIII. Permit Application Review and Evaluation Process . . . . . Page 6

Appendix A - Specific Instructions to Fill Out a FOG Wastewater Discharge Permit Application (Appendix A) . . . . Page A-1

I. FATS, OILS, AND GREASE WASTEWATER DISCHARGE PERMIT PROGRAM

- The Orange County Sanitation District (OCSD) administers a Fats, Oils, and Grease (FOG) Source Control Program to protect the public and the environment through the regulation of wastewater discharges from Food Service Establishments.

- A permit program is implemented to limit the discharge of FOG from Food Service Establishments by establishing prohibitions, self-monitoring, and reporting requirements.

II. PERMIT REQUIREMENTS FOR DISCHARGING WASTEWATER FROM FOOD SERVICE ESTABLISHMENTS

- OCSD's *Fats, Oils, and Grease Ordinance* (FOG Ordinance) requires Food Service Establishments that desire to discharge wastewater to the sewer system to apply for a FOG Wastewater Discharge Permit (permit).

- All Food Service Establishments requiring a permit to discharge directly into OCSD's sewerage facilities must file an application and pay the applicable fees pursuant to Sections 3.1 and 3.4 of OCSD's FOG Ordinance.

III. ENTITIES THAT REQUIRE A FOG WASTEWATER DISCHARGE PERMIT

- Permits are required for Food Service Establishments within the jurisdictional boundaries of OCSD, operating in a permanently constructed structure that is maintained, used, or operated for the purpose of storing, preparing, serving, or manufacturing, packaging, or otherwise handling food for sale to other entities, or for consumption by the public, its members or employees, and which has any process or device that uses or produces FOG, or grease vapors, steam, fumes, smoke or odors that are required to be removed by a Type I or Type II hood, as defined in the California Uniform Retail Food Service Establishments Law (CURFFL) Section 113785.

- Permits may be required for owners, or their official designee(s), of commercial properties with Food service Establishments who are responsible for the installation and maintenance of the grease interceptor serving multiple Food Service Establishments that are located on a single parcel.

IV. FACILITIES EXEMPT FROM OBTAINING A FOG WASTEWATER DISCHARGE PERMIT

- Establishments engaged in limited food preparation are not considered as Food Service Establishments and are exempt from obtaining a permit. Limited Food Preparation Establishments are typically engaged only in reheating, hot holding or assembly of ready to eat food products and as a result, there is no wastewater discharge containing a significant amount of FOG. A Limited Food Preparation Establishment does not include any operation that changes the form, flavor, or consistency of food.

V. PENALTIES FOR DISCHARGING WITHOUT A VALID FOG WASTEWATER DISCHARGE PERMIT

Facilities discharging without a valid permit are subject to the following penalties:

- **Civil Penalties.** Pursuant to the authority of California Government Code Sections 54739 - 54740, any person who violates any provision of OCSD's FOG Ordinance shall be liable civilly for a sum not to exceed $25,000 per violation, for each day in which such violation occurs. Pursuant to the authority of the Clean Water Act, 33 U.S.C. Section 1251 et seq., any person who violates any provision of OCSD's FOG Ordinance shall be liable civilly for a sum not to exceed $25,000 per violation, for each day in which such violation occurs. Pursuant to California Government Code Sections 54740.5 and 54740.6, the OCSD may impose administrative fines up to the greater of $5,000 per day or $10 per gallon for discharge violations.

- **Criminal Penalties.** Any person who violates any provision of the OCSD's FOG Ordinance is guilty of a misdemeanor, which upon conviction is punishable by a fine not to exceed $1,000, or imprisonment for not more than thirty (30) days, or both. Each violation and each day in which a violation occurs may constitute a new and separate violation of OCSD's FOG Ordinance and shall be subject to the penalties contained herein.

VI. MAINTAINING A VALID FOG WASTEWATER DISCHARGE PERMIT

An approved permit is no longer valid if any one of the following occurs:

- The permittee has undergone a change in ownership.

- Permit has expired.

Permits issued under the FOG Ordinance are for a specific user at a specific location. A new permit application must be filed when there is a change in ownership. Permits are not transferable. Upon expiration of the permit, a permit renewal application must be submitted.

VII. PERMIT CONDITIONS AND REQUIREMENTS FOR OWNERS OF COMMERCIAL PROPERTIES WITH FOOD SERVICE ESTABLISHMENTS

A permit contains all of the following conditions or limits:

- Limitations on discharge of FOG that may accumulate and/or cause or contribute blockages in the sewer system or at the lateral which connects the Food Service Establishment to the sewer system.

- Requirements for proper maintenance of grease interceptors based on specified frequency and schedule, keeping maintenance logs and wastehauling records, and periodic submission of Grease Interceptor Wastehauling Reports.

- Additional requirements as otherwise determined to be reasonably appropriate by the FOG Control Program Manager to protect OCSD's sewer system or as specified by other Regulatory Agencies.

- Other terms and conditions, which may be reasonably applicable to ensure compliance with the FOG Ordinance.

A permit contains the following prohibitions:

- Introduction of any additives into a Food Service Establishment's wastewater system for the purpose of emulsifying FOG or biologically/chemically treating FOG for grease remediation or as a supplement to interceptor maintenance, unless a specific written authorization from the FOG Control Program Manager is obtained.

- Discharge of any waste including FOG and solid materials removed from the grease control device to the sewer system. Grease removed from grease interceptors shall be waste hauled periodically as part of the operation and maintenance requirements for grease interceptors.

- Operation of grease interceptors with FOG and solids accumulation exceeding 25% of the design hydraulic depth of the grease interceptor (25% Rule).

VIII. FOG WASTEWATER DISCHARGE PERMIT DURATION AND RENEWALS

- Permits are normally issued for a period of two (2) years. The permittee must apply for renewal of the permit in accordance with the provisions of OCSD's FOG Ordinance, at least 60 days prior to the expiration of the permit, if the permit holder wishes to renew the permit.

IX. FOG WASTEWATER DISCHARGE PERMIT FEE

- The permit fee is $200 for a 2-year permit duration.

- The permit fee must be paid at the time a permit application is submitted for the issuance of a new permit. No permit application will be processed prior to payment of the permit fee.

X. FACILITIES REQUIREMENTS FOR OWNERS OF COMMERCIAL PROPERTIES

- **Grease Interceptor Requirements -** Permittees are required to pretreat their wastewater using grease interceptors. Permittees required to provide FOG pretreatment shall install, operate, and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance. Grease interceptor sizing and installation shall conform to the current edition of the Uniform Plumbing Code as adopted for use by the local city or county. Refer to Appendix C for more detailed information.

- **Grease Interceptor Maintenance Requirements -** Grease Interceptors shall be maintained in efficient operating condition by periodic removal of the full content of the interceptor which includes wastewater, accumulated FOG, floating materials, sludge and solids. All existing and newly installed grease interceptors shall be maintained in a manner consistent with a maintenance frequency approved by the FOG Control Program Manager.

XI. APPLYING FOR A FOG WASTEWATER DISCHARGE PERMIT

1. Complete the **Application for FOG Wastewater Discharge Permit**. Detailed instructions on how to fill out the permit application are provided in **Appendix A** of the information brochure.

2. Fill out the **FOG Permit Application Package Check List** provided to ensure that all requirements have been completed. This must be submitted with your application.

4. Submit all the above requirements. The permit fee for $200 must be enclosed. **The complete package must be returned to:**

Orange County Sanitation District
P.O. Box 8127, Fountain Valley, CA 92728-8127.
Attn: FOG Program Permitting, Div. 640

NOTE: OCSD will not process the permit application if any of the above requirements are either missing or incomplete. Please make sure that all information required is

complete to avoid any delays in the issuance of the permit. Discharging wastewater from a Grease Interceptor without a valid permit is a violation of OCSD's FOG Ordinance and may be subject to fines and penalties.

XII. WHERE TO GET ADDITIONAL INFORMATION

- Should you have questions on how to fill out the permit application or on how to comply with the permit application requirements, please contact the following:

Tom Gaworski
Principal Environmental Specialist
Phone: (714) 593-7422
E-mail: tgaworski@ocsd.com

or

Merrill Seiler
Principal Environmental Specialist
Phone: (714) 593-7436
E-mail: mseiler@ocsd.com

XIII. PERMIT APPLICATION REVIEW AND EVALUATION PROCESS

- A comprehensive review and evaluation will be conducted to identify any submittal deficiencies.

- If all requirements are satisfied, the Permit will be issued within approximately three weeks after receipt of the application.

APPENDIX A

SPECIFIC INSTRUCTIONS TO FILL OUT A FOG WASTEWATER DISCHARGE PERMIT APPLICATION

Clearly print or type the information requested and return the signed original to OCSD. All questions must be answered. **DO NOT LEAVE BLANKS.** If the question is not applicable, indicate "N/A" on the form.

LINE A Enter the Applicants official or legal name.

LINE B Provide the address (physical location) of the Food Service Establishment where wastewater is being discharged.

LINE C Enter the Food Service Establishment's contact information for the Owner, General Partner or Chief Executive Officer, including name, title, street address, city, state, zip code, phone number and fax number.

LINE D Enter the name of the Designated Representative and Signatory who has been authorized by the corporate officer, general partner, or proprietor to be responsible for receiving notices and signing all correspondence and reports. Provide the title, address, phone number, and fax number of the owner, partner, or chief executive officer. **Note that all correspondence, permit, and notices from OCSD will be sent to this person.** The Designated Representative and Signatory is defined as follows:

1. A responsible corporate officer, if the business is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

   A. a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

   b. the manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. A general partner or proprietor if the business is a partnership or sole proprietorship respectively.

3. A duly authorized representative of the individual designated in paragraph (1) or (2) of this section if:

   a. the authorization is made in writing by the individual described in paragraph (1) or (2);

   b. the authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the wastewater discharge originates, such as the position of a manager, or a position of equivalent responsibility for environmental matters for the company; and

   c. the written authorization is submitted to OCSD.

LINE E Enter the grease interceptor capacity in gallons.

LINE F Enter the names of all food service establishments connected to maintained grease interceptors.

LINE G The permit application must be signed and dated by the Owner, a General Partner, or Chief Executive Officer identified in Line C.

LINE H Provide the name, address, phone number, and e-mail of the person that OCSD can contact if there are questions regarding the permit application.

ORANGE COUNTY SANITATION DISTRICT

APPLICATION FOR FATS, OILS, AND GREASE WASTEWATER DISCHARGE PERMIT

APPLICATION PACKAGE CHECKLIST FOR OWNERS OF COMMERCIAL PROPERTIES WITH MULTIPLE FOOD SERVICE ESTABLISHMENTS

SUBMITTED (Please check appropriate box)

- ❑ PERMIT APPLICATION
- ❑ PERMIT FEE REMITTANCE ($200.00)

The items checked above were submitted.

_____

Applicant Signature Date

Note: This checklist must be submitted with the FOG Wastewater Discharge Permit Application.

Fats, Oils and Grease Permitting Fees

Fog Binder

The FOG Program Binder must be available during an inspection. Failure to locate the binder during an inspection, whether misplaced or lost, will trigger the issuance of a new binder. The $50 replacement cost will be billed to the FSE at the time of replacement

Billing Issues

FOG program billing or invoice issues, i.e. permit fees or noncompliance fees, can be referred to the Orange County Sanitation District's Source Control Division (Merrill Seiler at 714-593-7436), or Revenue Division (James Owens at 714-593-7574).

Permitting Fees

A FOG Wastewater Discharge Permit of two-year duration is $200.

Non-compliance Fees

The General Noncompliance Fee for District follow-up activities due to permit, ordinance, or regulatory noncompliance is $100 per event.

ORDINANCE NO. OCSD-25

ADOPTING FATS, OILS AND GREASE CONTROL REGULATIONS APPLICABLE TO FOOD SERVICE ESTABLISHMENTS

AN ORDINANCE OF THE BOARD OF DIRECTORS OF ORANGE COUNTY SANITATION DISTRICT ADOPTING FATS, OILS AND GREASE CONTROL REGULATIONS APPLICABLE TO FOOD SERVICE ESTABLISHMENTS

WHEREAS, pursuant to the County Sanitation District Act, Health & Safety Code §§4700 et seq., the Orange County Sanitation District ("District") has the authority to adopt ordinances relating to the provision of sewer services and facilities, and regulations of those services and facilities; and

WHEREAS, the Regional Water Quality Control Board ("RWQCB") for the Santa Ana Region adopted Order R8-2002-0014, which prescribes general waste discharge requirements prohibiting sanitary sewer overflows ("SSOs") by sewer collection agencies; and

WHEREAS, in Order R8-2002-0014, the RWQCB found that one of the leading causes of SSOs within the Santa Ana Region, which encompasses the District's service area is "grease blockages;" and

WHEREAS, SSOs often caused by discharge of wastewater containing high levels of fat, oils and grease ('FOG"), suspended solids, pathogenic organisms, and other pollutants, may cause temporary exceedances of applicable water quality objectives, pose a threat to the public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters within the District's service area; and

WHEREAS, the 2000-2001 Orange County Grand Jury ("Grand Jury") conducted a survey among 35 wastewater collection and treatment agencies in Orange County and concluded that one of the leading causes of SSOs and sewage spills is sewer lines clogged from the accumulation of FOG discharged from Food Service Establishments; and

WHEREAS, the Grand Jury further concluded that more effective methods of minimizing grease discharges into the sewer system must be developed and implemented to reduce the discharge of FOG to the sewer system in order to prevent sewer blockages and SSOs; and

WHEREAS, Order No. R8-2002-0014 requires the District to monitor and control SSOs and to develop a FOG Control Program by December 30, 2004; and

WHEREAS, in light of the overwhelming evidence that FOG is a primary cause of SSOs, the District desires to implement a FOG Control Program to prevent SSOs; and

WHEREAS, Section 1014 of the 2001 California Plumbing Code, applicable to all occupancies in the State pursuant to the California Building Standards Law, requires the installation of grease traps or interceptors when in the opinion of the Building Official waste pretreatment is required; and

WHEREAS, the foregoing findings indicate that a FOG Control Program is required for Food Service Establishments within the District's jurisdiction to comply with waste discharge regulations and prevent the harmful effects of SSOs; and

WHEREAS, the regulations adopted herein will require existing Food Service Establishments to install grease control devices or interceptors no later than three years from the effective date of this Ordinance, and the Board finds that three years is a reasonable amortization period for existing Food Service Establishments that are operating without a grease control device or grease interceptor; and

WHEREAS, the Board of Directors finds that specific enforcement provisions must be adopted to govern discharges of wastewater to the District's system by Food Service Establishments.

NOW, THEREFORE, the Board of Directors does hereby ordain as follows:

ARTICLE 1 - GENERAL PROVISIONS

1.1 PURPOSE AND POLICY

A. The purpose of this Ordinance is to facilitate the maximum beneficial public use of the District's sewer services and facilities while preventing blockages of the sewer lines resulting from discharges of FOG to the sewer facilities, and to specify appropriate FOG discharge requirements for Food Service Establishments.

B. This Ordinance shall be interpreted in accordance with the definitions set forth in Section 1.2. The provisions of this Ordinance shall apply to the direct or indirect discharge of all wastewater or waste containing FOG carried to the sewer facilities of the District.

C. To comply with Federal, State, and local policies and to allow the District to meet applicable standards, provisions are made in this Ordinance for the regulations of wastewater or waste containing FOG discharges to the sewer facilities.

D. This Ordinance establishes quantity and quality standards on all wastewater and/or waste discharges containing FOG, which may alone or collectively cause or contribute to FOG accumulation in the sewer facilities causing or potentially causing or contributing to the occurrence of SSOs.

1.2 DEFINITIONS

A. Unless otherwise defined herein, terms related to water quality shall be as adopted in the latest edition of Standard Methods for Examination of Water and Wastewater, published by the American Public Health Association, the American Water Works Association and the Water Environment Federation. The testing procedures for waste constituents and characteristics shall be as provided in 40 CFR 136 (Code of Federal Regulations).

B. Other terms not herein defined are defined as being the same as set forth in the latest adopted applicable editions of the California Codes applicable to building construction adopted pursuant to the California Building Standards Law.

C. Subject to the foregoing provisions, the following definitions shall apply in this Ordinance:

Best Management Practices	Schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the introduction of FOG to the sewer facilities.
Board	The Board of Directors of the District.
Change in Operations	Any change in the ownership, food types, or operational procedures that have the potential to increase the amount of FOG generated and/or discharged by Food Service Establishments in an amount that alone or collectively causes or creates a potential for SSOs to occur.
Composite Sample	A collection of individual samples obtained at selected intervals based on an increment of either flow or time. The resulting mixture (composite sample) forms a representative sample of the wastestream discharged during the sample period. Samples will be collected when a wastewater discharge occurs.
Discharger	Any person who discharges or causes a discharge of wastewater directly or indirectly to a public sewer. Discharger shall mean the same as User.
District	The Orange County Sanitation District.
Sewer Facility or System	Any property belonging to the District used in the treatment, reclamation, reuse, transportation, or disposal of wastewater, or sludge.
Effluent	Any liquid outflow from the Food Service Establishment that is discharged to the sewer.
Fats, Oils, and Grease ("FOG")	Any substance such as a vegetable or animal product that is used in, or is a by product of, the cooking or food preparation process, and that turns or may turn viscous or solidifies with a change in temperature or other conditions.
FOG Control Program	The FOG Control Program required by and developed pursuant to RWQCB Order No. R8-2002-0014, Section (c)(12)(viii).

FOG Control Program Manager	The individual designated by the District to administer the FOG Control Program. The FOG Control Program Manager is responsible for all determinations of compliance with the program, including approval of discretionary variances and waivers.
FOG Wastewater Discharge Permit	A permit issued by the District subject to the requirements and conditions established by the District authorizing the permittee or discharger to discharge wastewater into the District's facilities or into sewer facilities which ultimately discharge into a District facility.
Food Service Establishment	Facilities defined in California Uniform Retail Food Service Establishments Law (CURFFL) Section 113785, and any commercial entity within the boundaries of the District, operating in a permanently constructed structure such as a room, building, or place, or portion thereof, maintained, used, or operated for the purpose of storing, preparing, serving, or manufacturing, packaging, or otherwise handling food for sale to other entities, or for consumption by the public, its members or employees, and which has any process or device that uses or produces FOG, or grease vapors, steam, fumes, smoke or odors that are required to be removed by a Type I or Type II hood, as defined in CURFFL Section 113785. A limited food preparation establishment is not considered a Food Service Establishment when engaged only in reheating, hot holding or assembly of ready to eat food products and as a result, there is no wastewater discharge containing a significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.
Food Grinder	Any device installed in the plumbing or sewage system for the purpose of grinding food waste or food preparation by products for the purpose of disposing it in the sewer system.
Grease Control Device	Any grease interceptor, grease trap or other mechanism, device, or process, which attaches to, or is applied to, wastewater plumbing fixtures and lines, the purpose of which is to trap or collect or treat FOG prior to it being discharged into the sewer system. "Grease control device" may also include any other proven method to reduce FOG subject to the approval of the District.

Grease Disposal Mitigation Fee	A fee charged to an Owner/Operator of a Food Service Establishment when there are physical limitations to the property that make the installation of the usual and customary grease interceptor or grease control device for the Food Service Establishment under consideration, impossible or impracticable. The Grease Disposal Mitigation Fee is intended to cover the costs of increased maintenance of the sewer system for inspection and cleaning of FOG and other viscous or solidifying agents that a properly employed grease control device would otherwise prevent from entering the sewer system.
Grease Interceptor	A multi-compartment device that is constructed in different sizes and is generally required to be located, according to the California Plumbing Code, underground between a Food Service Establishment and the connection to the sewer system. These devices primarily use gravity to separate FOG from the wastewater as it moves from one compartment to the next. These devices must be cleaned, maintained, and have the FOG removed and disposed of in a proper manner on regular intervals to be effective.
Grease Trap	A grease control device that is used to serve individual fixtures and have limited effect and should only be used in those cases where the use of a grease interceptor or other grease control device is determined to be impossible or impracticable.
General Manager	The individual duly designated by the Board of Directors of the District to administer this Ordinance.
Grab Sample	A sample taken from a waste stream on a one-time basis without regard to the flow in the waste stream and without consideration of time.
Hot Spots	Areas in sewer lines that have experienced sanitary sewer overflows or that must be cleaned or maintained frequently to avoid blockages of sewer system.
Inflow	Water entering a sewer system through a direct stormwater/ runoff connection to the sanitary sewer, which may cause an almost immediate increase in wastewater flows.
Infiltration	Water entering a sewer system, including sewer service connections, from the ground through such means as defective pipes, pipe joints, connections, or manhole walls.

Inspector	A person authorized by the District to inspect any existing or proposed wastewater generation, conveyance, processing, and disposal facilities.
Interceptor	A grease interceptor.
Interference	Any discharge which, alone or in conjunction with discharges from other sources, inhibits or disrupts the District's sewer system, treatment processes or operations; or is a cause of violation of the District's NPDES or Waste Discharge Requirements or prevents lawful sludge use or disposal.
Local Sewering Agency	Any public agency or private entity responsible for the collection and disposal of wastewater to the District's sewer facilities duly authorized under the laws of the State of California to construct and/or maintain public sewers.
NPDES	The National Pollutant Discharge Elimination System; the permit issued to control the discharge of liquids or other substances or solids to surface waters of the United States as detailed in Public Law 92-500, Section 402.
New Construction	Any structure planned or under construction for which a sewer connection permit has not been issued.
Permittee	A person who has received a permit to discharge wastewater into the District's sewer facilities subject to the requirements and conditions established by the District.
Person	Any individual, partnership, firm, association, corporation or public agency, including the State of California and the United States of America.
Public Agency	The State of California and/or any city, county, special district, other local governmental authority or public body of or within this State.
Public Sewer	A sewer owned and operated by the District, or other local Public Agency, which is tributary to the District's sewer facilities.

Regulatory Agencies Regulatory Agencies shall mean those agencies having regulatory jurisdiction over the operations of the District, including, but not limited to:

a) United States Environmental Protection Agency, Region IX, San Francisco and Washington, DC (EPA).

b) California State Water Resources Control Board (SWRCB).

c) California Regional Water Quality Control Board, Santa Ana Region (RWQCB).

d) South Coast Air Quality Management District (SCAQMD).

e) California Department of Health Services (DOHS).

Remodeling A physical change or operational change causing generation of the amount of FOG that exceed the current amount of FOG discharge to the sewer system by the Food Service Establishment in an amount that alone or collectively causes or create a potential for SSOs to occur; or exceeding a cost of $50,000 to a Food Service Establishment that requires a building permit, and involves any one or combination of the following: (1) Under slab plumbing in the food processing area, (2) a 30% increase in the net public seating area, (3) a 30% increase in the size of the kitchen area, or (4) any change in the size or type of food preparation equipment.

Sample Point A location approved by the District, from which wastewater can be collected that is representative in content and consistency of the entire flow of wastewater being sampled.

Sampling Facilities Structure(s) provided at the user's expense for the District or user to measure and record wastewater constituent mass, concentrations, collect a representative sample, or provide access to plug or terminate the discharge.

Sewage Wastewater.

Sewer Facilities or System Any and all facilities used for collecting, conveying, pumping, treating, and disposing of wastewater and sludge.

Sewer Lateral	A building sewer as defined in the latest edition of the California Plumbing Code. It is the wastewater connection between the building's wastewater facilities and a public sewer system.
Sludge	Any solid, semi-solid or liquid decant, subnate or supernate from a manufacturing process, utility service, or pretreatment facility.
Twenty-five percent (25%) Rule	Requirement for grease interceptors to be maintained such that the combined FOG and solids accumulation does not exceed 25% of the design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system.
User	Any person who discharges or causes a discharge of wastewater directly or indirectly to a public sewer system. User shall mean the same as Discharger.
Waste	Sewage and any and all other waste substances, liquid, solid, gaseous or radioactive, associated with human habitation or of human or animal nature, including such wastes placed within containers of whatever nature prior to and for the purpose of disposal.
Manifest	That receipt which is retained by the generator of wastes for disposing recyclable wastes or liquid wastes as required by the District.
Waste Minimization Practices	Plans or programs intended to reduce or eliminate discharges to the sewer system or to conserve water, including, but not limited to, product substitutions, housekeeping practices, inventory control, employee education, and other steps as necessary to minimize wastewater produced.
Wastehauler	Any person carrying on or engaging in vehicular transport of waste as part of, or incidental to, any business for that purpose.
Wastewater	The liquid and water-carried wastes of the community and all constituents thereof, whether treated or untreated, discharged into or permitted to enter a public sewer.

Wastewater Constituents and Characteristics	The individual chemical, physical, bacteriological, and other parameters, including volume and flow rate and such other parameters that serve to define, classify or measure the quality and quantity of wastewater.

D. Words used in this Ordinance in the singular may include the plural and the plural the singular. Use of masculine shall mean feminine and use of feminine shall mean masculine. Shall is mandatory; may is permissive or discretionary.

ARTICLE 2 - GENERAL LIMITATIONS, PROHIBITIONS, AND REQUIREMENTS ON FATS, OILS, AND GREASE ("FOG") DISCHARGES

2.1 FOG DISCHARGE REQUIREMENT

No Food Service establishment shall discharge or cause to be discharged into the sewer system FOG that exceeds a concentration level adopted by the Board or that may accumulate and/or cause or contribute to blockages in the sewer system or at the sewer system lateral which connects the Food Service Establishment to the sewer system.

2.2 PROHIBITIONS

The following prohibitions shall apply to all Food Service Establishments:

A. Installation of food grinders in the plumbing system of new constructions of Food Service Establishments shall be prohibited. Furthermore, all food grinders shall be removed from all existing Food Service Establishments within 180 days of the effective date of this Ordinance, except when expressly allowed by the FOG Control Program Manager.

B. Introduction of any additives into a Food Service Establishment's wastewater system for the purpose of emulsifying FOG or biologically/chemically treating FOG for grease remediation or as a supplement to interceptor maintenance, unless a specific written authorization from the FOG Control Program Manager is obtained.

C. Disposal of waste cooking oil into drainage pipes is prohibited. All waste cooking oils shall be collected and stored properly in receptacles such as barrels or drums for recycling or other acceptable methods of disposal.

D. Discharge of wastewater from dishwashers to any grease trap or grease interceptor is prohibited.

E. Discharge of wastewater with temperatures in excess of 140˚F to any grease control device, including grease traps and grease interceptors, is prohibited.

F. Discharge of wastes from toilets, urinals, wash basins, and other fixtures containing fecal materials to sewer lines intended for grease interceptor service, or vice versa, is prohibited.

G. Discharge of any waste including FOG and solid materials removed from the grease control device to the sewer system is prohibited. Grease removed from grease interceptors shall be wastehauled periodically as part of the operation and maintenance requirements for grease interceptors.

H. Operation of grease interceptors with FOG and solids accumulation exceeding 25% of the design hydraulic depth of the grease interceptor (25% Rule)

2.3 FOG WASTEWATER DISCHARGE PERMIT REQUIRED

No person shall discharge, or cause to be discharged any wastewater from Food Service Establishments directly or indirectly into the sewer system without first obtaining a FOG Wastewater Discharge Permit pursuant to this Ordinance.

2.4 BEST MANAGEMENT PRACTICES REQUIRED

All Food Services Establishments shall implement Best Management Practices in its operation to minimize the discharge of FOG to the sewer system. Detailed requirements for Best Management Practices shall be specified in the permit. This may include kitchen practices and employee training that are essential in minimizing FOG discharge.

2.5 FOG PRETREATMENT REQUIRED

Food Service Establishments are required to install, operate and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of this Ordinance, subject to the variance and waiver provisions of Section 2.6. The grease interceptor shall be adequate to separate and remove FOG contained in wastewater discharges from Food Service Establishments prior to discharge to the sewer system. Fixtures, equipment, and drain lines located in the food preparation and clean up areas of Food Service Establishments that are sources of FOG discharges shall be connected to the grease interceptor. Compliance shall be established as follows:

A. New Construction of Food Service Establishments

New construction of Food Service Establishments shall include and install grease interceptors prior to commencing discharges of wastewater to the sewer system.

B. Existing Food Service Establishments

1. For existing Food Service Establishments, the requirement to install and to properly operate and maintain a grease interceptor may be conditionally stayed, that is, delayed in its implementation by the FOG Control Program Manager for a maximum period of three years from the effective date of this Ordinance (3-year Amortization Period). Terms and conditions for application of a stay to a Food Service Establishment shall be set forth in the permit. The Board finds that three years is a reasonable amortization period for existing Food Service Establishments that are operating without a grease interceptor.

2. Existing Food Service Establishments, which have caused or contributed to grease-related blockage in the sewer system, or which have sewer laterals connected to hot spots, or which have been determined to contribute significant FOG to the sewer system by the FOG Control Program Manager based on inspection or sampling, shall be deemed to have reasonable potential to adversely impact the sewer system, and shall install grease interceptors within 180 days upon notification by the District.

3. Existing Food Service Establishments or Food Service Establishments that change ownership, that undergo remodeling or a change in operations as defined in Section 1.2 of this Ordinance, shall be required to install a grease interceptor.

2.6 VARIANCE AND WAIVER OF GREASE INTERCEPTOR REQUIREMENT

A. Variance from Grease Interceptor Requirements

An existing Food Service Establishment may obtain a variance from the grease interceptor requirement to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of a grease interceptor, if the Food Service Establishment demonstrates that it is impossible or impracticable to install, operate or maintain a grease interceptor. The FOG Control Program Manager's determination to grant a variance will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.

2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease interceptor and/or between the grease interceptor and the private collection lines or the public sewer.

3. The Food Service Establishment can justify that the alternative pretreatment technology is equivalent or better than a grease interceptor in controlling its FOG discharge. In addition, the Food Service Establishment must be able to demonstrate, after installation of the proposed alternative pretreatment, its effectiveness to control FOG discharge through downstream visual monitoring of the sewer system, for at least three months, at its own expense. A Variance may be granted if the results show no visible accumulation of FOG in its lateral and/or tributary downstream sewer lines.

B. Conditional Waiver from Installation of Grease Interceptor

An existing Food Service Establishment may obtain a conditional waiver from installation of a grease interceptor, if the Food Service

Establishment demonstrates that it has negligible FOG discharge and insignificant impact to the sewer system. Although a waiver from installation of grease interceptor may be granted, the Food Service Establishment may be required to provide space and plumbing segregation for future installation of grease interceptor. The FOG Control Program Manager's determination to grant or revoke a conditional waiver shall be based upon, but not limited to, evaluation of the following conditions:

1. Quantity of FOG discharge as measured or as indicated by the size of Food Service Establishment based on seating capacity, number of meals served, menu, water usage, amount of on-site consumption of prepared food and other conditions that may reasonably be shown to contribute to FOG discharges.

2. Adequacy of implementation of Best Management Practices and compliance history.

3. Sewer size, grade, condition based on visual information, FOG deposition in the sewer by the Food Service Establishment, and history of maintenance and sewage spills in the receiving sewer system.

4. Changes in operations that significantly affect FOG discharge.

5. Any other condition deemed reasonably related to the generation of FOG discharges by the FOG Control Program Manager.

C. Waiver from Grease Interceptor Installation with a Grease Disposal Mitigation Fee

For Food Service Establishments where the installation of grease interceptor is not feasible and no equivalent alternative pretreatment can be installed, a waiver from the grease interceptor requirement may be granted with the imposition of a Grease Disposal Mitigation Fee as described in Section 2.8. Additional requirements may be imposed to mitigate the discharge of FOG into the sewer system. The FOG Control Program Manager's determination to grant the waiver with a Grease Disposal Mitigation Fee will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.

2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease interceptor and/or between the grease interceptor and the private collection lines or the public sewer.

3. A variance from grease interceptor installation to allow alternative pretreatment technology cannot be granted.

D. Application for Waiver or Variance of Requirement for Grease Interceptor

A Food Service Establishment may submit an application for waiver or variance from the grease interceptor requirement to the FOG Control Program Manager. The Food Service Establishment bears the burden of demonstrating, to the FOG Control Program Manager's reasonable satisfaction, that the installation of a grease interceptor is not feasible or applicable. Upon determination by the FOG Control Program Manager that reasons are sufficient to justify a variance or waiver, the permit will be issued or revised to include the variance or waiver and relieve the Food Service Establishment from the requirement.

E. Terms and conditions

A variance or waiver shall contain terms and conditions that serve as basis for its issuance. A waiver or variance may be revoked at any time when any of the terms and conditions for its issuance is not satisfied or if the conditions upon which the waiver was based change so that the justification for the waiver no longer exists. The waiver or variance shall be valid so long as the Food Service Establishment remains in compliance with their terms and conditions until the expiration date specified in the variance or waiver.

2.7 COMMERCIAL PROPERTIES

Property owners of commercial properties or their official designee(s) shall be responsible for the installation and maintenance of the grease interceptor serving multiple Food Service Establishments that are located on a single parcel.

2.8 GREASE DISPOSAL MITIGATION FEE

Food Service Establishments that operate without a grease control interceptor may be required to pay an annual Grease Disposal Mitigation Fee to equitably cover the costs of increased maintenance of the sewer system as a result of the Food Service Establishments' inability to adequately remove FOG from its wastewater discharge. This Section shall not be interpreted to allow the new construction of, or existing Food Service Establishments undergoing remodeling or change in operations to operate without an approved grease interceptor unless the District has determined that it is impossible or impracticable to install or operate a grease control interceptor for the subject facility under the provisions of Section 2.6 of this Ordinance.

A. The Grease Disposal Mitigation Fee shall be established by ordinance or resolution of the Board of Directors, and shall be based on the estimated annual increased cost of maintaining the sewer system for inspection and removal of FOG and other viscous or solidifying agents attributable to the Food Service Establishment resulting from the lack of a grease interceptor or grease control device.

B. The Grease Disposal Mitigation Fee may be waived or reduced on a no less than an annual basis when the discharger demonstrates to the reasonable satisfaction of the FOG Control Program Manager that they had used best management and waste minimization practices on a regular basis that has significantly reduced the introduction of FOG into the sewer system.

C. The Grease Disposal Mitigation Fee may not be waived or reduced when the Food Service Establishment does not comply with the minimum requirements of this Ordinance and/or its discharge into the sewer system in the preceding 12 months has caused or potentially caused or contributed alone or collectively, in sewer blockage or SSO in the sewer downstream, or surrounding the Food Service Establishment prior to the waiver request.

2.9 SEWER SYSTEM OVERFLOWS, PUBLIC NUISANCE, ABATEMENT ORDERS AND CLEANUP COSTS

Notwithstanding the three-year amortization period established in Section 2.5, Food Service Establishments found to have contributed to a sewer blockage, SSOs or any sewer system interferences resulting from the discharge of wastewater or waste containing FOG, shall be ordered to install and maintain a grease interceptor, and may be subject to a plan to abate the nuisance and prevent any future health hazards created by sewer line failures and blockages, SSOs or any other sewer system interferences. SSOs may cause threat and injury to public health, safety, and welfare of life and property and are hereby declared public nuisances. Furthermore, sewer lateral failures and SSOs caused by Food Service Establishments alone or collectively, are the responsibility of the private property owner or Food Service Establishment, and individual(s) as a responsible officer or owner of the Food Service Establishment. If the District must act immediately to contain and clean up an SSO caused by blockage of a private or public sewer lateral or system serving a Food Service Establishment , or at the request of the property owner or operator of the Food Service Establishment, or because of the failure of the property owner or Food Service Establishment to abate the condition causing immediate threat of injury to the health, safety, welfare, or property of the public, the District's costs for such abatement may be entirely borne by the property owner or operator of the Food Service Establishment, and individual(s) as a responsible officer or owner of the Food Service Establishment(s) and may constitute a debt to the District and become due and payable upon the District's request for reimbursement of such costs.

ARTICLE 3 - FOG WASTEWATER DISCHARGE PERMITS FOR FOOD SERVICE ESTABLISHMENTS

3.1 FOG WASTEWATER DISCHARGE PERMIT REQUIRED

A. Food Service Establishments proposing to discharge or currently discharging wastewater containing FOG into the District's sewer system shall obtain a FOG Wastewater Discharge Permit from the District.

B. FOG Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other regulations, charges for use, and fees established by the District. The conditions of FOG Wastewater Discharge Permits shall be enforced by the District in accordance with this Ordinance and applicable State and Federal Regulations.

3.2 FOG WASTEWATER DISCHARGE PERMIT APPLICATION

A. Any person required to obtain a FOG Wastewater Discharge Permit shall complete and file with the District prior to commencing or continuing discharges, an application in a form prescribed by the District. The applicable fees shall accompany this application. The applicant shall submit, in units and terms appropriate for evaluation, the following information at a minimum:

1. Name, address, telephone number, assessor's parcel number(s), description of the Food Service Establishment, operation, cuisine, service activities, or clients using the applicant's services.

2. (Whichever is applicable) Name, address of any and all principals/owners/major shareholders of the Food Service Establishment; Articles of Incorporation; most recent Report of the Secretary of State; Business License.

3. Name and address of property owner or lessor and the property manager where the Food Service Establishment is located.

4. Any other information as specified in the application form.

B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, FOG control device, grease interceptor or other pretreatment equipment and appurtenances by size, location, and elevation for evaluation.

C. Other information related to the applicant's business operations and potential discharge may be requested to properly evaluate the permit application.

D. After evaluation of the data furnished, the District may issue a FOG Wastewater Discharge Permit, subject to terms and conditions set forth in

this Ordinance and as otherwise determined by the FOG Control Program Manager to be appropriate to protect the District's sewer system.

3.3 FOG WASTEWATER DISCHARGE PERMIT CONDITIONS

The issuance of a FOG Wastewater Discharge Permit may contain any of the following conditions or limits:

A. Limits on discharge of FOG and other priority pollutants.

B. Requirements for proper operation and maintenance of grease interceptors and other grease control devices.

C. Grease interceptor maintenance frequency and schedule.

D. Requirements for implementation of Best Management Practices and installation of adequate grease interceptor and/or grease control device.

E. Requirements for maintaining and reporting status of Best Management Practices

F. Requirements for maintaining and submitting logs and records, including wastehauling records and waste manifests.

G. Requirements to self-monitor.

H. Requirements for the Food Service Establishment to construct, operate and maintain, at its own expense, FOG control device and sampling facilities.

I. Additional requirements as otherwise determined to be reasonably appropriate by the FOG Control Program Manager to protect the District's system or as specified by other Regulatory Agencies.

J. Other terms and conditions, which may be reasonably applicable to ensure compliance with this Ordinance.

3.4 FOG WASTEWATER DISCHARGE PERMIT APPLICATION FEE

The FOG Wastewater Discharge Permit Application fee shall be paid by the applicant in an amount adopted by ordinance or resolution of the Board of Directors of the District. Payment of permit application fee must be received by the District upon submission of the permit application. A permittee shall also pay any delinquent invoices in full prior to permit renewal.

3.5 FOG WASTEWATER DISCHARGE PERMIT MODIFICATION OF TERMS AND CONDITIONS

A. The terms and conditions of an issued permit may be subject to modification and change by the sole determination of the FOG Control Program Manager during the life of the permit based on:

1. The discharger's current or anticipated operating data;

2. The District's current or anticipated operating data;

3. Changes in the requirements of Regulatory Agencies which affect the District; or

4. A determination by the FOG Control Program Manager that such modification is appropriate to further the objectives of this Ordinance.

B. The Permittee may request a modification to the terms and conditions of an issued permit. The request shall be in writing stating the requested change, and the reasons for the change. The FOG Control Program Manager shall review the request, make a determination on the request, and respond in writing.

C. The Permittee shall be informed of any change in the permit limits, conditions, or requirements at least forty-five (45) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

3.6 FOG WASTEWATER DISCHARGE PERMIT DURATION AND RENEWAL

FOG Wastewater Discharge Permits shall be issued for a period not to exceed four (4) years. At least 60 days prior to the expiration of the permit, the user shall apply for renewal of the permit in accordance with the provisions of this Article 3.

3.7 EXEMPTION FROM FOG WASTEWATER DISCHARGE PERMIT

A limited food preparation establishment is not considered a Food Service Establishment and is exempt from obtaining a FOG Wastewater Discharge Permit. Exempted establishments shall be engaged only in reheating, hot holding or assembly of ready to eat food products and as a result, there is no wastewater discharge containing significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.

3.8 NON-TRANSFERABILITY OF PERMITS

FOG Wastewater Discharge Permits issued under this Ordinance are for a specific Food Service Establishment, for a specific operation and create no vested rights.

A. No permit holder shall assign, transfer, sell any FOG Wastewater Discharge Permit issued under this Ordinance nor use any such permit for or on any premises or for facilities or operations or discharges not expressly encompassed within the underlying permit.

B. Any permit which is transferred to a new owner or operator or to a new facility is void.

3.9 FOG WASTEWATER DISCHARGE PERMIT CHARGE FOR USE

A charge to cover all costs of the District for providing the sewer service and monitoring shall be established by Ordinance or Resolution of the Board of Directors of the District.

ARTICLE 4 - FACILITIES REQUIREMENTS

4.1 DRAWING SUBMITTAL REQUIREMENTS

Upon request by the District:

A. Food Service Establishments may be required to submit two copies of facility site plans, mechanical and plumbing plans, and details to show all sewer locations and connections. The submittal shall be in a form and content acceptable to the District for review of existing or proposed grease control device, grease interceptor, monitoring facilities, metering facilities, and operating procedures. The review of the plans and procedures shall in no way relieve the Food Service Establishments of the responsibility of modifying the facilities or procedures in the future, as necessary to produce an acceptable discharge, and to meet the requirements of this Ordinance or any requirements of other Regulatory Agencies.

B. Applicants may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, FOG control device, grease interceptor or other pretreatment equipment and appurtenances by size, location, and elevation for evaluation.

C. Food Service Establishments may be required to submit a schematic drawing of the FOG control device, grease interceptor or other pretreatment equipment, piping and instrumentation diagram, and wastewater characterization report.

D. The District may require the drawings be prepared by a California Registered Civil, Chemical, Mechanical, or Electrical Engineer.

4.2 GREASE INTERCEPTOR REQUIREMENTS

A. All Food Service Establishments shall provide wastewater acceptable to the District, under the requirements and standards established herein before discharging to any public sewer. Any Food Service Establishment required to provide FOG pretreatment shall install, operate, and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of this Ordinance.

B. Grease interceptor sizing and installation shall conform to the current edition of the Uniform Plumbing Code. Grease interceptors shall be constructed in accordance with the design approved by the FOG Control Program Manager and shall have a minimum of two compartments with fittings designed for grease retention.

C. The grease interceptor shall be installed at a location where it shall be at all times easily accessible for inspection, cleaning, and removal of accumulated grease.

D. Access manholes, with a minimum diameter of 24 inches, shall be provided over each grease interceptor chamber and sanitary tee. The access manholes shall extend at least to finished grade and be designed and maintained to prevent water inflow or infiltration. The manholes shall also have readily removable covers to facilitate inspection, grease removal, and wastewater sampling activities.

4.3 GREASE TRAP REQUIREMENTS

A. Food Service Establishments may be required to install grease traps in the waste line leading from drains, sink, and other fixtures or equipment where grease may be introduced into the sewer system in quantities that can cause blockage.

B. Sizing and installation of grease traps shall conform to the current edition of the California Plumbing Code.

C. Grease traps shall be maintained in efficient operating conditions by removing accumulated grease on a daily basis.

D. Grease traps shall be maintained free of all food residues and any FOG waste removed during the cleaning and scraping process.

E. Grease traps shall be inspected periodically to check for leaking seams and pipes, and for effective operation of the baffles and flow regulating device. Grease traps and their baffles shall be maintained free of all caked-on FOG and waste. Removable baffles shall be removed and cleaned during the maintenance process.

F. Dishwashers and food waste disposal units shall not be connected to or discharged into any grease trap.

4.4 MONITORING FACILITIES REQUIREMENTS

A. The District may require the Food Service Establishments to construct and maintain in proper operating condition at the Food Service Establishment's sole expense, flow monitoring, constituent monitoring and/or sampling facilities.

B. The location of the monitoring or metering facilities shall be subject to approval by the FOG Control Program Manager.

C. Food Service Establishments may be required to provide immediate, clear, safe and uninterrupted access to the FOG Control Program Manager or inspectors to the Food Service Establishment's monitoring and metering facilities.

D. Food Service Establishments may also be required by the FOG Control Program Manager to submit waste analysis plans, contingency plans, and meet other necessary requirements to ensure proper operation and

maintenance of the grease control device or grease interceptor and compliance with this Ordinance.

E. No Food Service Establishment shall increase the use of water or in any other manner attempt to dilute a discharge as a partial or complete substitute for treatment to achieve compliance with this Ordinance and the FOG Wastewater Discharge Permit.

4.5 REQUIREMENTS FOR BEST MANAGEMENT PRACTICES

A. All Food Service Establishments shall implement best management practices in accordance with the requirements and guidelines established by the District under its FOG Control Program in an effort to minimize the discharge of FOG to the sewer system.

B. All Food Service Establishments shall be required, at a minimum, to comply with the following Best Management Practices, when applicable:

1. Installation of drain screens. Drain screens shall be installed on all drainage pipes in food preparation areas.

2. Segregation and collection of waste cooking oil. All waste cooking oil shall be collected and stored properly in recycling receptacles such as barrels or drums. Such recycling receptacles shall be maintained properly to ensure that they do not leak. Licensed wastehaulers or an approved recycling facility must be used to dispose of waste cooking oil.

3. Disposal of food waste. All food waste shall be disposed of directly into the trash or garbage, and not in sinks. Double-bagging food wastes that have the potential to leak in trash bins is highly recommended.

4. Employee training. Employees of the food service establishment shall be trained by ownership/management periodically as specified in the permit, on the following subjects:

   a) How to "dry wipe" pots, pans, dishware and work areas before washing to remove grease.

   b) How to properly dispose of food waste and solids in enclosed plastic bags prior to disposal in trash bins or containers to prevent leaking and odors.

   c) The location and use of absorption products to clean under fryer baskets and other locations where grease may be spilled or dripped.

d) How to properly dispose of grease or oils from cooking equipment into a grease receptacle such as a barrel or drum without spilling.

Training shall be documented and employee signatures retained indicating each employee's attendance and understanding of the practices reviewed. Training records shall be available for review at any reasonable time by the FOG Control Program Manager or an inspector.

5. Maintenance of kitchen exhaust filters. Filters shall be cleaned as frequently as necessary to be maintained in good operating condition. The wastewater generated from cleaning the exhaust filter shall be disposed properly.

6. Kitchen signage. Best management and waste minimization practices shall be posted conspicuously in the food preparation and dishwashing areas at all times.

4.6 GREASE INTERCEPTOR MAINTENANCE REQUIREMENTS

A. Grease Interceptors shall be maintained in efficient operating condition by periodic removal of the full content of the interceptor which includes wastewater, accumulated FOG, floating materials, sludge and solids.

B. All existing and newly installed grease interceptors shall be maintained in a manner consistent with a maintenance frequency approved by the FOG Control Program Manager pursuant to this section.

C. No FOG that has accumulated in a grease interceptor shall be allowed to pass into any sewer lateral, sewer system, storm drain, or public right of way during maintenance activities.

D. Food Service Establishments with grease interceptors may be required to submit data and information necessary to establish the maintenance frequency grease interceptors.

E. The maintenance frequency for all Food Service Establishments with a grease interceptor shall be determined in one of the following methods:

1. Grease interceptors shall be fully pumped out and cleaned at a frequency such that the combined FOG and solids accumulation does not exceed 25% of the total design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system.

2. All Food Service Establishments with a Grease Interceptor shall maintain their grease interceptor not less than every 6 months.

3. Grease interceptors shall be fully pumped out and cleaned quarterly when the frequency described in (1) has not been established. The maintenance frequency shall be adjusted when sufficient data have been obtained to establish an average frequency based on the requirements described in (1) and guidelines adopted pursuant to the FOG Control Program. The District may change the maintenance frequency at any time to reflect changes in actual operating conditions in accordance with the FOG Control Program. Based on the actual generation of FOG from the Food Service Establishment, the maintenance frequency may increase or decrease.

4. The owner/operator of a Food Service Establishment may submit a request to the FOG Control Program Manager requesting a change in the maintenance frequency at any time. The Food Service Establishment has the burden of responsibility to demonstrate that the requested change in frequency reflects actual operating conditions based on the average FOG accumulation over time and meets the requirements described in (1), and that it is in full compliance with the conditions of its permit and this Ordinance. Upon determination by the FOG Control Program Manager that requested revision is justified, the permit shall be revised accordingly to reflect the change in maintenance frequency.

5. If the grease interceptor, at any time, contains FOG and solids accumulation that does not meet the requirements described in (1), the Food Service Establishment shall be required to have the grease interceptor serviced immediately such that all fats, oils, grease, sludge, and other materials are completely removed from the grease interceptor. If deemed necessary, the FOG Control Program Manager may also increase the maintenance frequency of the grease interceptor from the current frequency.

F. Wastewater, accumulated FOG, floating materials, sludge/solids, and other materials removed from the grease interceptor shall be disposed off site properly by wastehaulers in accordance with federal, state and/or local laws.

ARTICLE 5 - MONITORING, REPORTING, NOTIFICATION, AND INSPECTION REQUIREMENTS

5.1 MONITORING AND REPORTING CONDITIONS

A. Monitoring for Compliance with Permit Conditions and Reporting Requirements

1. The FOG Control Program Manager may require periodic reporting of the status of implementation of Best Management Practices, in accordance with the FOG Control Program.

2. The FOG Control Program Manager may require visual monitoring at the sole expense of the Permittee to observe the actual conditions of the Food Service Establishment's sewer lateral and sewer lines downstream.

3. The FOG Control Program Manager may require reports for self-monitoring of wastewater constituents and FOG characteristics of the Permittee needed for determining compliance with any conditions or requirements as specified in the FOG Wastewater Discharge Permit or this Ordinance. Monitoring reports of the analyses of wastewater constituents and FOG characteristics shall be in a manner and form approved by the FOG Control Program Manager and shall be submitted upon request of the FOG Control Program Manager. Failure by the Permittee to perform any required monitoring, or to submit monitoring reports required by the FOG Control Program Manager constitutes a violation of this Ordinance and be cause for the District to initiate all necessary tasks and analyses to determine the wastewater constituents and FOG characteristics for compliance with any conditions and requirements specified in the FOG Wastewater Discharge Permit or in this Ordinance. The Permittee shall be responsible for any and all expenses of the District in undertaking such monitoring analyses and preparation of reports.

4. Other reports may be required such as compliance schedule progress reports, FOG control monitoring reports, and any other reports deemed reasonably appropriate by the FOG Control Program Manager to ensure compliance with this Ordinance.

B. Record Keeping Requirements

The Permittee shall be required to keep all manifests, receipts and invoices of all cleaning, maintenance, grease removal of/from the grease control device, disposal carrier and disposal site location for no less than two years. The Permittee shall, upon request, make the manifests,

receipts and invoices available to any District representative, or inspector. These records may include:

1. A logbook of grease interceptor, grease trap or grease control device cleaning and maintenance practices.

2. A record of Best Management Practices being implemented including employee training.

3. Copies of records and manifests of wastehauling interceptor contents.

4. Records of sampling data and sludge height monitoring for FOG and solids accumulation in the grease interceptors.

5. Records of any spills and/or cleaning of the lateral or sewer system.

6. Any other information deemed appropriate by the FOG Control Program Manager to ensure compliance with this Ordinance.

C. Falsifying Information or Tampering with Process

It shall be unlawful to make any false statement, representation, record, report, plan or other document that is filed with the District, or to tamper with or knowingly render inoperable any grease control device, monitoring device or method or access point required under this Ordinance.

5.2 INSPECTION AND SAMPLING CONDITIONS

A. The FOG Control Program Manager may inspect or order the inspection and sample the wastewater discharges of any Food Service Establishment to ascertain whether the intent of this Ordinance is being met and the Permittee is complying with all requirements. The Permittee shall allow the District access to the Food Service Establishment premises, during normal business hours, for purposes of inspecting the Food Service Establishment's grease control devices or interceptor, reviewing the manifests, receipts and invoices relating to the cleaning, maintenance and inspection of the grease control devices or interceptor.

B. The FOG Control Program Manager shall have the right to place or order the placement on the Food Service Establishment's property or other locations as determined by the FOG Control Program Manager, such devices as are necessary to conduct sampling or metering operations. Where a Food Service Establishment has security measures in force, the Permittee shall make necessary arrangements so that representatives of the District shall be permitted to enter without delay for the purpose of performing their specific responsibilities.

C. In order for the FOG Control Program Manager to determine the wastewater characteristics of the discharger for purposes of determining the annual use charge and for compliance with permit requirements, the Permittee shall make available for inspection and copying by the District all notices, monitoring reports, waste manifests, and records including, but not limited to, those related to wastewater generation, and wastewater disposal without restriction but subject to the confidentiality provision set forth in this Ordinance. All such records shall be kept by the Permittee a minimum of two (2) years.

5.3 RIGHT OF ENTRY

Persons or occupants of premises where wastewater is created or discharged shall allow the FOG Control Program Manager, or District representatives, reasonable access to all parts of the wastewater generating and disposal facilities for the purposes of inspection and sampling during all times the discharger's facility is open, operating, or any other reasonable time. No person shall interfere with, delay, resist or refuse entrance to District representatives attempting to inspect any facility involved directly or indirectly with a discharge of wastewater to the District's sewer system. In the event of an emergency involving actual or imminent sanitary sewer overflow, District's representatives may access adjoining businesses or properties which share a sewer system with a Food Service Establishment in order to prevent or remediate an actual or imminent sanitary overflow.

5.4 NOTIFICATION OF SPILL

A. In the event a permittee is unable to comply with any permit condition due to a breakdown of equipment, accidents, or human error or the Permittee has reasonable opportunity to know that his/her/its discharge will exceed the discharge provisions of the FOG Wastewater Discharge Permit or this Ordinance, the discharger shall immediately notify the District by telephone at the number specified in the Permit. If the material discharged to the sewer has the potential to cause or result in sewer blockages or SSOs, the discharger shall immediately notify the local Health Department, City or County, and the District.

B. Confirmation of this notification shall be made in writing to the FOG Control Program Manager at the address specified in the Permit no later than five (5) working days from the date of the incident. The written notification shall state the date of the incident, the reasons for the discharge or spill, what steps were taken to immediately correct the problem, and what steps are being taken to prevent the problem from recurring.

C. Such notification shall not relieve the Permittee of any expense, loss, damage or other liability which may be incurred as a result of damage or loss to the District or any other damage or loss to person or property; nor shall such notification relieve the Permittee of any fees or other liability which may be imposed by this Ordinance or other applicable law.

5.5 NOTIFICATION OF PLANNED CHANGES

Permittee shall notify the District at least 60 days in advance prior to any facility expansion/remodeling, or process modifications that may result in new or substantially increased FOG discharges or a change in the nature of the discharge. Permittee shall notify the District in writing of the proposed expansion or remodeling and shall submit any information requested by the District for evaluation of the effect of such expansion on Permittee's FOG discharge to the sewer system.

ARTICLE 6 - ENFORCEMENT

6.1 PURPOSES AND SCOPE

A. The Board of Directors finds that in order for the District to comply with the laws, regulations, and rules imposed upon it by Regulatory Agencies and to ensure that the District's sewer facilities are protected and are able to operate with the highest degree of efficiency, and to protect the public health and environment, specific enforcement provisions must be adopted to govern the discharges to the District's system by Food Service Establishments.

B. To ensure that all interested parties are afforded due process of law and that violations are resolved as soon as possible, the general policy of the District is that:

1. Any determination relating to a notice of violation and Compliance Schedule Agreement (CSA) will be made by the FOG Control Program Manager, with a right of appeal by the permittee to the General Manager pursuant to the procedures set forth in Section 6.12.

2. A permittee, or applicant for a permit may request the Board of Directors of the District to hear an appeal of the General Manager's decision pursuant to Section 6.13. Such request may be granted or denied by the Board of Directors.

3. Any permit suspension or revocation recommended by the FOG Control Program Manager will be heard and a recommendation made to the General Manager or other person designated by the General Manager with a right of appeal of the General Manager's order by the permittee to the Board of Directors pursuant to the provisions of Section 6.13.

C. The District, at its discretion, may utilize any one, combination, or all enforcement remedies provided in Article 6 in response to any permit or Ordinance violations.

6.2 DETERMINATION OF NONCOMPLIANCE WITH FOG WASTEWATER DISCHARGE PERMIT CONDITIONS

A. Inspection Procedures

1. Inspection of Food Service Establishments shall be conducted in the time, place, manner, and frequency determined at the sole discretion of the FOG Control Program Manager.

2. Noncompliance with Best Management Practices, 25% Rule for grease interceptors, maintenance frequency requirements for

grease interceptors, permit discharge conditions, or any discharge provisions of this Ordinance may be determined by an inspection of the Food Service Establishment.

B. Sampling Procedures

1. Sampling of Food Service Establishments shall be conducted in the time, place, manner, and frequency determined at the sole discretion of the District.

2. Non-compliance with mass emission rate limits, concentration limits, permit discharge conditions, or any discharge provision of this Ordinance may be determined by an analysis of a grab or composite sample of the effluent of a user. Non-compliance with mass emission rate limits shall be determined by an analysis of a composite sample of the user's effluent, except that a grab sample may be used to determine compliance with mass emission rate limits when the discharge is from a closed (batch) treatment system in which there is no wastewater flow into the system when the discharge is occurring, the volume of wastewater contained in the batch system is known, the time interval of discharge is known, and the grab sample is homogeneous and representative of the discharge.

3. Any sample taken from a sample point is considered to be representative of the discharge to the public sewer.

C. Noncompliance Fees

Any permittee determined to be in noncompliance with the terms and conditions specified in its permit or with any provision of this Ordinance shall pay a noncompliance fee. The purpose of the noncompliance fee is to compensate the District for costs of additional inspection and follow-up, sampling, monitoring, laboratory analysis, treatment, disposal, and administrative processing incurred as a result of the noncompliance, and shall be in addition to and not in lieu of any penalties as may be assessed pursuant to Sections 6.10 and 6.11. Noncompliance fees shall be in the amount adopted by ordinance or resolution by the District's Board of Directors.

6.3 COMPLIANCE SCHEDULE AGREEMENT (CSA)

A. Upon determination that a permittee is in noncompliance with the terms and conditions specified in its permit or any provision of this Ordinance, or needs to construct and/or acquire and install a grease control device or grease interceptor, the FOG Control Program Manager may require the permittee to enter into a CSA.

B. The issuance of a CSA may contain terms and conditions including but not limited to requirements for installation of a grease control device,

grease interceptor and facilities, submittal of drawings or reports, audit of waste hauling records, best management and waste minimization practices, payment of fees, or other provisions to ensure compliance with this Ordinance.

C. The FOG Control Program Manager shall not enter into a CSA until such time as all amounts owed to the District, including user fees, noncompliance sampling fees, or other amounts due are paid in full, or an agreement for deferred payment secured by collateral or a third party, is approved by the FOG Control Program Manager.

D. If compliance is not achieved in accordance with the terms and conditions of a CSA during its term, the FOG Control Program Manager may issue an order suspending or revoking the discharge permit pursuant to Section 6.4 or 6.5 of this Ordinance.

6.4 PERMIT SUSPENSION

A. The General Manager may suspend any permit when it is determined that a permittee:

1. Fails to comply with the terms and conditions of a CSA order.

2. Knowingly provides a false statement, representation, record, report, or other document to the District.

3. Refuses to provide records, reports, plans, or other documents required by the District to determine permit terms or conditions, discharge compliance, or compliance with this Ordinance.

4. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.

5. Refuses reasonable access to the permittee's premises for the purpose of inspection and monitoring.

6. Does not make timely payment of all amounts owed to the District for user charges, permit fees, or any other fees imposed pursuant to this Ordinance.

7. Causes interference, sewer blockages, or SSOs with the District's collection, treatment, or disposal system.

8. Violates grease interceptor maintenance requirements, any condition or limit of its discharge permit or any provision of the District's Ordinance.

B. When the FOG Control Program Manager has reason to believe that grounds exist for permit suspension, he/she shall give written notice thereof by certified mail to the permittee setting forth a statement of the facts and grounds deemed to exist, together with the time and place

where the charges shall be heard by the General Manager or his/her designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty-five (45) calendar days after the mailing of such notice.

1. At the suspension hearing, the permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel.

2. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

3. Upon receipt of the written report of a hearing officer or conclusion of the hearing, if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for suspension of the permit, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing. The written decision and order of the General Manager shall be sent by certified mail to the permittee or its legal counsel/representative at the permittee's business address.

C. Effect

1. Upon an order of suspension by the General Manager becoming final, the permittee shall immediately cease and desist its discharge and shall have no right to discharge any wastewater containing FOG directly or indirectly to the District's system for the duration of the suspension. All costs for physically terminating and reinstating service shall be paid by the permittee.

2. Any owner or responsible management employee of the permittee shall be bound by the order of suspension.

3. An order of permit suspension issued by the General Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the permittee unless a request for hearing is filed with the Board of Directors of the District pursuant to Section 6.13. no later than 5:00 p.m. on the fifteenth (15th) day following such mailing.

6.5 PERMIT REVOCATION

A. The General Manager may revoke any permit when it is determined that a permittee:

1. Knowingly provides a false statement, representation, record, report, or other document to the District.

2. Refuses to provide records, reports, plans, or other documents required by the District to determine permit terms, conditions, discharge compliance, or compliance with this Ordinance.

3. Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sample collection method.

4. Fails to comply with the terms and conditions of permit suspension or CSA.

5. Discharges effluent to the District's sewer system while its permit is suspended.

6. Refuses reasonable access to the permittee's premises for the purpose of inspection and monitoring.

7. Does not make timely payment of all amounts owed to the District for user charges, permit fees, or any other fees imposed pursuant to this Ordinance.

8. Causes interference, sewer blockages, or SSOs with the District collection, treatment, or disposal system.

9. Violates grease interceptor maintenance requirements, any condition or limit of its discharge permit or any provision of the District's Ordinance.

B. Approval. When the FOG Control Program Manager has reason to believe that grounds exist for the revocation of a permit, he/she shall give written notice by certified mail thereof to the permittee setting forth a statement of the facts and grounds deemed to exist together with the time and place where the charges shall be heard by the General Manager or his/her designee. The hearing date shall be not less than fifteen (15) calendar days nor more than forty-five (45) calendar days after the mailing of such notice.

1. At the hearing, the permittee shall have an opportunity to respond to the allegations set forth in the notice by presenting written or oral evidence. The revocation hearing shall be conducted in accordance with the procedures established by the General Manager and approved by the District's General Counsel.

2. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

3. Upon receipt of the written report by the hearing officer, or conclusion of the hearing, if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for permanent revocation of the permit, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing. The written decision and order of the General Manager shall be sent by certified mail to the permittee or its legal counsel/representative at the permittee's business address.

   In the event the General Manager determines to not revoke the permit, he/she may order other enforcement actions, including, but not limited to, a temporary suspension of the permit, under terms and conditions that he/she deems appropriate.

C. Effect

1. Upon an order of revocation by the General Manager becoming final, the permittee shall permanently lose all rights to discharge any wastewater containing FOG directly or indirectly to the District's system. All costs for physical termination shall be paid by the permittee.

2. Any owner or responsible management employee of the permittee shall be bound by the order of revocation.

3. Any future application for a permit at any location within the District by any person associated with an order of revocation will be considered by the District after fully reviewing the records of the revoked permit, which records may be the basis for denial of a new permit.

4. An order of permit revocation issued by the General Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the permittee unless a request for hearing is filed with the Board of Directors pursuant to Section 6.13 no later than 5:00 p.m. on the fifteenth (15th) day following such mailing.

6.6 DAMAGE TO FACILITIES OR INTERRUPTION OF NORMAL OPERATIONS

A. Any person who discharges any waste which causes or contributes to any sewer blockage, SSOs, obstruction, interference, damage, or any other impairment to the District's sewer facilities or to the operation of those facilities shall be liable for all costs required to clean or repair the facilities together with expenses incurred by the District to resume normal operations. A service charge of twenty-five percent (25%) of District's costs shall be added to the costs and charges to reimburse the District for miscellaneous overhead, including administrative personnel and record keeping. The total amount shall be payable within forty five (45) days of invoicing by the District.

B. Any person who discharges a waste which causes or contributes to the District violating its discharge requirements established by any Regulatory Agency incurring additional expenses or suffering losses or damage to the facilities, shall be liable for any costs or expenses incurred by the District, including regulatory fines, penalties, and assessments made by other agencies or a court.

6.7 PUBLIC NUISANCE

Discharge of wastewater in any manner in violation of this Ordinance or of any order issued by the FOG Control Program Manager or General Manager, as authorized by this Ordinance, is hereby declared a public nuisance and shall be corrected or abated as directed by the FOG Control Program Manager or General Manager. Any person creating a public nuisance is guilty of a misdemeanor.

6.8 TERMINATION OF SERVICE

A. The District, by order of the General Manager, may physically terminate sewer service to any property as follows:

1. On a term of any order of suspension or revocation of a permit; or

2. Upon the failure of a person not holding a valid FOG Wastewater Discharge Permit to immediately cease the discharge, whether direct or indirect, to the District's sewer facilities after the notice and process in Section 6.5 herein.

B. All costs for physical termination shall be paid by the owner or operator of the Food Service Establishment or permittee as well as all costs for reinstating service.

6.9 EMERGENCY SUSPENSION ORDER

A. The District may, by order of the General Manager, suspend sewer service when the General Manager determines that such suspension is necessary in order to stop an actual or impending discharge which presents or may present an imminent or substantial endangerment to the health and welfare of persons, or to the environment, or may cause SSOs, sewer blockages, interference to the District's sewer facilities, or may cause the District to violate any State or Federal Law or Regulation. Any discharger notified of and subject to an Emergency Suspension Order shall immediately cease and desist the discharge of all wastewater containing FOG to the sewer system.

B. As soon as reasonably practicable following the issuance of an Emergency Suspension Order, but in no event more than five (5) business days following the issuance of such order, the General Manager shall hold a hearing to provide the Food Service Establishment or Permittee the opportunity to present information in opposition to the issuance of the Emergency Suspension Order. Such a hearing shall not

stay the effect of the Emergency Suspension Order. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel. The General Manager shall issue a written decision and order within two (2) business days following the hearing, which decision shall be sent by certified mail to the Food Service Establishment or its legal counsel/representative at that Food Service Establishment's business address. The decision of the General Manager following the hearing shall be final and not appealable to the Board, but may be subject to judicial review pursuant to Section 6.16.

6.10 CIVIL PENALTIES

A. All users of the District's system and facilities are subject to enforcement actions administratively or judicially by the District, U.S. EPA, State of California Regional Water Quality Control Board, the County of Orange or District Attorney. Said actions may be taken pursuant to the authority and provisions of several laws, including but not limited to: (1) Federal Water Pollution Control Act, commonly known as the Clean Water Act (33 U.S.C.A. Section 1251 et seq.); (2) California Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.); (3) California Hazardous Waste Control Law (California Health & Safety Code Sections 25100 to 25250); (4) Resource Conservation and Recovery Act of 1976 (42 U.S.C.A Section 6901 et seq.); and (5) California Government Code, Sections 54739-54740.

B. In the event the District is subject to the payment of fines or penalties pursuant to the legal authority and actions of other regulatory or enforcement agencies based on a violation of law or regulation or its permits, and said violation can be established by the District, as caused by the discharge of any user of the District's system which is in violation of any provision of the District's Ordinance or the user's permit, the District shall be entitled to recover from the user all costs and expenses, including, but not limited to, the full amount of said fines or penalties to which it has been subjected.

C. Pursuant to the authority of California Government Code Sections 54739 - 54740, any person who violates any provision of this Ordinance; any permit condition, prohibition or effluent limit; or any suspension or revocation order shall be liable civilly for a sum not to exceed $25,000.00 per violation for each day in which such violation occurs. Pursuant to the authority of the Clean Water Act, 33 U.S.C. Section 1251 et seq., any person who violates any provision of this Ordinance, or any permit condition, prohibition, or effluent limit shall be liable civilly for a sum not to exceed $25,000.00 per violation for each day in which such violation occurs. The General Counsel of the District, upon request of the General Manager, shall petition the Superior Court to impose, assess, and recover such penalties, or such other penalties as the District may impose, assess, and recover pursuant to Federal and/or State legislative authorization.

D. Administrative Civil Penalties

1. Pursuant to the authority of California Government Code Sections 54740.5 and 54740.6, the District may issue an administrative complaint to any person who violates:

   a) any provision of this Ordinance;

   b) any permit condition, prohibition, or effluent limit; or

   c) any suspension or revocation order.

2. The administrative complaint shall be served by personal delivery or certified mail on the person and shall inform the person that a hearing will be conducted, and shall specify a hearing date within sixty (60) days following service. The administrative complaint will allege the act or failure to act that constitutes the violation of the District's regulations, the provisions of law authorizing civil liability to be imposed, and the proposed civil penalty. The matter shall be heard by the General Manager or his/her designee. The person to whom an administrative complaint has been issued may waive the right to a hearing, in which case a hearing will not be conducted.

3. At the hearing, the person shall have an opportunity to respond to the allegations set forth in the administrative complaint by presenting written or oral evidence. The hearing shall be conducted in accordance with the procedures established by the General Manager and approved by the District's General Counsel.

4. If the General Manager designated a hearing officer, after the conclusion of the hearing, the hearing officer shall submit a written report to the General Manager setting forth a brief statement of the facts found to be true, a determination of the issues presented, conclusions, and a recommendation.

5. Upon receipt of the written report by the hearing officer, or conclusion of the hearing if the General Manager conducted the hearing, the General Manager shall make his/her determination and should he/she find that grounds exist for assessment of a civil penalty against the person, he/she shall issue his/her decision and order in writing within thirty (30) calendar days after the conclusion of the hearing .

6. If, after the hearing or appeal, if any, it is found that the person has violated reporting or discharge requirements, the General Manager or Board of Directors may assess a civil penalty against that person. In determining the amount of the civil penalty, the General Manager or Board of Directors may take into consideration all relevant circumstances, including but not limited to the extent of harm caused by the violation, the economic benefit

derived through any non-compliance, the nature and persistence of the violation, the length of time over which the violation occurs, and corrective action, if any, attempted or taken by the person involved.

7. Civil penalties may be assessed as follows:

   a) In an amount which shall not exceed two thousand dollars ($2,000.00) for each day for failing or refusing to furnish required reports;

   b) In an amount which shall not exceed three thousand dollars ($3,000.00) for each day for failing or refusing to timely comply with any compliance schedules established by the District;

   c) In an amount which shall not exceed five thousand dollars ($5,000.00) per violation for each day of discharge in violation of any waste discharge limit, permit condition, or requirement issued, reissued, or adopted by the District;

   d) In any amount which does not exceed ten dollars ($10.00) per gallon for discharges in violation of any suspension, revocation, cease and desist order or other orders, or prohibition issued, reissued, or adopted by the District;

8. An order assessing administrative civil penalties issued by the General Manager shall be final in all respects on the thirty-first (31st) day after it is served on the person unless an appeal and request for hearing is filed with the Board of Directors pursuant to Section 6.13 no later than the thirtieth (30th) day following such mailing. An order assessing administrative civil penalties issued by the Board of Directors shall be final upon issuance.

9. Copies of the administrative order shall be served on the party served with the administrative complaint, either by personal service or by registered mail to the person at his/her/its business or residence address, and upon other persons who appeared at the hearing and requested a copy of the order.

10. Any person aggrieved by a final order issued by the Board of Directors, after granting review of the order of the General Manager, may obtain review of the order of the Board of Directors in the superior court, pursuant to Government Code Section 54740.6, by filing in the court a petition for writ of mandate within thirty (30) days following the service of a copy of the decision or order issued by the Board of Directors.

11. Payment of any order setting administrative civil penalties shall be made within thirty (30) days of the date the order becomes final.

The amount of any administrative civil penalties imposed shall constitute a debt to the District.

12. No administrative civil penalties shall be recoverable for any violation for which the District has recovered civil penalties through a judicial proceeding filed pursuant to Government Code Section 54740.

6.11 CRIMINAL PENALTIES

Any person who violates any provision of this Ordinance is guilty of a misdemeanor, which upon conviction is punishable by a fine not to exceed $1,000.00, or imprisonment for not more than 6 months, or both. Each violation and each day in which a violation occurs may constitute a new and separate violation of this Ordinance and shall be subject to the penalties contained herein.

6.12 APPEALS TO GENERAL MANAGER

A. Any Food Service Establishment, permit applicant or permittee affected by any decision, action or determination made by the FOG Control Program Manager or notice of violation issued by any District inspector may file with the General Manager a written request for an appeal hearing. The request must be received by the District within fifteen (15) days of mailing of notice of the decision, action, or determination of the FOG Control Program Manager to the appellant. The request for hearing shall set forth in detail all facts supporting the appellant's request.

B. The General Manager shall, within fifteen (15) days of receiving the request for appeal, designate a Department Head or other person to hear the appeal and provide written notice to the appellant of the hearing date, time and place. The hearing date shall not be more than thirty (30) days from the mailing of such notice by certified mail to the appellant unless a later date is agreed to by the appellant. If the hearing is not held within said time due to actions or inactions of the appellant, then the staff decision shall be deemed final.

C. At the hearing, the appellant shall have the opportunity to present information supporting its position concerning the FOG Control Program Manager's decision, action or determination. The hearing shall be conducted in accordance with procedures established by the General Manager and approved by the District's General Counsel.

D. After the conclusion of the hearing, the Department Head (or other designee) shall submit a written report to the General Manager setting forth a brief statement of facts found to be true, a determination of the issues presented, conclusions, and a recommendation whether to uphold, modify or reverse the FOG Control Program Manager's original decision, action or determination. Upon receipt of the written report, the General Manager shall make his/her determination and shall issue his/her decision and order within thirty (30) calendar days of the hearing by his/her designee. The written decision and order of the General Manager

shall be sent by certified mail to the appellant or its legal counsel/representative at the appellant's business address.

The order of the General/City Manager shall be final in all respects on the sixteenth (16th) day after it is mailed to the appellant unless a request for hearing is filed with the Board of Directors pursuant to Section 6.13, no later than 5:00 p.m. on the fifteenth day following such mailing.

6.13 APPEALS TO THE BOARD OF DIRECTORS

A. Any Food Service Establishment, permit applicant, or permittee adversely affected by a decision, action, or determination made by the General Manager may, prior to the date that the General Manager's order becomes final, file a written request for hearing before the Board of Directors accompanied by an appeal fee in the amount established by a separate resolution of the District's Board of Directors. The request for hearing shall set forth in detail all the issues in dispute for which the appellant seeks determination and all facts supporting appellant's request.

No later than sixty (60) days after receipt of the request for hearing, the Board of Directors shall either set the matter for a hearing, or deny the request for a hearing.

A hearing shall be held by the Board of Directors within sixty-five (65) days from the date of determination granting a hearing, unless a later date is agreed to by the appellant and the Board of Directors. If the matter is not heard within the required time, due to actions or inactions of the appellant, the General Manager's order shall be deemed final.

B. The Board of Directors shall grant all requests for a hearing on appeals concerning permit suspension, revocation, or denial. Whether to grant or deny the request for a hearing on appeals of other decisions of the General Manager shall be within the sole discretion of the Board of Directors.

C. The appeal fee shall be refunded if the Board of Directors denies a hearing or reverses or modifies, in favor of the appellant, the order of the General Manager. The fee shall not be refunded if the Board of Directors denies the appeal.

D. After the hearing, the Board of Directors shall make a determination whether to uphold, modify, or reverse the decision, action, or determination made by the General Manager.

The decision of the Board of Directors shall be set forth in writing within sixty-five (65) days after the close of the hearing and shall contain a finding of the facts found to be true, the determination of issues presented, and the conclusions. The written decision and order of the Board of Directors shall be sent by certified mail to the appellant or its legal counsel/representative at the appellant's business address.

The order of the Board of Directors shall be final upon its adoption. In the event the Board of Directors fails to reverse or modify the General Manager's order, it shall be deemed affirmed.

6.14 PAYMENT OF CHARGES

A. Except as otherwise provided, all fees, charges and penalties established by this Ordinance are due and payable upon receipt of notice thereof. All such amounts are delinquent if unpaid forty-five (45) days after date of invoice.

B. Any charge that becomes delinquent shall have added to it a penalty in accordance with the following:

1. Forty-six (46) days after date of invoice, a basic penalty of ten percent (10%) of the base invoice amount, not to exceed a maximum of $1,000.00; and

2. A penalty of one and one-half percent (1.5%) per month of the base invoice amount and basic penalty shall accrue from and after the forty-sixth (46th) day after date of invoice.

C. Any invoice outstanding and unpaid after ninety (90) days shall be cause for immediate initiation of permit revocation proceedings or immediate suspension of the permit.

D. Penalties charged under this Section shall not accrue to those invoices successfully appealed, provided the District receives written notification of said appeal prior to the payment due date.

E. Payment of disputed charges is still required by the due date during District review of any appeal submitted by permittees.

Collection of Delinquent Accounts

Collection of delinquent accounts shall be in accordance with the District's policy resolution establishing procedures for collection of delinquent obligations owed to the District, as amended from time to time by the Board of Directors. Any such action for collection may include an application for an injunction to prevent repeated and recurring violations of this Ordinance.

6.15 FINANCIAL SECURITY/AMENDMENTS TO PERMIT

A. Delinquent Accounts

The District may require an amendment to the permit of any Permittee who fails to make payment in full of all fees and charges assessed by the District, including reconciliation amounts, delinquency penalties, and other costs or fees incurred by the Permittee.

B. Bankruptcy

Every Permittee filing any legal action in any court of competent jurisdiction, including the United States Bankruptcy Court, for purposes of discharging its financial debts or obligations or seeking court-ordered, protection from its creditors, shall, within ten (10) days of filing such action, apply for and obtain the issuance of an amendment to its permit.

C. Security

An amendment to a waste discharge permit issued, may be conditioned upon the Permittee depositing financial security in an amount equal to the average total fees and charges for two (2) calendar quarters during the preceding year. Said deposit shall be used to guarantee payment of all fees and charges incurred for future services and facilities furnished by District and shall not be used by the District to recover outstanding fees and charges incurred prior to the Permittee filing and receiving protection from creditors in the United States Bankruptcy Court.

D. Return of Security

In the event the Permittee makes payment in full within the time prescribed by this Ordinance of all fees and charges incurred over a period of two (2) years following the issuance of an amendment to the permit, the District shall either return the security deposit posted by the Permittee or credit their account.

6.16 JUDICIAL REVIEW

A. Pursuant to Section 1094.6 of the California Code of Civil Procedure, the District hereby enacts this part to limit to ninety (90) days following final decisions in adjudicatory administrative hearings the time within which an action can be brought to review such decisions by means of administrative mandamus.

B. Definitions

As used in this Section, the following terms and words shall have the following meanings:

1. Decision shall mean and include adjudicatory administrative decisions that are made after hearing, or after revoking, suspending, or denying an application for a permit.

2. Complete Record shall mean and include the transcript, if any exists, of the proceedings, all pleadings, all notices and orders, any proposed decision by the District's officers, agents, or employees, the final decision, all admitted exhibits, all rejected exhibits in the possession of the District or its officers, agents or employees, all written evidence, and any other papers in the case.

C. Time Limit for Judicial Review. Judicial review of any decision of the District or its officer or agent may be made pursuant to Section 1094.5 of the Code of Civil Procedure only if the petition for writ of mandate is filed not later than the ninetieth (90th) day following the date on which the decision becomes final. If there is no provision for reconsideration in the procedures governing the proceedings or if the date is not otherwise specified, the decision is final on the date it is made. If there is provision for reconsideration, the decision is final upon the expiration of the period during which such reconsideration can be sought; provided that if reconsideration is sought pursuant to such provision the decision is final for the purposes of this Section on the date that reconsideration is rejected.

D. The complete record of the proceedings shall be prepared by the District officer or agent who made the decision and shall be delivered to the petitioner within ninety (90) days after he/she has filed written request therefor. The District may recover from the petitioner its actual costs for transcribing or otherwise preparing the record.

E. If the petitioner files a request for the record within ten (10) days after the date the decision becomes final, the time within which a petition, pursuant to Section 1094.5 of the Code of Civil Procedure, may be filed shall be extended to not later than the thirtieth (30th) day following the date on which the record is either personally delivered or mailed to the petitioner or the petitioner's attorney of record, if appropriate.

F. In making a final decision, the District shall provide notice to the party that Section 1094.6 of the Code of Civil Procedure governs the time within which judicial review must be sought.

G. Notwithstanding the foregoing in this Section 6.16, and pursuant to Government Code Section 54740.6, judicial review of an order of the Board of Directors imposing administrative civil penalties pursuant to Section 6.10.D may be made only if the petition for writ of mandate is filed not later than the thirtieth (30th) day following the day on which the order of the Board of Directors becomes final.

ARTICLE 7 - SEVERABILITY

If any section, subsection, subdivision, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or otherwise invalid, such invalidity shall not affect the validity of this entire Ordinance or any of the remaining portions hereof. The Board of Directors hereby declares that it would have passed this Ordinance, and each section, subsection, subdivision, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, subdivisions, sees, clauses or phrases be declared unconstitutional or otherwise invalid.

ARTICLE 8 - EFFECTIVE DATE

This Ordinance shall take effect January 1, 2005, and a summary shall be published in a newspaper of general circulation as provided by law.

PASSED AND ADOPTED by the Board of Directors of Orange County Sanitation District this 17th day of November, 2004.

Vice Chair, Board of Directors
Orange County Sanitation District

Attest:

Secretary of the Board of Directors
Orange County Sanitation District

Thomas L. Woodruff, General Counsel
Orange County Sanitation District

STATE OF CALIFORNIA)
)SS.
COUNTY OF ORANGE)

I, PENNY M. KYLE, Secretary of the Board of Directors of Orange County Sanitation District, do hereby certify that the above and foregoing Ordinance No. OCSD-25 was passed and adopted at a regular meeting of said Board on the 17th day of November, 2004, by the following vote, to wit:

AYES: James M. Ferryman, Board Vice Chair; Don Bankhead; Patricia Bortle; Carolyn Cavecche; Alberta Christy; John Collins; Doug Davert; Mike Duvall; Norm Eckenrode; Cathy Green; Alice Jempsa; Beth Krom; Shirley McCracken; Darryl Miller; Roy Moore; Joy L. Neugebauer; Anna Piercy; Tod Ridgeway; Jim Silva; Paul Walker; Paul Yost

NOES: None

ABSENT: Steve Anderson, Board Chair; Bill Dalton; Brian Donahue; Patsy Marshall

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of November, 2004.

Penny M. Kyle

Penny M. Kyle
Secretary of the Board of Directors
Orange County Sanitation District

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APPLICATION FOR FATS, OILS, AND GREASE (FOG) WASTEWATER DISCHARGE PERMIT FOR FOOD SERVICE ESTABLISHMENTS

Instructions: For the Orange County Sanitation District (OCSD) to properly evaluate, process, and issue a Fats, Oils, and Grease (FOG) Wastewater Discharge Permit, the applicant must provide a complete permit application.

- The Permit Application Form must be filled out completely. Your application will be returned to you if there is any missing information. **Please write N/A if the information being requested does not apply.**
- The Permit Application must be signed by an official company representative. OCSD will return your permit application if it is not signed by the proper company official.
- The permit fee is due at the time the permit application is submitted. An application received without remittance will be returned. All required Drawings and Information described in the information brochure must be submitted with this application. Complete the checklist provided to ensure that all requirements are satisfied.

OCSD **will not** process incomplete Permit Applications. Please refer to **Appendix A** of the information brochure for **detailed instructions** for completing this Application Form. Clearly print or type the information requested.

Section I – General Information

A Applicant _____
Corporation or Food Service Establishment Name

B Doing Business as _____
Food Service Establishment Name used at Sewer Service Address Listed Below

C Sewer Service Address _____
Street City State Zip Code

D Phone Number ( ) _____ Fax Number ( ) _____ E-mail Address _____

E Is your establishment a ☐ sole proprietorship? ☐ partnership? ☐ corporation?

F Name of Owner, a General Partner, or Chief Executive Officer

Name Title

Street City State Zip Code

Phone Number Fax Number

G Name of Designated Representative and Signatory for the facility who can be served with notices and is responsible for signing all correspondence and reports. **All correspondence, including certified mail, will be sent to this representative** (this ——person must meet the requirements detailed in the instructions provided in Appendix A):

☐ Please check if this is the same person identified in Line F or provide the information below:

Name Title

Street City State Zip Code

Phone Number Fax Number

H Facility Contact During Inspections

Name Title

Phone Number

Section II – Facility Operational Characteristics

I Please check descriptions that represent your facility.

Type of Food Service Establishment		Location	
☐ Fast Food Restaurant	☐ Ice Cream Shop	☐Stand-alone Restaurant	☐ Hospital
☐ Full Service Restaurant	☐ Cocktails/Bar	☐Strip Mall Attached	☐ Nursing Home
☐ Buffet	☐ Catering	☐ Mall/Food Court	☐ Hotel/Motel
☐ Take Out Facility (only)	☐ Food Packager	☐ School	☐ Supermarket
☐ Coffee Shop	☐ Meat Processor	☐ Club/Organization	☐ Religious Institution
☐ Bakery		☐ Company/Office Building	☐ Prison
☐ Cafeteria	☐ Other _____	☐ Stadium/Amusement Park	☐ Other _____

J Please indicate each item that you currently have in your facility and the quantity of each.

Food Processing Equipment				Kitchen Equipment			
	Qty		Qty		Qty		Qty
☐ Deep Fryer	_____	☐ Rotisserie	_____	☐ Dishwasher	_____	☐ Other Equipment (list below)	
☐ Charbroiler	_____	☐ Stove	_____	☐ Pre-rinse sink	_____		
☐ Griddle	_____	☐ Wok	_____	☐ Mop Sink	_____	_____	_____
☐ Grill	_____	☐ Other	_____	☐ Floor Drains	_____	_____	_____
☐ Oven	_____	☐ Other	_____	☐ Garbage Disposal	_____	_____	_____

K Please indicate operating schedule:

Days of Operation	Hours of Operation
Monday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Tuesday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Wednesday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Thursday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Friday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Saturday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Sunday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed

L Please provide the following miscellaneous information regarding your operations:

Miscellaneous Information			
No. of Employees		Do you wash plates?	☐ Yes ☐ No
Seating Capacity (Inside)		Chain Status	☐ Chain ☐ Independent
Seating Capacity (Outside)		Seating	☐ Sit-down ☐ Take-out ☐ Both
Average no. of meals served during peak hour			

Section III - Facility Information

M Are you currently operating your business from the sewer address indicated? ☐ Yes ☐ No

If the answer is No, indicate the date you plan to begin operation: _____

N Do you have a grease interceptor in this facility? ☐ Yes ☐ No
(see detailed instructions in Appendix A for definition of grease interceptor)

O Property Owner

Name

Street City State Zip Code

Phone Number Fax Number

Section IV - Certification

I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment..

I certify that upon issuance of the permit, this firm's operation and its resultant wastewater discharge will achieve consistent compliance with OCSD's FOG Ordinance and applicable federal and local wastewater discharge requirements. If the wastewater discharge does not meet all the applicable regulations, the company will modify its operations, install wastewater pretreatment equipment, or do whatever is necessary to meet discharge requirements.

P Certification of Owner, a General Partner, or Chief Executive Officer

Name Title

Signature Date

Section V – Contact Information for this Application

Q Name of the person to contact concerning information provided in this application

Name Phone

Street City State Zip Code

APPLICATION FOR FATS, OILS, AND GREASE (FOG) WASTEWATER DISCHARGE PERMIT FOR FOOD SERVICE ESTABLISHMENTS

Instructions: For the Orange County Sanitation District (OCSD) to properly evaluate, process, and issue a Fats, Oils, and Grease (FOG) Wastewater Discharge Permit, the applicant must provide a complete permit application.

- The Permit Application Form must be filled out completely. Your application will be returned to you if there is any missing information. **Please write N/A if the information being requested does not apply.**
- The Permit Application must be signed by an official company representative. OCSD will return your permit application if it is not signed by the proper company official.
- The permit fee is due at the time the permit application is submitted. An application received without remittance will be returned. All required Drawings and Information described in the information brochure must be submitted with this application. Complete the checklist provided to ensure that all requirements are satisfied.

OCSD **will not** process incomplete Permit Applications. Please refer to **Appendix A** of the information brochure for **detailed instructions** for completing this Application Form. Clearly print or type the information requested.

Section I – General Information

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Corporation or Food Service Establishment Name

B Doing Business as _____
Food Service Establishment Name used at Sewer Service Address Listed Below

C Sewer Service Address _____
Street City State Zip Code

D Phone Number ( ) _____ Fax Number ( ) _____ E-mail Address _____

E Is your establishment a ☐ sole proprietorship? ☐ partnership? ☐ corporation?

F Name of Owner, a General Partner, or Chief Executive Officer

Name Title

Street City State Zip Code

Phone Number Fax Number

G Name of Designated Representative and Signatory for the facility who can be served with notices and is responsible for signing all correspondence and reports. **All correspondence, including certified mail, will be sent to this representative** (this ——person must meet the requirements detailed in the instructions provided in Appendix A):

☐ Please check if this is the same person identified in Line F or provide the information below:

Name Title

Street City State Zip Code

Phone Number Fax Number

H Facility Contact During Inspections

Name Title

Phone Number

Section II – Facility Operational Characteristics

I Please check descriptions that represent your facility.

Type of Food Service Establishment		Location	
☐ Fast Food Restaurant	☐ Ice Cream Shop	☐Stand-alone Restaurant	☐ Hospital
☐ Full Service Restaurant	☐ Cocktails/Bar	☐Strip Mall Attached	☐ Nursing Home
☐ Buffet	☐ Catering	☐ Mall/Food Court	☐ Hotel/Motel
☐ Take Out Facility (only)	☐ Food Packager	☐ School	☐ Supermarket
☐ Coffee Shop	☐ Meat Processor	☐ Club/Organization	☐ Religious Institution
☐ Bakery		☐ Company/Office Building	☐ Prison
☐ Cafeteria	☐ Other _____	☐ Stadium/Amusement Park	☐ Other _____

J Please indicate each item that you currently have in your facility and the quantity of each.

Food Processing Equipment				Kitchen Equipment			
	Qty		Qty		Qty		Qty
☐ Deep Fryer	_____	☐ Rotisserie	_____	☐ Dishwasher	_____	☐ Other Equipment (list below)	
☐ Charbroiler	_____	☐ Stove	_____	☐ Pre-rinse sink	_____		
☐ Griddle	_____	☐ Wok	_____	☐ Mop Sink	_____	_____	_____
☐ Grill	_____	☐ Other	_____	☐ Floor Drains	_____	_____	_____
☐ Oven	_____	☐ Other	_____	☐ Garbage Disposal	_____	_____	_____

K Please indicate operating schedule:

Days of Operation	Hours of Operation
Monday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Tuesday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Wednesday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Thursday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Friday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Saturday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed
Sunday	Start: _____ Stop:_____ Start:_____ Stop:_____ or ☐ 24 Hours or ☐ Closed

L Please provide the following miscellaneous information regarding your operations:

Miscellaneous Information			
No. of Employees		Do you wash plates?	☐ Yes ☐ No
Seating Capacity (Inside)		Chain Status	☐ Chain ☐ Independent
Seating Capacity (Outside)		Seating	☐ Sit-down ☐ Take-out ☐ Both
Average no. of meals served during peak hour			

Section III - Facility Information

M Are you currently operating your business from the sewer address indicated? ☐ Yes ☐ No

If the answer is No, indicate the date you plan to begin operation: _____

N Do you have a grease interceptor in this facility? ☐ Yes ☐ No
(see detailed instructions in Appendix A for definition of grease interceptor)

O Property Owner

Name

Street City State Zip Code

Phone Number Fax Number

Section IV - Certification

I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment..

I certify that upon issuance of the permit, this firm's operation and its resultant wastewater discharge will achieve consistent compliance with OCSD's FOG Ordinance and applicable federal and local wastewater discharge requirements. If the wastewater discharge does not meet all the applicable regulations, the company will modify its operations, install wastewater pretreatment equipment, or do whatever is necessary to meet discharge requirements.

P Certification of Owner, a General Partner, or Chief Executive Officer

Name Title

Signature Date

Section V – Contact Information for this Application

Q Name of the person to contact concerning information provided in this application

Name Phone

Street City State Zip Code

ORANGE COUNTY SANITATION DISTRICT

APPLICATION FOR FATS, OILS, AND GREASE WASTEWATER DISCHARGE PERMIT

APPLICATION PACKAGE CHECKLIST

SUBMITTED (Please check appropriate box)

- ❑ PERMIT APPLICATION
- ❑ PERMIT FEE REMITTANCE ($200.00)

Unless specifically instructed, the following drawings and information are required only for newly constructed Food Service Establishments or for renovations of existing facilities costing $50,000 or more (See Appendices B and C of the Information and Instructions Brochure for guidelines):

- ❑ Plot Plan
- ❑ Grease Interceptor Design Drawings
- ❑ Grease Interceptor Sizing Worksheet
- ❑ Other: _____

The items checked above were submitted.

_____

Applicant Signature Date

Note: This checklist must be submitted with the FOG Wastewater Discharge Permit Application.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Core Elements: Fats, Oils, and Grease (FOG) Ordinance No. OCSD-25

The Orange County Sanitation District's (OCSD) Board of Directors adopted a Fats, Oils, and Grease (FOG) Ordinance No. OCSD-25 effective January 1, 2005 to control FOG discharges from Food Service Establishments in the City of Tustin and some unincorporated areas of Orange County within OCSD's jurisdiction. This fact sheet summarizes the core elements of the FOG Ordinance.

Permit Requirement

- All Food Service Establishments shall be required to obtain a FOG Wastewater Discharge Permit to discharge wastewater into the sewer system.

  Rationale: *A Permit is an effective method to regulate FOG discharges by providing specific requirements tailored to the needs of each Food Service Establishment in meeting specific compliance objectives. The permit identifies all of the permittee's obligations and responsibilities in a single document, thereby increasing the permittee's understanding with regards to the requirements.*

Permit Exemptions

- A limited food preparation establishment is not considered a Food Service Establishment and is exempt from obtaining a FOG Discharge Permit. Exempted establishments shall be engaged only in reheating, hot holding, or assembly of ready-to-eat food products and, as a result, there is no wastewater discharge containing a significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.

  Rationale: *Limited food preparation establishments have insignificant FOG discharges and need not be regulated at this time.*

Permit Fee

- A Permit Fee of $100/year is proposed to cover permit issuance and maintenance. No change in existing user fees specifically for Food Service Establishments is proposed.

Prohibitions

- Use of food grinders. Installation of food grinders in the plumbing system of new constructions of Food Service Establishments is prohibited. Furthermore, all food grinders shall be removed from all existing Food Service Establishments within 180 days after notification, except when expressly allowed by the FOG Control Program Manager.

  Rationale: *Eliminating food grinders (garbage disposer) will reduce the volume of solids that enter a grease interceptor or the sewer. Food wastes that accumulate in the grease interceptor occupy space used to separate and remove grease, resulting in increased cleaning frequency requirement, waste hauling costs, and potential blockages.*

- Introduction of any additives into a Food Service Establishment's wastewater system for the purpose of emulsifying or biologically/chemically treating FOG for grease remediation or as a supplement to interceptor maintenance, unless a specific written authorization from the FOG Control Program Manager is obtained.

  Rationale: *Emulsifiers hinder FOG separation by dispersing FOG in the wastewater, which directly conflicts with the grease interceptor's role in separating and removing grease. Additives may also cause the interceptor to discharge its contents to the sewer.*

- Disposal of waste cooking oil into drainage pipes. All waste cooking oils shall be collected and stored properly in receptacles, such as barrels or drums, for recycling or other acceptable methods of disposal.

  Rationale*: Disposal of waste cooking oil to the sewer will cause blockages. Recyclers in Orange County may recycle waste cooking oil. This is an opportunity for cost recovery.*

- Discharge of wastewater from dishwashers to any grease trap or grease interceptor.

  Rationale: *Dishwashers that utilize temperatures in excess of 140°F will dissolve grease, which then resolidifies in the sewer as the water cools. This does not necessarily apply to dishwashers that use water temperatures less than 140°F.*

- Discharge of wastewater with temperatures in excess of 140˚F to any grease control device, including grease traps and grease interceptors.

  Rationale: *Temperatures in excess of 140˚F will dissolve grease, which then resolidifies in the sanitary sewer as the water cools.*

- Discharge of wastes from toilets, urinals, wash basins, and other fixtures containing fecal materials to sewer lines intended for grease interceptor service, or vice versa.

  Rationale: *Grease interceptors are intended to separate and remove FOG and should not contain other wastes that will interfere with its operations and maintenance.*

- Discharge of any waste including FOG and solid materials removed from the grease control device to the sewer system. Grease removed from grease interceptors shall be wastehauled periodically as part of the operation and maintenance requirements for grease interceptors.

  Rationale: *This defeats the purpose of the interceptor. Accumulated grease, solids, and wastewater removed from interceptors must be properly disposed offsite periodically as part of the operation and maintenance requirements.*

- Operation of grease interceptors with FOG and solids accumulation exceeding 25% of the total design hydraulic depth of the grease interceptor (25% Rule).

  Rationale: *This is to ensure that the minimum hydraulic retention time and required hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system.*

Requirement to Implement Best Management Practices (BMPs)

- Food Service Establishments are required to implement Best Management Practices in their operation to minimize the discharge of FOG to the sewer system.

  Rationale: *The best way to manage FOG is to keep it out of the plumbing system using Best Management Practices. BMPs are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices that effectively reduce the discharge of FOG from the Food Service Establishment's wastewater discharge.*

General Requirement for FOG Pretreatment

- Service Establishments are required to pretreat their wastewater using grease interceptors to remove FOG prior to discharge to the sewer system. Waivers or Variances are allowed when applicable, but space and plumbing segregation are required for future interceptor installation.

  Rationale: *Pretreatment through installation, operation, and maintenance of a properly designed and adequately sized grease interceptor has been proven to be effective and is considered the Best Conventional Technology (BCT) for FOG control. Unless the FOG discharge is significantly low, implementation of BMPs and the use of other common grease control devices, such as grease traps, may not be sufficient to effectively control FOG. Food Service Establishments with insignificant FOG discharges may be granted waivers from grease interceptor installation, for*

practical reasons. A Waiver or Variance may be cancelled when it is shown that the Food Service Establishment has significantly increased its FOG discharge as a result of facility expansion or changes in operations. Because Food Service Establishments have the potential to change operations or grow (hence, increase future FOG discharge), it is important to require space and plumbing segregation to allow future grease interceptor installation, even when waivers are issued.

Implementation of FOG Pretreatment Requirement for New Construction of Food Service Establishments

- New construction of Food Service Establishments is required to install grease interceptors prior to commencing discharge of wastewater to the sewer system.

  Rationale: *New Food Service Establishments have the ability to install grease interceptors during construction and must take this opportunity to put FOG pretreatment in place.*

Implementation of FOG Pretreatment Requirement for Existing Food Service Establishments

- For existing Food Service Establishments in general, the requirement to install and to properly operate and maintain a grease interceptor may be conditionally delayed in its implementation (through a conditional waiver) by the FOG Control Manager for a maximum period of three years from the effective date of the Ordinance.

  Rationale: *Existing Food Service Establishments will be given a three-year period from the effective date of the Ordinance to plan for the installation of grease interceptors and/or implement the best technical approach that would enable them to reduce their FOG discharges and meet the requirements of the waiver from installation of grease interceptor. The three-year grace period will allow sufficient preparation to bring the wastewater discharge to standard through installation of an adequate grease interceptor or other acceptable alternatives.*

- Installation of grease interceptors are required within 180 days after notification for existing Food Service Establishments that have caused or contributed to grease related blockage in the sewer system, or which have sewer laterals connected to hotspots, or which have been determined to contribute significant FOG to the sewer system by the FOG Control Program Manager based on inspection or sampling.

  Rationale: *The implementation of the FOG Control Program is initially focused on high priority existing Food Service Establishments that have reasonable potential to adversely impact the sewer system or have sewer laterals connected to hotspots, in order to ensure that their FOG discharges are immediately reduced and brought to standard. This should decrease blockages and sanitary sewer overflows.*

- Installation of grease interceptors is required for Existing Food Service Establishments undergoing remodeling or a change in operations as defined in the Ordinance, or for Existing Food Service Establishments that change ownership and undergo remodeling or a change in operations as defined in the Ordinance.

  Rationale: *Existing Food Service Establishments undergoing remodeling or a change in operations have the opportunity to bring their wastewater discharges to standard by integrating the installation of grease interceptors in their planned changes. Likewise, changes in ownership that go through remodeling or changes in operations, have the same opportunities and are subject to the same requirement.*

Variance from Grease Interceptor Requirement

- A variance may be issued to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of a grease interceptor, to Food Service Establishments demonstrating that it is impossible or impracticable to install, operate, or maintain a grease interceptor. The FOG Control Program Manager's determination to grant a variance will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.
2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease

interceptor and/or between the grease interceptor and the private collection lines or the public sewer.

3. The Food Service Establishment may justify that the alternative pretreatment technology is equivalent or better than a grease interceptor in controlling its FOG discharge. In addition, the Food Service Establishment must be able to demonstrate, after installation of the proposed alternative pretreatment, its effectiveness to control FOG discharge through downstream visual monitoring (Closed Circuit Television or CCTV) of the sewer system, for at least three months, at its own expense. A Variance may be granted if the results show no visible accumulation of FOG in its lateral and/or tributary downstream sewer lines.

   Rationale: *Issuance of a variance allows OCSD to accept other alternative FOG pretreatment technology when the installation of a grease interceptor is not feasible. This allows flexibility to implement new technology that is equivalent, in efficacy, to a grease interceptor.*

Conditional Waiver from Installation of Grease Interceptor

Conditional Waivers from installation of grease interceptors may be issued to Food Service Establishments that have been determined to have negligible FOG discharge and insignificant impact to the sewer system. This waiver may also be issued to existing Food Service establishments to delay implementation of the requirement up to a maximum of three years from the effective date of the Ordinance. The FOG Control Program Manager's determination to grant or revoke a conditional waiver shall be based upon, but not limited to, evaluation of the following conditions:

1. Quantity of FOG discharge as measured or as indicated by the size of Food Service Establishment based on seating capacity, number of meals served, menu, water usage, etc.
2. De minimis discharge, i.e., discharge volume that does not require an interceptor size larger than 350 gallons.
3. Adequacy of implementation of Best Management Practices and compliance history.
4. Sewer size, grade, condition based on visual information (CCTV), FOG deposition in the sewer by the Food Service Establishment, and history of maintenance and sewage spills in the receiving sewer system.
5. Changes in operations that significantly affect FOG discharge.
6. Any other condition deemed reasonably appropriate by the FOG Control Program Manager.

Rationale: *Issuance of Conditional Waivers from Grease Interceptor Installation allows OCSD to waive the requirement when it is not necessary, i.e., when the Food Service Establishment is determined to have negligible FOG discharge and insignificant impact to the sewer system. The waiver is made conditional so that it may be revoked anytime when any of the reasons or conditions for its issuance is no longer valid or true. The issuance of waivers allows flexibility to implement the grease interceptor requirement in a practical manner such that Food Service Establishments are not necessarily burdened by requirements that derive no benefits towards achieving the desired environmental results.*

Issuance of Conditional Waivers from Grease Interceptor Installation will also be used to hold the grease interceptor requirement during the three-year delay in implementation. Three years from the effective date of the Ordinance, a conditional waiver issued for this purpose will be revoked unless the Food Service Establishment qualifies for other specific circumstances that would allow issuance of a waiver.

Waiver from Grease Interceptor Installation with a Grease Disposal Mitigation Fee

- For Food Service Establishments where the installation of a grease interceptor is not feasible and no equivalent alternative pretreatment may be installed, a waiver from the grease interceptor requirement may be granted with the imposition of a Grease Disposal Mitigation Fee as described in the Ordinance. The FOG Control Program Manager's determination to grant the waiver with a Grease Disposal Mitigation Fee will be based upon, but not limited to, evaluation of the following conditions:

1. There is no adequate space for installation and/or maintenance of a grease interceptor.
2. There is no adequate slope for gravity flow between kitchen plumbing fixtures and the grease interceptor and/or between the grease interceptor and the private collection lines or the public sewer.

3. A variance from grease interceptor installation to allow alternative pretreatment technology may not be granted.

   Rationale: *This allows issuance of a waiver when the installation of a grease interceptor is not physically feasible. However, Food Service Establishments are required to pay an annual Grease Disposal Mitigation Fee to equitably cover the costs of increased maintenance of the sewer system as a result of the Food Service Establishments' inability to adequately remove FOG from their wastewater discharges. The Grease Disposal Mitigation Fee shall be established uniformly, and shall be based on the estimated annual increased cost of maintaining the sewer system for inspection and removal of FOG and other viscous or solidifying agents attributable to the Food Service Establishments resulting from the lack of grease interceptors or grease control devices.*

Grease Interceptor Installation Requirements

- Any Food Service Establishment required to provide FOG pretreatment shall install, operate, and maintain an approved type and adequately sized grease interceptor necessary to maintain compliance with the objectives of the Ordinance. Grease interceptor sizing and installation shall conform to the current edition of the Uniform Plumbing Code.

  Rationale: *Although there are different methods available for sizing grease interceptors, the Uniform Plumbing Code design method is widely used and is the current official standard.*

Grease Interceptor Maintenance Requirements

- Grease Interceptors shall be maintained in efficient operating condition by periodic removal of the full content of the interceptor, which includes wastewater, accumulated FOG, floating materials, sludge, and solids.
- All existing and newly installed grease interceptors shall be maintained in a manner consistent with a maintenance frequency approved by the FOG Control Program Manager pursuant to this section.
- No FOG that has accumulated in a grease interceptor shall be allowed to pass into any sewer lateral, sewer system, storm drain, or public right of way during maintenance activities.
- Food Service Establishments with grease interceptors may be required to submit data and information necessary to establish the maintenance frequencies for the grease interceptors.
- The maintenance frequency for all Food Service Establishments with a grease interceptor shall be determined in one of the following methods:

1. Grease interceptors shall be fully pumped out and cleaned at a frequency such that the combined FOG and solids accumulation does not exceed 25% of the total design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume are maintained to effectively intercept and retain FOG discharged to the sewer system.
2. All Food Service Establishments with a Grease Interceptor shall maintain their grease interceptor not less than every 6 months.
3. Grease interceptors shall be fully pumped out and cleaned quarterly when the frequency described in (1) has not been established. The maintenance frequency shall be adjusted when sufficient data have been obtained to establish an average frequency based on the requirements described in (1) and guidelines adopted pursuant to the FOG Control Program. The District may change the maintenance frequency at any time to reflect changes in actual operating conditions in accordance with the FOG Control Program. Based on the actual generation of FOG from the Food Service Establishment, the maintenance frequency may increase or decrease.
4. The owner/operator of a Food Service Establishment may submit a request to the FOG Control Program Manager requesting a change in the maintenance frequency at any time. The Food Service Establishment has the burden of responsibility to demonstrate that the requested change in frequency reflects actual operating conditions based on the average FOG accumulation over time and meets the requirements described in (1), and that it is in full compliance with the conditions of its permit and this Ordinance. Upon determination by the FOG Control Program Manager that requested revision is justified, the permit shall be revised accordingly to reflect the change in maintenance frequency.
5. If the grease interceptor, at any time, contains FOG and solids accumulation that does not meet the

requirements described in (1), the Food Service Establishment shall be required to have the grease interceptor serviced immediately such that all fats, oils, grease, sludge, and other materials are completely removed from the grease interceptor. If deemed necessary, the FOG Control Program Manager may also increase the maintenance frequency of the grease interceptor from the current frequency.

- Wastewater, accumulated FOG, floating materials, sludge/solids, and other materials removed from the grease interceptor shall be disposed off-site properly by wastehaulers in accordance with federal, state, and/or local laws.

  Rationale: *The above requirements ensure that grease interceptors are properly operated at all times, by maintaining the minimum hydraulic retention time and required available volume necessary to effectively intercept and retain FOG prior to discharge of wastewater to the sewer system.*

Requirements for Best Management Practices (BMPs)

- Installation of drain screens. Drain screens shall be installed on all drainage pipes in food preparation areas.
- Disposal of food waste. All food waste shall be disposed of directly into the trash or garbage and not in sinks.

  Rationale: *Drain screens collect food wastes that can be disposed of in the trash as solid wastes rather than being discharged into the interceptor. Disposal of food wastes to the trash or garbage helps reduce the FOG discharged to the sewer and the interceptor pumping frequency required.*

- Segregation and collection of waste cooking oil. Licensed wastehaulers or an approved recycling facility must be used to dispose of waste cooking oil.

  Rationale: *Disposal of waste cooking oil to the sewer is prohibited and will cause blockages. Waste cooking oil may be recycled at recyclers in Orange County. This is an opportunity for cost recovery.*

- Employee training. Employees of the food service establishment shall be trained by ownership within 180 days of notification, and twice each calendar year thereafter, on the following subjects:

1. How to “dry wipe” pots, pans, dishware, and work areas before washing to remove grease.
2. How to properly dispose of food waste and solids in enclosed plastic bags prior to disposal in trash bins or containers to prevent leaking and odors.
3. The location and use of absorption products to clean under fryer baskets and other locations where grease may be spilled or dripped.
4. How to properly dispose of grease or oils from cooking equipment into a grease receptacle such as a barrel or drum without spilling.

  Training shall be documented and employee signatures retained indicating each employee's attendance and understanding of the practices reviewed. Training records shall be available for review at any reasonable time by OCSD or other authorized inspector.

  Rationale: *Employees are more willing to support an effort if they understand the basis for it. Regular training will promote awareness in controlling FOG discharges through Best Management Practices.*

- Maintenance of kitchen exhaust filters. Filters shall be cleaned as frequently as necessary to be maintained in good operating condition. The wastewater generated from cleaning the exhaust filter shall be disposed of properly.

  Rationale: *FOG can accumulate on the roof of an establishment and eventually enter the storm drain system when it rains. The discharge of FOG to the storm drain system is prohibited.*

- Kitchen signage. Best management and waste minimization practices shall be posted conspicuously in the food preparation and dishwashing areas at all times.

  Rationale: *Signs serve as a constant reminder for staff working in kitchens. These reminders will help minimize discharge of FOG by implementing Best Management Practices.*

Notification Requirements

- Food Service Establishments shall comply with the following notification requirements:

1. Notification of Spill
2. Notification Regarding Planned Changes

Recordkeeping Requirements

- Food Service Establishments shall keep records for at least two years and submit or make available for review, the following documents to the District, upon request:

1. A Record/Logbook of BMPs being implemented, including employee training.
2. A Logbook of the grease interceptor, grease trap, or grease control device cleaning and maintenance practices and activities.
3. Training Records.

For permittees with grease interceptors:

4. Copies of records and manifests of wastehauling interceptor contents.
5. Records of sampling data and/or sludge height monitoring for FOG and solids accumulation in the grease interceptors.

Reporting Requirements

- Food Service Establishments may be required periodic reporting of the status of implementation of BMPs and maintenance of grease interceptors.
- Other reports may be required such as compliance schedule progress reports, FOG control monitoring reports, and any other reports deemed reasonably appropriate to ensure compliance with the Ordinance.

Drawing Submittals

- Food Service Establishments may be required to submit site plans, floor plans, mechanical and plumbing plans, and details to show all sewers, schematic drawings of FOG control device, grease interceptors or other pretreatment equipment and appurtenances by size, location, and elevation for evaluation.

This drain is not a dump.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Fats, Oils, and Grease (FOG) Source Control Program

Fats, Oils, and Grease (FOG) discharged by residential, commercial, institutional, and industrial users present a significant problem to the wastewater collection and treatment systems, causing sewer blockages resulting to sewer overflows (spills).

To address this problem, the Orange County Sanitation District (OCSD) has established a FOG Source Control Program and an Ordinance to regulate Food Service Establishments, which discharge FOG into the sewer system.

The FOG Source Control Program will be implemented on January 1, 2005.

What is the Program Objective?

The objectives of OCSD's FOG Source Control Program for Food Service Establishments are to reduce FOG discharges into the sewer system, prevent sewage spills, and protect public health and the environment. These objectives are in accordance with the California Regional Water Quality Control Santa Ana Region's (SARWQCB) mandate. Food Service Establishments are significant FOG contributors and must share the responsibility for reducing FOG discharges.

What are the Major Requirements of the Program?

- All Food Service Establishments that discharge FOG into the sewer system are required to obtain a FOG Wastewater Discharge Permit. An annual permit fee of $100 is proposed. However, a limited food preparation establishment is not considered a Food Service Establishment and is exempt from obtaining a FOG Discharge Permit. Exempted establishments are grouped according to limited food preparation activities that do not produce wastewater containing a significant amount of FOG. These activities include reheating, hot holding, or assembly of ready-to-eat food products. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.
- All Food Service Establishments are required to implement Best Management Practices (BMPs) in their operations to minimize the discharge of FOG to the sewer system.
- All Food Service Establishments are required to pretreat their wastewater using grease interceptors to remove FOG prior to discharge to the sewer system. However, most Food Service Establishments will be granted temporary waivers from this requirement during the next three years, and the waivers may be re-issued on a case-by-case basis. A waiver may not be issued for:

1. Newly constructed Food Service Establishments;
2. Food Service Establishments that undergo re-modeling or a major change in operations; and
3. Food Service Establishments that have caused or contributed to grease-related blockage in the sewer

system, or that have sewer laterals connected to hotspots, or that have been determined to contribute significant FOG to the sewer system based on inspection or sampling.

- Variances may be issued to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of grease interceptors. However, Food Service Establishments must demonstrate and justify that it is impracticable to install, operate, or maintain grease interceptors.
- All Food Service Establishments required by OCSD to install grease interceptors or equivalent devices are required to properly operate and maintain the pretreatment system.

How will OCSD Implement the Program?

- Implement and enforce the FOG Ordinance that specifies general prohibitions and restrictions on FOG discharges;
- Administer enforcement measures and costs associated with FOG discharge and blockages;
- Administer a permit program to regulate wastewater discharges from Food Service Establishments;
- Track compliance through inspection of Food Service Establishments, review kitchen Best Management Practices (BMPs) and Grease Interceptor Maintenance Practices, and monitor wastewater discharges;
- Evaluate and screen the results of inspection and reports to ensure compliance with FOG requirements;
- Consistently respond to all types of violations to ensure long-term compliance; and
- Work with Food Service Establishments, when applicable, to evaluate options to pretreat wastewater to reduce FOG prior to discharge to the sewer system.

What are the Bases for Establishing the Requirements?

In developing the requirements for the FOG Source Control Program, OCSD considered the following:

- Technical Findings of the Hotspot Characterization and the Food Service Establishment Characterization Studies: In order to establish reasonable requirements in reducing FOG discharge, OCSD conducted characterization studies to thoroughly understand the nature of the FOG problem within OCSD's Area 7 (includes the City of Tustin and some other unincorporated areas.) These studies helped identify all Food Service Establishment within OCSD's Area 7 that are potential and specific sources of FOG discharges. The studies also provided valuable information on causes and preventions of sewage spills associated with FOG discharges. In addition, an evaluation of existing FOG control technologies was conducted.
- Case-by-Case Considerations vs. "One size fits all": Food Service Establishments will be evaluated individually to determine specific requirements that are applicable and appropriate towards achieving the desired environmental results.
- Balance between Cost and Environmental Benefits: To ensure that the Food Service Establishments are not financially burdened by OCSD's FOG Source Control Program, OCSD established requirements that are cost effective and balanced to achieve reasonable environmental benefits.
- Issuance of Waivers and Variances: To account for flexibility during the FOG Source Control Program implementation, OCSD allows for situations where extenuating circumstances may allow Food Service Establishment to forego installing grease interceptors.
- Experiences from other FOG Source Control Programs nationwide: OCSD evaluated several FOG Source Control Programs nationwide and used program elements/requirements that have been found to be effective and appropriate for our local setting.

What are the Plans to Address the Residential FOG Contribution?

After initial implementation of the FOG Source Control Program for Food Service Establishments, OCSD will embark on a residential outreach program that will educate and inform city residents about the effects of discharging FOG into the sewer system.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Fats, Oils, and Grease (FOG) Definitions

Following are the definitions of terms commonly encountered in the FOG Source Control Program:

Best Management Practices	Schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the introduction of FOG to the sewer facilities.
Brown Grease	Yellow grease mixed with wastewater, e.g., waste from grease interceptors.
Change in Operations	Any change in the ownership, food types, or operational procedures that have the potential to increase the amount of FOG generated and/or discharged by Food Service Establishments in an amount that alone or collectively causes or creates a potential for SSOs to occur.
Co-Permittees	Sewering cities and agencies that are subject to the Waste Discharge Requirements (WDR).
District	The Orange County Sanitation District (OCSD).
Effluent	Any liquid outflow from the Food Service Establishment that is discharged to the sewer.
Fats, Oils, and Grease ("FOG")	Any substance such as a vegetable or animal product that is used in, or is a byproduct of, the cooking or food preparation process, and that turns or may turn viscous or solidifies with a change in temperature or other conditions.
FOG Characterization	Study to determine location of hot spots, the location of Food Service Establishments, and any correlation between the two.
FOG Control Program	The FOG Control Program required by and developed pursuant to RWQCB Order No. R8-2002-0014, Section (c)(12)(viii).
FOG Control Program Manager	The individual designated by the District to administer the FOG Control Program. The FOG Control Program Manager is responsible for all determinations of compliance with the program, including approval of discretionary variances and waivers.
FOG Wastewater Discharge Permit	A permit issued by the District subject to the requirements and conditions established by the District that authorizes the permittee or discharger to discharge wastewater into the District's facilities or into sewer facilities which ultimately discharge into a District facility.

Food Grinder Any device installed in the plumbing or sewage system for the purpose of grinding food waste or food preparation byproducts for the purpose of disposing it in the sewer system.

Food Service Establishment Facilities defined in California Uniform Retail Food Service Establishments Law (CURFFL) Section 113785, and any commercial entity within the boundaries of the District, operating in a permanently constructed structure such as a room, building, or place, or portion thereof, maintained, used, or operated for the purpose of storing, preparing, serving, or manufacturing, packaging, or otherwise handling food for sale to other entities, or for consumption by the public, its members or employees, and which has any process or device that uses or produces FOG, or grease vapors, steam, fumes, smoke or odors that are required to be removed by a Type I or Type II hood, as defined in CURFFL Section 113785. A **limited food preparation establishment** is not considered a Food Service Establishment when engaged only in reheating, hot holding, or assembly of ready to eat food products and as a result, there is no wastewater discharge containing a significant amount of FOG. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.

Grease Control Device Any grease interceptor, grease trap or other mechanism, device, or process, which attaches to, or is applied to, wastewater plumbing fixtures and lines, the purpose of which is to trap or collect or treat FOG prior to it being discharged into the sewer system. "Grease control device" may also include any other proven method to reduce FOG subject to the approval of the District.

Grease Disposal Mitigation Fee A fee charged to an Owner/Operator of a Food Service Establishment when there are physical limitations to the property that make the installation of the usual and customary grease interceptor or grease control device for the Food Service Establishment under consideration, impossible or impracticable. The Grease Disposal Mitigation Fee is intended to cover the costs of increased maintenance of the sewer system for inspection and cleaning of FOG and other viscous or solidifying agents that a properly employed grease control device would otherwise prevent from entering the sewer system.

Grease Interceptor A multi-compartment device that is constructed in different sizes and is generally required to be located, according to the California Plumbing Code, underground between a Food Service Establishment and the connection to the sewer system. These devices primarily use gravity to separate FOG from the wastewater as it moves from one compartment to the next. These devices must be cleaned, maintained, and have the FOG removed and disposed of in a proper manner on regular intervals to be effective.

Grease Trap A grease control device that is used to serve individual fixtures and have limited effect and should only be used in those cases where the use of a grease interceptor or other grease control device is determined to be impossible or impracticable.

Hot Spots Areas in sewer lines that have experienced sanitary sewer overflows or that must be cleaned or maintained frequently to avoid blockages of the sewer system.

Inspector A person authorized by the District to inspect any existing or proposed wastewater generation, conveyance, processing, and disposal facilities.

Interceptor A grease interceptor.

Manifest That receipt which is retained by the generator of wastes for disposing recyclable wastes or liquid wastes as required by the District.

NPDES The National Pollutant Discharge Elimination System; the permit issued to control the discharge of liquids or other substances or solids to surface waters of the United States as detailed in Public Law 92-500, Section 402.

New Construction Any structure planned or under construction for which a sewer connection permit has not been issued.

Permittee A person who has received a permit to discharge wastewater into the District's sewer facilities subject to the requirements and conditions established by the District.

Public Sewer A sewer owned and operated by the District, or other local Public Agency, which is tributary to the District's sewer facilities.

Regulatory Agencies Regulatory Agencies shall mean those agencies having regulatory jurisdiction over the operations of the District, including, but not limited to:

a) United States Environmental Protection Agency, Region IX, San Francisco and Washington, DC (EPA).
b) California State Water Resources Control Board (SWRCB).
c) California Regional Water Quality Control Board, Santa Ana Region (RWQCB).
d) South Coast Air Quality Management District (SCAQMD).
e) California Department of Health Services (DOHS).

Regional Water Quality Control Board (RWQCB) Agency which issued the Waste Discharge Requirements, Order No. R8-2002-0014 requiring agencies to control and prevent sewer spills.

Remodeling A physical change or operational change causing generation of the amount of FOG that exceeds the current amount of FOG discharge to the sewer system by the Food Service Establishment in an amount that alone or collectively causes or creates a potential for SSOs to occur; or exceeding a cost of $50,000 to a Food Service Establishment that requires a building permit, and involves any one or combination of the following: (1) Under slab plumbing in the food processing area, (2) a 30% increase in the net public seating area, (3) a 30% increase in the size of the kitchen area, or (4) any change in the size or type of food preparation equipment.

Sample Point A location approved by the District, from which wastewater can be collected that is representative in content and consistency of the entire flow of wastewater being sampled.

Sampling Facilities Structure(s) provided at the user's expense for the District or user to measure and record wastewater constituent mass, concentrations, collect a representative sample, or provide access to plug or terminate the discharge.

Sanitary Sewer Overflows (SSOs) Sewer spills.

Sewer Facilities or System Any and all facilities used for collecting, conveying, pumping, treating, and disposing of wastewater and sludge.

Sewer Lateral A building sewer as defined in the latest edition of the California Plumbing Code. It is the wastewater connection between the building's wastewater facilities and a public sewer system.

Sewer System Management Plan (SSMP) Plan for managing the sewer collection system.

Sludge Any solid, semi-solid or liquid decant, subnate or supernate from a manufacturing process, utility service, or pretreatment facility.

Twenty-five percent (25%) Rule	Requirement for grease interceptors to be maintained such that the combined FOG and solids accumulation does not exceed 25% of the design hydraulic depth of the grease interceptor. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume is maintained to effectively intercept and retain FOG discharged to the sewer system.
User	Any person who discharges or causes a discharge of wastewater directly or indirectly to a public sewer system. User shall mean the same as Discharger.
Waste	Sewage and any and all other waste substances, liquid, solid, gaseous or radioactive, associated with human habitation or of human or animal nature, including such wastes placed within containers of whatever nature prior to and for the purpose of disposal.
Waste Discharge Requirements (WDR)	Order that required sewering agencies to control and prevent sewer spills and to develop a Sewer System Management Plan.
Waste Minimization Practices	Plans or programs intended to reduce or eliminate discharges to the sewer system or to conserve water, including, but not limited to, product substitutions, housekeeping practices, inventory control, employee education, and other steps as necessary to minimize wastewater produced.
Wastehauler	Any person carrying on or engaging in vehicular transport of waste as part of, or incidental to, any business for that purpose.
Wastewater	The liquid and water-carried wastes of the community and all constituents thereof, whether treated or untreated, discharged into or permitted to enter a public sewer.
Wastewater Constituents and Characteristics	The individual chemical, physical, bacteriological, and other parameters, including volume and flow rate and such other parameters that serve to define, classify or measure the quality and quantity of wastewater.
Yellow Grease	FOG after it has been used for cooking.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Fats, Oils, and Grease (FOG) Issues: Frequently Asked Questions (FAQs)

The following are frequently asked questions intended to provide general information to Food Service Establishment in the City of Tustin and unincorporated areas in Orange County Sanitation District's (OCSD) Area-7 regarding issues related to Fats, Oils, and Grease discharge.

What is FOG?

- FOG refers to animal and vegetable fats, oils, and greases that are commonly used and generated from Food Service Establishments involved in food preparation. FOG is found in butter and margarine, baking goods, cooking oil, dairy products, food scraps, lard, meant facts, etc.

Why is FOG a Problem?

- When poured down the drain, FOG can build up over time in pipes, pumps, and equipment, causing significant problems to the OCSD's sewer collection system and wastewater treatment plant. Problems include sewer line blockages that can lead to sewer overflows (spills) that causes environmental and heath hazards.
- Sewer overflows releases contain disease-causing bacteria, viruses, and other human health pathogens that can easily be transported to high recreational waterways, such as Orange County's beaches jeopardizing public health.
- During the period of July 2000 through July 2003, the City of Tustin and some unincorporated areas within OCSD's jurisdiction had 62 FOG-related blockages/sewage spills.

What is being done to Prevent FOG related Sewer Overflows?

- The California Regional Water Quality Control Board (Santa Ana Region) issued an order in April 2002 that mandates cities and sanitary agencies to prevent sewer overflows related to grease blockages.
- To comply with this order, OCSD has adopted a FOG Ordinance intended to target Food Service Establishments such as restaurants in the City of Tustin and unincorporated within the OCSD's Area 7.

Why Should I Care About FOG?

- Food Service Establishments have been identified as significant contributors of FOG in the sewer lines because of the amount of grease produced during cooking, food preparation, and kitchen clean. If Food Service Establishments are found in noncompliance with OCSD's FOG Ordinance, OCSD may subject Food Service Establishments to civil penalties including fines or may escalate to criminal penalties including guilty of a misdemeanor or imprisonment.
- Beginning January 1, 2005, OCSD's FOG Ordinance becomes effective requiring Food

Service Establishments to comply with the provisions and conditions set forth in the FOG Ordinance. These provisions include, but not limited to, Food Service Establishments complying with a FOG Wastewater Discharge Permit (permit), implementing Best Management Practices, and installing grease interceptors intended to reduce FOG discharge into OCSD's sewer system. See fact sheet "Core Elements: Fats, Oils, and Grease Ordinance No. OCSD-25."

What are ways to reduce the amount of grease that goes does the drain?

- Food Service Establishments are responsible to implement Best Management Practices to reduce FOG discharge into OCSD's system. A list of Best Management Practices is included with the FOG Permit Packet.

Whom do I contract regarding FOG related issues?

FOG Source Control Management:
Mahin Talebi, OCSD Source Control Manager
(714) 593-7410

FOG Source Control Program Permit and Enforcement:
Jerry Evangelista, OCSD Source Control Supervisor
(714) 593-7419

Tom Gaworski, OCSD Principle Environmental Specialist
(714) 593-7422

FOG Regional Issues:
Mark Kawamoto, OCSD Engineer
(714) 593-7424

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Fats, Oils, and Grease (FOG) Source Control Program

Fats, Oils, and Grease (FOG) discharged by residential, commercial, institutional, and industrial users present a significant problem to the wastewater collection and treatment systems, causing sewer blockages resulting to sewer overflows (spills).

To address this problem, the Orange County Sanitation District (OCSD) has established a FOG Source Control Program and an Ordinance to regulate Food Service Establishments, which discharge FOG into the sewer system.

The FOG Source Control Program will be implemented on January 1, 2005.

What is the Program Objective?

The objectives of OCSD's FOG Source Control Program for Food Service Establishments are to reduce FOG discharges into the sewer system, prevent sewage spills, and protect public health and the environment. These objectives are in accordance with the California Regional Water Quality Control Santa Ana Region's (SARWQCB) mandate. Food Service Establishments are significant FOG contributors and must share the responsibility for reducing FOG discharges.

What are the Major Requirements of the Program?

- All Food Service Establishments that discharge FOG into the sewer system are required to obtain a FOG Wastewater Discharge Permit. An annual permit fee of $100 is proposed. However, a limited food preparation establishment is not considered a Food Service Establishment and is exempt from obtaining a FOG Discharge Permit. Exempted establishments are grouped according to limited food preparation activities that do not produce wastewater containing a significant amount of FOG. These activities include reheating, hot holding, or assembly of ready-to-eat food products. A limited food preparation establishment does not include any operation that changes the form, flavor, or consistency of food.
- All Food Service Establishments are required to implement Best Management Practices (BMPs) in their operations to minimize the discharge of FOG to the sewer system.
- All Food Service Establishments are required to pretreat their wastewater using grease interceptors to remove FOG prior to discharge to the sewer system. However, most Food Service Establishments will be granted temporary waivers from this requirement during the next three years, and the waivers may be re-issued on a case-by-case basis. A waiver may not be issued for:

1. Newly constructed Food Service Establishments;
2. Food Service Establishments that undergo re-modeling or a major change in operations; and
3. Food Service Establishments that have caused or contributed to grease-related blockage in the sewer

system, or that have sewer laterals connected to hotspots, or that have been determined to contribute significant FOG to the sewer system based on inspection or sampling.

- Variances may be issued to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of grease interceptors. However, Food Service Establishments must demonstrate and justify that it is impracticable to install, operate, or maintain grease interceptors.
- All Food Service Establishments required by OCSD to install grease interceptors or equivalent devices are required to properly operate and maintain the pretreatment system.

How will OCSD Implement the Program?

- Implement and enforce the FOG Ordinance that specifies general prohibitions and restrictions on FOG discharges;
- Administer enforcement measures and costs associated with FOG discharge and blockages;
- Administer a permit program to regulate wastewater discharges from Food Service Establishments;
- Track compliance through inspection of Food Service Establishments, review kitchen Best Management Practices (BMPs) and Grease Interceptor Maintenance Practices, and monitor wastewater discharges;
- Evaluate and screen the results of inspection and reports to ensure compliance with FOG requirements;
- Consistently respond to all types of violations to ensure long-term compliance; and
- Work with Food Service Establishments, when applicable, to evaluate options to pretreat wastewater to reduce FOG prior to discharge to the sewer system.

What are the Bases for Establishing the Requirements?

In developing the requirements for the FOG Source Control Program, OCSD considered the following:

- Technical Findings of the Hotspot Characterization and the Food Service Establishment Characterization Studies: In order to establish reasonable requirements in reducing FOG discharge, OCSD conducted characterization studies to thoroughly understand the nature of the FOG problem within OCSD's Area 7 (includes the City of Tustin and some other unincorporated areas.) These studies helped identify all Food Service Establishment within OCSD's Area 7 that are potential and specific sources of FOG discharges. The studies also provided valuable information on causes and preventions of sewage spills associated with FOG discharges. In addition, an evaluation of existing FOG control technologies was conducted.
- Case-by-Case Considerations vs. "One size fits all": Food Service Establishments will be evaluated individually to determine specific requirements that are applicable and appropriate towards achieving the desired environmental results.
- Balance between Cost and Environmental Benefits: To ensure that the Food Service Establishments are not financially burdened by OCSD's FOG Source Control Program, OCSD established requirements that are cost effective and balanced to achieve reasonable environmental benefits.
- Issuance of Waivers and Variances: To account for flexibility during the FOG Source Control Program implementation, OCSD allows for situations where extenuating circumstances may allow Food Service Establishment to forego installing grease interceptors.
- Experiences from other FOG Source Control Programs nationwide: OCSD evaluated several FOG Source Control Programs nationwide and used program elements/requirements that have been found to be effective and appropriate for our local setting.

What are the Plans to Address the Residential FOG Contribution?

After initial implementation of the FOG Source Control Program for Food Service Establishments, OCSD will embark on a residential outreach program that will educate and inform city residents about the effects of discharging FOG into the sewer system.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Fats, Oils, and Grease (FOG) Source Control Program Frequently Asked Questions (FAQs)

The Orange County Sanitation District (OCSD) has adopted a Fats, Oils, and Grease (FOG) Ordinance which will be effective on January 1, 2005. Concurrently, OCSD will implement a FOG Source Control Program to regulate discharges from Food Service Establishments (FSEs) such as restaurants. Following are frequently asked questions from FSEs impacted by this program.

Are Food Service Establishments (FSEs) required to have permits to discharge to the sewer system?

- Yes. Beginning January 1, 2005, it is illegal for FSEs to discharge to the sewer system without a valid FOG Wastewater Discharge Permit (permit).

Is there any exemption from this permit requirement?

- Yes. Limited food preparation establishments are not considered FSEs and are exempt from obtaining a permit. Limited food preparation establishments are those that are engaged only in reheating, hot holding or assembly of ready-to-eat food products and as a result, there is no wastewater discharge containing a significant amount of FOG.

Are FSEs required to apply for a permit prior to January 1, 2005?

- No. There is no need to apply for a permit at this time. OCSD has simplified the initial permitting process by identifying and conducting inspection of FSEs that need a permit.
- Existing FSEs may expect to receive their permit before January 1, 2005.
- New FSEs and FSEs that have not been identified during the initial permitting process will have to apply for a permit to discharge to the sewer legally.

Is there a permit fee and how much?

- No. Although there is no permit fee during the initial permit issuance, OCSD anticipates adoption of a fee resolution by its Board of Directors in March 2005. A $100 annual permit fee and a $100 noncompliance fee for each instance of noncompliance are proposed to recover the costs of program administration.
- After the permit fee is adopted, new FSE applicants will be charged the permit fee. Likewise, existing FSEs with permits will be charged the permit fee upon renewal of their expired initial permit.

Are there additional fees?

- No. Currently, FSEs are already paying user charges for treatment of wastewater discharged to the sewer, as part of their property taxes. There are no new fees other than the new permit fee and the existing user charges.

What are the major requirements of the permit?

To reduce FOG discharges to the sewer from FSEs, following are the major requirements of the permit:

- FSEs are required to implement Best Management Practices (BMPs) in their operations to minimize the discharge of FOG to the sewer system.
- FSEs are required to pretreat their wastewater using grease interceptors to remove FOG prior to discharge to the sewer system. Most FSEs will be granted temporary waivers from this requirement during the next three years; waivers may be re-issued or revoked on a case-by-case basis. Variances may also be issued to allow alternative pretreatment technology that is, at least, equally effective in controlling the FOG discharge in lieu of grease interceptors, to FSEs able to demonstrate that it is impossible or impracticable to install, operate, or maintain grease interceptors.
- All Food Service Establishments required to install grease interceptors or equivalent devices is required to properly operate and maintain the pretreatment system.

What are Best Management Practices (BMPs)?

- BMPs are schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the introduction of FOG to the sewer system. OCSD will provide educational outreach material to FSEs regarding implementation of BMPs.
- BMPs help reduce the amount of FOG and solids going to grease interceptors resulting in less frequent cleaning, thus reducing maintenance costs.

Are all FSEs required to implement BMPs?

- Yes. Implementation of BMPs is a basic and necessary requirement for all FSEs. The best way to stop FOG from building up in the sewer lines is to prevent it from entering the drains using kitchen BMPs. Implementation of BMPs may involve some minor expense to properly and consistently prevent FOG from getting discharged to the sewer system. BMPs are proven effective and economical tools to control FOG at the source.

Are FSEs required to install grease interceptors?

- Although the Ordinance requires FSEs to install grease interceptors, the implementation of this requirement is delayed for the next three years. Waivers will be issued to most FSEs, except for the following:
  - Newly constructed FSEs.
  - FSEs that undergo remodeling or a major change in operations.
  - FSEs that have caused or contributed to grease-related blockage in the sewer system, or which have sewer laterals connected to hotspots, or which have been determined to contribute significant FOG to the sewer system based on inspection or sampling.
- Waivers may be re-issued for those FSEs that have insignificant impact or may be revoked at any time when the FSE is determined to have significant impact.

Are FSEs going to be inspected by OCSD?

- Yes. OCSD will conduct inspections of FSEs as part of its enforcement program to determine compliance with the Ordinance and permit requirements. Inspections will be conducted to evaluate the following:
  - Compliance with kitchen BMP requirements
  - Compliance with grease interceptor requirements for those who are required to have a grease interceptor.
- In lieu of routine kitchen inspections to evaluate implementation of BMPs, FSEs may submit BMP Monitoring Reports semi-annually describing BMPs in place. Details are provided in the permit.
- Grease interceptors will be inspected on a routine basis to evaluate compliance with the pump-out and maintenance requirements.

Are there penalties for noncompliance?

- Yes. Any person who violates any provision of the FOG Ordinance; or any permit condition, prohibition or effluent limitation; or any suspension or revocation order shall be liable civilly for a penalty pursuant to Article 6 of the FOG Ordinance, for each day in which such violation occurs.
- OCSD, by Order of the General Manager, may physically terminate sewer service on a term of any order of suspension or revocation of a permit or upon the failure of a person not holding a valid wastewater discharge permit to immediately cease discharge, whether direct or indirect, to OCSD's sewer facilities after due notification.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Prohibitions Relating to Discharge of Fats, Oils, and Grease (FOG)

The following prohibitions apply to all Food Service Establishments:

Prohibitions	Reason
Use of food grinders. Installation of food grinders in the plumbing system of new constructions of Food Service Establishments is prohibited. Furthermore, all food grinders shall be removed from all existing Food Service Establishments within 180 days after notification, except when expressly allowed by the FOG Control Program Manager.	Eliminating food grinders (garbage disposal) will reduce the volume of solids that enter a grease interceptor or the sewer. Food wastes that accumulate in the grease interceptor occupy space used to separate and remove grease, resulting in an increased cleaning frequency requirement, waste hauling costs, and potential blockages.
Use of additives. Introduction of any additives into a Food Service Establishment's wastewater system for the purpose of emulsifying or biologically/chemically treating FOG for grease remediation or as a supplement to interceptor maintenance, unless a specific written authorization from the FOG Control Program Manager is obtained.	Emulsifiers hinder FOG separation by dispersing FOG in the wastewater, which directly conflicts with the grease interceptor's role in separating and removing grease. Additives may also cause the interceptor to discharge its contents to the sewer.
Disposal of waste cooking oil into drainage pipes. All waste cooking oils shall be collected and stored properly in receptacles, such as barrels or drums, for recycling or other acceptable methods of disposal.	Disposal of waste cooking oil to the sewer will cause blockages. Recyclers in Orange County may recycle waste cooking oil. This is an opportunity for cost recovery.
Discharge of wastewater from dishwashers to any grease trap or grease interceptor.	Dishwashers that utilize temperatures in excess of 140°F will dissolve grease, which then resolidifies in the sewer as the water cools. This does not necessarily apply to dishwashers that use water temperatures less than 140°F.

Prohibitions	Reason
Discharge of wastewater with temperatures in excess of 140˚F to any grease control device, including grease traps and grease interceptors.	Temperatures in excess of 140˚F will dissolve grease, which then resolidifies in the sanitary sewer as the water cools.
Discharge of wastes from toilets, urinals, wash basins, and other fixtures containing fecal materials to sewer lines intended for grease interceptor service, or vice versa.	Grease interceptors are intended to separate and remove FOG and should not contain other wastes that will interfere with its operations and maintenance.
Discharge of any waste including FOG and solid materials removed from the grease control device to the sewer system. Grease removed from grease interceptors shall be wastehauled periodically as part of the operation and maintenance requirements for grease interceptors.	This defeats the purpose of the interceptor. Accumulated grease, solids, and wastewater removed from interceptors must be properly disposed offsite periodically as part of the operation and maintenance requirements.
Operation of grease interceptors with FOG and solids accumulation exceeding 25% of the total design hydraulic depth of the grease interceptor (25% Rule).	This is to ensure that the minimum hydraulic retention time and required hydraulic volume are maintained to effectively intercept and retain FOG discharged to the sewer system.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

General Best Management Practices for Fats, Oils, and Grease

Residual fats, oils, and grease (FOG) are byproducts that food service establishments (FSE) must constantly manage. Typically, FOG enters a facility's plumbing system from ware washing, floor cleaning, and equipment sanitation. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of the municipal sewer collection system pipes. A large percentage of Orange County's sanitary sewer overflows (sewer spills) are the result of pipe blockages from FOG accumulation from residential, institutional, and commercial sources. The best way to manage FOG is to keep the material out of the plumbing systems. The following are suggestions for proper FOG management.

Wet Cleanup - The Status Quo

It is common practice in the food service industry to use a water hose as a broom, and wash everything on the floor to the drain as a method of disposal. This method not only forces FOG into the wastewater stream, but also results in foods, detergents, disinfectants, waxes, insecticides and other chemicals entering the sewer system. Even worse than this mixed wastewater entering the sewer system, it is sometimes hosed into the storm drain, where it goes directly into our waterways unfiltered and untreated - the same waterways we use for recreation, fishing, and to supply our drinking water. This practice is not only harmful to the environment, but it may be illegal, resulting in fines or even jail.

Dry Cleanup - The Better Way!

Rather than resort to the wet cleanup method of cleaning, OCSD recommends the dry cleanup method. The "first pass" in equipment and utensil cleaning should be made with scrapers, squeegees, or absorbents to prevent the bulk of food materials from going down the drain. Do not pour grease, fats, or oils from cooking down the drain and do not use sinks to dispose of food scraps. Likewise, it is important to educate kitchen staff not to remove drain screens as this may allow paper or plastic cups, straws, and other utensils to enter the plumbing system during cleanup. The success of dry cleanup is dependent upon the behavior of the employees and availability of the tools for removal of food before washing. To practice dry cleanup:

- Use rubber scrapers to remove FOG from cookware, utensils, chafing dishes, and serving ware.
- Use food grade paper to soak up oil and grease under fryer baskets.
- Use paper towels to wipe down work areas. Cloth towels will accumulate grease that will eventually end up in your drains from towel washing/rinsing.
- Use kitty litter to absorb liquid spills. Sweep and dispose of the liner in the trash, as long as the spilled material is not a hazardous material.

Spill Prevention

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

- Empty containers before they are full to avoid spills.
- Use a cover to transport interceptor contents to rendering barrels.
- Provide employees with the proper tools (ladles, ample containers, etc.) to transport materials without spilling.
- Keep a spill kit in food preparation areas.

Maintenance

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

- Contract with a management company to professionally clean large hood filters. Small hoods can be hand-cleaned with spray detergents and wiped down with cloths. Hood filters can be effectively cleaned by routinely spraying them with hot water with little or no detergent over the mop sink, which should be connected to a grease trap. After the hot water rinse (separately trapped), filter panels can go into the dishwater. For hoods to operate properly in the removal of grease-laden vapors, the ventilation system will also need to be balanced with sufficient make-up air.
- Skim/filter fryer grease daily and change oil when necessary. Use a test kit provided by your grocery distributor rather than simply a “guess” to determine when to change oil. This extends the life of both the fryer and the oil. Build-up of carbon deposits on the bottom of the fryer acts as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner.
- Collect fryer oil in an oil-rendering tank for disposal or transport it to a bulk oil-rendering tank instead of discharging it into a grease interceptor or waste drain.
- Cleaning intervals depend upon the type of food establishment involved. Some facilities require monthly or once every two months cleaning. Establishments that operate a large number of fryers or handle a large amount of fried foods such as chicken, along with ethnic food establishments may need at least monthly cleanings.
- Develop a rotation system if multiple fryers are in use. Designate a single fryer for products that are particularly high in deposits, and change that one more often.

Oil & Grease Collection/Recycling

FOG is a commodity which if handled properly can be treated as a valuable resource. See Fact Sheet on Restaurant Oil and Grease Rendering.

Garbage Disposal

Businesses that use garbage disposals to dispose of food waste are simply transferring disposal from a landfill disposal to a wastewater treatment plant. Disposal of food waste via the sewer system is more costly than landfill disposal and acts as a disincentive to reduce generation of food waste or to separate food for donations, rendering, animal feed, or composting. Many business owners assume that water from their garbage disposal flows through their grease trap before discharge to the sewer system; however, in most cases, disposals are actually plumbed directly to black water systems, which bypass the grease trap.

Consumer Tip

Buyers beware! When choosing a method of managing your oil and grease, ensure that it does what the vendor says it will do. Some technologies or “magic bugs” do not eliminate the problem but result in grease accumulations further down the sewer line. “Out of sight” is not out of mind." Check the vendor's references before investing in technological and biological management methods.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Managing Food Materials

According to the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA), more than one quarter of all food produced in America every year goes to waste and that $31 billion in resources goes into the nation's landfills and sewer systems. This fact sheet is provided to encourage businesses such as food service providers, processors, distributors, and merchandisers to eliminate waste and recover/recycle food materials.

Food waste can produce many environmental impacts. For example, food materials discharged to a wastewater treatment plant will dramatically increase the cost of wastewater treatment, and if released into storm drains, will significantly impact a creek or river's ability to sustain aquatic life forms. Also, food materials discarded into the solid waste stream contribute to odor and the creation of greenhouse gases at disposal facilities. EPA and USDA estimate that diverting food residuals from landfills would improve air quality as much as taking 1,000,000 cars off American roads. Finally, food residuals in landfills serve as the catalyst for generation of leachate - the toxic soup that often drains from landfill into our drinking water aquifers.

Examples of what are considered food "residuals" include: preparation wastes, uneaten portions, grease, batter waste, dairy products, beverages containing sugar, and dressings. These food materials are excellent candidates for reduction, recovery, and reuse. Reducing materials at their source, coupled with recovery, reuse, and recycling prevents pollution and reduces, and in some cases eliminates, treatment and disposal cost. A successful waste reduction program can result in cost savings and possible generation of revenues. These activities also contribute to a positive public image for the company, benefits to the community, and protection of the environment.

Reduction at the Start: Ordering and Inventory Controls

Perhaps the most effective method for reducing waste is to prevent it in the first place. Proper control of raw goods, final products, and the waste streams associated with food preparation is an important source reduction technique. Improved ordering and inventory control significantly affect three major sources of waste resulting from improper inventory control: excess, out-of-date, and obsolete raw goods. Below are options for reduction at the start:

- Order bulk supplies.
- Terminate useless packaging from the vendor.
- Refuse samples that will become waste.
- Work with suppliers to return shipping materials and packaging.
- Purchase reusable items.
- Purchase only the amount of raw goods needed for a set period of time. This practice will help eliminate out-of-date and excess goods and products.
- Develop a review and approval procedure for all raw goods and products purchased. The primary purchaser can regulate the quantity of materials purchased by other personnel to reduce excess and out-of-date inventory.
- Clearly label all materials. Labels can indicate contents, storage/handling, and expiration dates.
- Rotate perishable stocks at every delivery to minimize waste from spoilage, i.e., first-in, first-out.
- Consider offering half or smaller portions as an option, to reduce the amount of uneaten food.
- Develop an hourly or daily production chart to minimize over-prepping and unnecessary waste.
- Store leftover hot foods from different stations in separate containers rather than consolidating them to minimize the chance of spoilage.

Donation of Food Material

Currently do you have excess edible food? Think of how that food could be used to help someone in need. In 1998, 36 million Americans lived in households that suffer from hunger or food insecurity. Food donation programs such as the Orange County Food Bank make donating simple. They can be contacted at (714) 897-6670. By donating food it helps achieve a winning menu of opportunity, haling a program where your staff can feel proud of being part of helping a neighbor in need, reduce food waste cost (recycling), and being good community partners.

Segregate Food Wastes for Beneficial Uses

To increase their recyclable potential, food materials should be clean and free of mash such as paper, glass, and plastic. Also, depending upon the requirements of recyclers, solid food wastes should be separated from liquid food wastes to enhance their recyclablility.

Rendering

Free grease is grease that has not been mixed with water. It is largely generated from pots, pans, grills, and deep fat fryers and comes from butter, lard, vegetable fats and oils, meats, nuts, and cereals. If kept out of the drains and handled separately, free grease may be rendered. Rendering facilities may purchase free grease and provide storage and collection. The market price depends upon factors such as volume, quality, and hauling distances. See fact sheets for Restaurant Oil and Grease Rendering and Best Management Practices for Fats, Oils, and Grease for further detail about management of grease.

Composting Food Wastes

“A rind is a terrible thing to waste!" Composting is an excellent way to turn a costly disposal problem into a source of soil nutrient and potential income, reduce air and water pollution, and save landfill space. The use of compost in gardening and agriculture reduces soil runoff and reduces the need for using chemical fertilizers, which protects California's waterways.

Businesses interested in diverting waste to composting could open their own compost facility or investigate the possibility of using local government or private compost facilities already in operation.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Food Service Waste Reduction

Today's food service establishments are constantly looking for ways to improve productivity and trim costs. Waste in any operation is generated as result of inefficiencies, and therefore, reducing waste creates a more efficient operation. Solid waste disposal, energy consumption, and wastewater make up the majority of environmental challenges that restaurants must address as part of their business operations. This fact sheet is intended to provide tips on how food service establishments can reduce, reuse, and recycle these wastes.

Benefits of Waste Reduction Programs

- Good Business: Generally, waste reduction leads to increased operating efficiency and cost savings. Decreased solid waste generation reduces collection and disposal costs just as reducing electricity and water reduces utility bills. Waste minimization also may reduce purchasing cost.
- Good Stewardship: California is challenged with maintaining its clean waters, air, and land. All Californians have a responsibility to themselves, fellow citizens, and future generations to maintain a clean environment.
- Customer Satisfaction: Surveys show that Americans are very concerned about the environment. They appreciate restaurants and other businesses that make efforts to be more environmentally aware - at the table and the way business is conducted.

After you implement waste reduction measures, give yourself credit! Your efforts will not only attract customers, they will encourage other businesses to follow your example.

Implementing a Waste Reduction Program

Once a restaurant has made a commitment to reduce waste, the manager or waste reduction team should assess all operations, such as food preparation, food service, purchasing, and janitorial activities to identify opportunities to reduce waste and conserve water and electricity. Ideas for protecting the environment and realizing the cost benefits of waste reduction should be responsibilities of all employees in all job functions. Once waste reduction opportunities are identified, employees should be trained so they are comfortable with implementing the changes. Training should be repeated periodically to ensure that new employees are included. An employee suggestion and awards program can be established to maintain enthusiasm for the program. The remainder of this fact sheet lists specific activities that restaurants can undertake to reduce waste.

Reduction and Reuse

- Avoid over-packaging for take-out orders.
- Place health department approved rubber mats around bus and dish washing stations to reduce china and glass breakage.
- Work with suppliers to take back and reuse corrugated cardboard boxes, five-gallon buckets, and other packaging - if they will not take them back, donate buckets to customers, local schools, or churches. Do not reuse for contact with food.
- Use approved refillable condiment bottles (only after being rewashed and sanitized) instead of single-use packages. Refill them from bulk containers.

- Use reusable dishes instead of Styrofoam or other disposable ware to save on long-term purchasing costs.
- Use reusable take-home trays for regular customers.
- For take-out orders, offer condiments and straws upon request instead of self-serve.
- For dining customers, use bulk straw dispensers instead of individually wrapped straws, and place napkin dispensers on tables rather than in the central part of the dining room-people will generally take 1/3 as many napkins.
- Reduce menu printing costs where possible, for example, by reusing menus, eliminating paper inserts, and using boards to post daily specials.
- Ask your carbonated beverage supplier to provide you with reusable syrup canisters rather than the bag-in-the box type of containers.
- Use roll-type paper towels (unbleached are usually cheapest) in restrooms instead of using pre-cut paper towels.
- Train employees on the proper use of cleaning agents for concentrates, and test for proper concentration. Most people use significantly more concentrate than is required to do the job.

Recycling

- Establish glass, plastic, and cardboard recycling with a local collector.
- Share the cost of a cardboard baler for recycling with neighboring business.
- Make sure that staff is flattening tin and aluminum cans to reduce volume before placing in recycling bins.

Purchasing

- Choose environmentally friendly cleaning products, and try to purchase cleaning agents in concentrate.
- Ask for and purchase products such as paper towels, toilet tissue, menus, order pads, cash register tapes, plastic bags, dish trays, rubber mats, brooms, and benches made from recycled materials.

Electricity Conservation

- Develop and implement a cleaning and maintenance program for all equipment. This program should include calibrating ovens and checking pipes for leaks.
- Use energy-conserving fluorescent lights instead of the more common high-wattage bulbs.
- Use low-wattage bulbs in exit signs instead of the more common high-wattage bulbs.
- Clean refrigerator coils and change air conditioning filters regularly to help these appliances run more efficiently.
- Install motion or timer lights in restrooms, pantries, and freezer units. Lights can be set to go off after three to five minutes of inactivity.
- Set thermostats at reasonable levels.

Water Conservation

- Clean spills with a squeegee, broom, or vacuum.
- Install low-flow faucet adapters, and/or automatic turnoff faucets, and low-flow toilets in restrooms. Of the total water used in restaurants, restroom water usage ranges from 50 percent in full-service restaurants to 80 percent in fast food restaurants.
- Never hose material down the drain. This practice not only wastes water, but it contributes to organic loading at the wastewater treatment plant.
- Provide drinking water to customers only upon request.
- Replace rubber faucet gaskets with brass gaskets and automatic shut off nozzles to save thousands of gallons/year.

Fats, Oils, and Grease (FOG) Waste Management

The National Restaurant Association estimates that 20 percent of all food prepared commercially in the United States goes to waste, and grease is responsible for a large percentage of all sewer overflows in the country. The best way to manage FOG is to keep it out of the sewer system by using Best Management Practices (BMPs). BMPs are activities, prohibitions of practices, maintenance procedures, and other management practices that reduce the discharge of FOG from the wastewater discharge. For details, see Fact Sheet for Best Management Practices for Fats, Oils, and Grease.

Waste reduction offers costs savings that benefit both small and large operations. Once your waste reduction program is underway, track your waste reduction, cost savings, and get the word out! You do not have to do it all at once - choose actions that are doable, document your success, and then move on to the harder projects.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Restaurant Oil and Grease Rendering

Improperly managed oil and grease from Food Service Establishments (FSEs) such as restaurants has become a significant problem for wastewater collection and treatment systems. Fats, oils, and grease (FOG) coat, congeal, and accumulate in pipes, pumps, and equipment, leading to the costly and hazardous flow of waste grease into drain lines, sewer lines, lift stations, drain fields, and Publicly Owned Treatment Works (POTWs). Improper disposal can result in high biological oxygen demand (BOD) and chemical oxygen demand (COD) levels, increased operating costs, and clogged collection systems. A large percentage of the reported sewer system overflow in Orange County is caused by FOG blockage of the sewers.

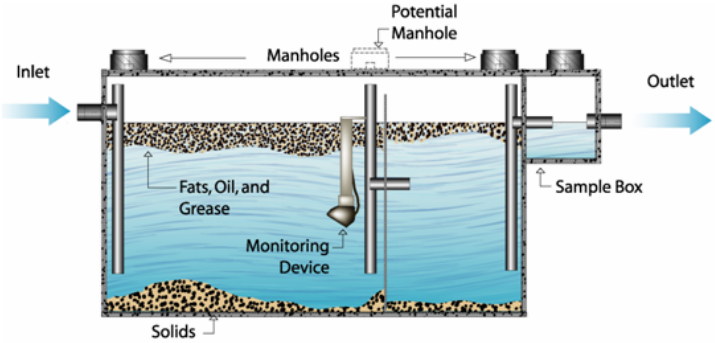
Different Types of Oils and Grease

Recyclable grease is that used for or generated by cooking and has not been mixed with water. It is generated from pots, pans, grills, and deep fat fryers and comes from butter, lard, vegetable fan and oils, meats, nuts, and cereals. Recyclable grease should be kept out of the drains and handled separately. Rendering facilities may purchase recyclable grease and meat wastes and provide storage and collection. The market price depends upon factors such as volume, quality, and hauling distances. The rendering services will process recyclable grease by sampling it for pesticides and other chemicals and filtering and volatizing impurities before reselling it, where prices may range from one to three cents per pound. If the volume of the wastes generated from one FSE (restaurant or cafeteria) is too small for the rendering facility, businesses should explore the feasibility of setting up a cooperative collection among similar businesses.

Restaurant kitchen wastewater contains oil and grease that is collected in a grease interceptor. Because fats coat, congeal, and accumulate on pipes and pumps and sometimes obstruct sewer lines, food service establishments are required by most local governments to install and maintain grease interceptors. Specific information about grease interceptor maintenance is presented in the OCSD's Fact Sheet for Grease Interceptor. Some rendering services and local septage haulers will service or pump out these grease interceptors for a fee, and some services may reduce the pumping fee if the FSE is a recyclable grease customer.

Where Does Grease Go When It Leaves a Restaurant?

A grease interceptor is designed to prevent grease, oil, solids, and other debris from entering the wastestream, where it becomes a problem by clogging sewers and disrupting the water flow in the system. The grease



interceptor captures those wastes and contains them until a waste hauler or pumper service can properly dispose them.

A grease interceptor should be checked and maintained to ensure that it is working properly. Backups, odors, and drainage problems are signs that the grease interceptor is not functioning as it should. See OCSD's Fact Sheet for Grease Interceptor for specific tips on proper maintenance of grease interceptors.

Grease Recycling

While pretreating wastewater through the use of grease interceptors, skimmers, separators, and process flow treatment systems such as carbon filtration or coagulation units can greatly reduce the problem, source reduction of oil and grease must be the first course of action. Through dry cleanup and the development of an efficient collection system and rendering program, wastewater problems can be avoided. Rendering companies or "grease recyclers" will accept oil, grease, and other animal byproducts, including deep fry fat and bones, thereby turning a nuisance waste material into a beneficial product such as animal feed.

How is Waste Oil and Grease Recycled?

Waste oil and grease is tested for pesticides and other contaminants. Material is placed in a settling tank to remove solids, heated in a vacuum to volatize impurities and is then sold to companies for use as animal feed additives, in soap production, oils, cosmetic and skin care products, and in composting.

Benefits of Rendering

- Compliance - Many communities have sewer use ordinances that severely limit the discharge of FOG in wastewater. New state policies are being enacted that will require more communities to develop sewer use ordinances and wastewater discharge limitations. Penalties may be incurred when higher concentrations are found. Rendering prevents grease from reaching the sewer system and thereby helps FSEs maintain compliance.
- Cost Avoidance - The charge for pumping out a grease interceptor is considerably more than the service fee charged by a renderer. Furthermore, with dry cleanup and other source reduction techniques, many FSEs are reducing their water consumption and sewer use and are saving money. Rendering also helps FSEs avoid discharge penalty charges.
- Economic Incentives - Renderers' service fees are low and often provided at no charge. In some cases, rendering companies are willing to pay for oil and grease from FSEs.
- Environmental Savings - Natural resources and energy are conserved through source reduction and recycling. FOG recycling keeps these materials from clogging municipal sewer lines, as well as using valuable landfill space and diverts it to a useful purpose.

Questions to Ask a Renderer

When looking for an oil and grease renderer, it is important to ask the right questions, which may include:

1. Do you provide collection containers?
2. Do you provide transportation?
3. Can I expect revenue for my material? If not, what is your service fee?
4. What are your specifications? What constitutes contamination?
5. If there is a problem, who should I contact?

Remember that FOG is a commodity and should be treated as a valuable resource that can and should be recycled whenever possible.

Where to Find Renderers

Contact the California Integrated Waste Management Board at (916-341-6000) for a list of grease renderers or visit their website: www.ciwmb.ca.gov.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

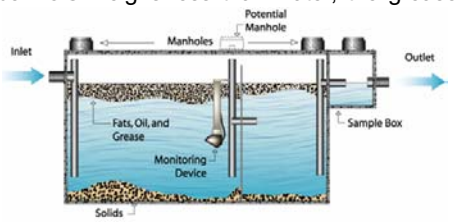
Grease Interceptors

When fats, oils, and grease (FOG) enter the sewer, they create a variety of problems, such as sewer blockages and spills, which put the health and safety of the public at risk. Grease interceptors have played an important role in preventing accumulated FOG from clogging sewer lines. A grease interceptor is a proven and effective grease collection device, which when combined with Best Management Practices (BMPs), significantly reduces the amount of FOG entering the sewer.

What is a Grease Interceptor?

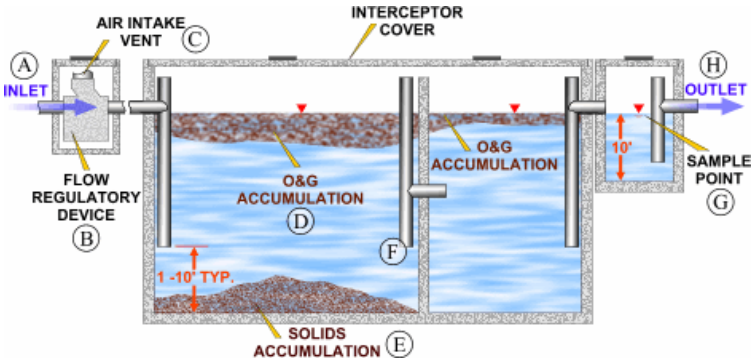
- A grease interceptor is a control device that is designed to collect and intercept FOG and food waste from wastewater discharged from Food Service Establishments, until they can be removed and disposed by wastehauling. It is typically a large concrete box with two or three compartments and is usually installed underground outside Food Service Establishments.

- Grease interceptors separate FOG from wastewater by gravity. Since FOG weighs less than water, the grease floats on the water surface when given sufficient time.



- Grease interceptors are designed such that the wastewater flow is slowed down to allow sufficient time for FOG to separate. This allows FOG to collect as a thick mat on the surface inside the interceptor.

How it works



The following describes how a grease interceptor works:

A	Flow from undersink grease traps or directly from plumbing fixtures enters the grease interceptor. The Uniform Plumbing Code (UPC) requires that all flow entering the interceptor must enter through the inlet pipe.
B	An approved flow control or restricting device is installed to restrict the flow to the grease interceptor to the rated capacity of the interceptor.
C	An air intake valve allows air into the open space of the grease interceptor to prevent siphonage and back-pressure.
D	FOG floats on the water surface and accumulates behind the grease retaining fittings and the wall separating the compartments. FOG will be removed during routine grease interceptor cleaning.
E	Solids in the wastewater that do not float will be deposited on the bottom of the grease interceptor and will need to be removed during routine grease interceptor cleaning.
F	Grease retaining fittings extend down into the water to within 12 inches of the bottom of the interceptor. Because FOG floats, it generally does not enter the fitting and is not carried into the next compartment. The fittings also extend above the water surface to provide air relief.

G	Some interceptors have a sample box so that inspectors or employees of the food service establishment can periodically take effluent samples. Having a sample box is recommended by the UPC but not required.
H	Flow exits the interceptor through the outlet pipe and continues on to the sanitary sewer system.

Installation Considerations

- Install the grease interceptor as close as practical to the fixture(s) being served. This is important because every foot of piping between the fixture(s) and the interceptor is a potential maintenance problem.
- The grease interceptor should be located in an accessible area such that cleaning and maintenance can be easily performed. The placement should allow the interceptor cover to be visible and easily removable for cleaning. Anticipate sufficient clearance for removal of the cover and baffle for cleaning.
- Plumbing containing discharges from food grinders, dishwashers, and wastes from toilets, urinals, wash basins, and other fixtures containing fecal materials should bypass the grease interceptor.
- A properly sized and designed grease interceptor may not work efficiently if it is installed incorrectly. A licensed plumbing contractor can handle all aspects of the interceptor installation which may include equipment procurement, plumbing, and in-ground installations that include excavations and concrete cutting/repair.
- The cost of installation will vary depending on the site. Cost factors include the size of the device, space, grade, proximity to a sewer line, and above-ground or in-ground installation.

Proper Maintenance

Regular maintenance is essential to the proper operation of grease interceptors. Even the best designed and properly installed interceptors will fail when improperly maintained.

- Grease interceptor maintenance, which is usually performed by permitted haulers or recyclers, consists of removing the entire volume (liquids and solids) from the grease interceptor and properly disposing of the material in accordance with all Federal, State, and/or local laws.
- Grease interceptors must be fully pumped out and cleaned at a frequency such that the combined FOG and solids accumulation does not exceed 25% of the total interceptor design hydraulic depth. This is to ensure that the minimum hydraulic retention time and required available hydraulic volume are maintained to effectively intercept and retain FOG discharged from the facility.
- OCSD's FOG Ordinance requires Food Service Establishments to clean their grease interceptors at least every 6 months. Typically, Food Service Establishments are required to clean grease interceptors once every 3 months. The frequency may increase depending on the capacity of the device, the amount of FOG in the wastewater, and the degree to which the facility has contributed to blockages in the past.
- Implementation of BMPs may reduce the required maintenance frequency for grease interceptors due to a reduction of FOG and solids loading on the interceptor, thereby reducing maintenance costs. Refer to the Fact Sheet for BMPs that may be implemented.

Maintenance Procedures

A proper grease interceptor maintenance procedure is outlined below:

1	Contact a grease hauler or recycler for cleaning.
2	Ensure that all flow to the interceptor is stopped by shutting the isolation valve in the inlet piping to the interceptor.
3	Remove the lid and bail out any water in the trap or interceptor to facilitate cleaning.
4	Remove baffles if possible.
5	Dip the accumulated grease out of the interceptor and deposit in a watertight container.
6	Pump out the settled solids and then the remaining liquids.
7	Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible, and deposit the grease into a watertight container.
8	Replace the baffle and the lid.

Choosing a Grease Hauler

When selecting a grease wastehauler, be aware that services and prices can vary. Minimum services should include:

- Complete pumping and cleaning of the interceptor, rather than just skimming the FOG layer.
- Deodorizing and thorough cleaning of affected areas, as necessary.
- Disposal/reclamation at an approved location.

Representatives of food service establishments should witness all cleaning/maintenance activities to verify that the interceptor is being fully cleaned and properly maintained.

Keeping Records

Careful record-keeping is one of the best ways to ensure that the grease interceptor is being cleaned and maintained on a regular basis.

ORANGE COUNTY SANITATION DISTRICT

FACT SHEET

Design Guidelines for Grease Interceptors

The installation and use of a grease interceptor that is properly designed and sized for the type and size of the facility, is an important measure in ensuring that the facility does not contribute to the problems with the sewer system or experience back-ups in the facility itself. Food Service Establishments should weigh costs and benefits when evaluating grease interceptor design and capacity need. While the initial capital investment may be less with smaller capacity grease interceptor, pumping and maintenance fees may increase. Plans for future expansions should be assessed since menu expansion, seating capacity expansion or menu changes impact the effectiveness of the grease interceptor.

Application

Grease interceptors are mainly used in treating kitchen wastewater from Food Service Establishments and other similar institutions with large volume of wastewater. Influents to grease interceptors usually contain high organic loads, including FOG and dissolved particles, as well as detergents and suspended solids. Sanitary wastewaters are not usually treated by grease interceptors. Wastewater with high solids loadings should not be discharged to grease interceptors as it can upset the interceptor performance and greatly increase both solids accumulation and the need for frequent pumpout.

For details on how a grease interceptor works and maintenance of grease interceptors, please see Fact Sheet on Grease interceptors.

Basic Design Criteria

Grease interceptors must be designed to satisfy four basic criteria in order to ensure effective separation:

- **Time.** The grease interceptor must provide sufficient retention time for emulsified FOG to separate and float to the surface of the chamber.
- **Temperature.** The grease interceptor must provide adequate volume to allow the wastewater to cool sufficiently for emulsified FOG to separate.
- **Turbulence.** Turbulence through grease interceptors must be controlled so that the FOG and solids are not suspended in the wastewater. Turbulence control is especially important during high discharge rates.
- **Tankage.** The grease interceptor must provide sufficient storage capacity for accumulated FOG and solids between cleanings.

Factors Affecting Grease Interceptor Performance

1. **Velocity of Incoming Water.** A higher velocity of water will contribute to a more turbulent mixture. This will slow the FOG separation process, thereby reducing efficiency.
2. **Ratio of FOG to Water.** The higher the ratio of FOG particles to the water, the lower the efficiency of the interceptor.
3. **Specific Gravity (Density) of FOG.** FOG has a lower specific gravity than water and will rise to the surface quickly. FOG-ladened food particles having a higher specific gravity than water will

linger and accumulate at the bottom, eventually passing out of the interceptor.

4. **Possible Presence of Detergents in the System.** Grease-cutting detergents will break the liquid grease into minute particles that can cause these liquids to pass through the interceptor.
5. **Percentage of Maximum Flow Capacity.** If the maximum recommended flow is exceeded, the efficiency of the interceptor will decrease considerably.
6. **Location of Grease Interceptor.** The interceptor should be located as close as possible to the source of FOG. Plumbing leading to the grease interceptor may become clogged if the wastewater cools prior to entering the grease interceptor.

Sizing Grease Interceptors

Grease interceptors are designed and sized based on anticipated flow rates and organic load for maximum efficiency. The FOG Ordinance adopted by the Orange County Sanitation District requires grease interceptor sizing to conform to the **Uniform Plumbing Code**. To calculate the size of a grease interceptor needed by a Food Service Establishment, refer to the following formula taken from Appendix H of the Uniform Plumbing Code:

No. of Meals per peak hour[1]	x	Waste Flow Rate[2]	x	Retention Time[3]	x	Storage Factor[4]	=	Interceptor Size (Liquid Capacity)

1	Meals Served at Peak Hour	
2	To calculate the Waste Flow Rate, add all that apply:	
	With dishwashing machine	6 gallons
	Without dishwashing machine	5 gallons
	Single-service kitchen	2 gallons
	Food waste disposer	1 gallon
3	Retention Times:	
	Commercial kitchen waste	
	Dishwasher	2.5 hours
	Single-service kitchen	
	Single serving	1.5 hours
4	Storage Factors:	
	Fully equipped commercial kitchen:	
	8-hour operation	1
	16-hour operation	2
	24-hour operation	3
	Single-service kitchen	1.5

Grease Interceptor Design and Construction Guidelines

- Grease interceptors shall be placed as close as practical to the fixture(s) being served. It shall be located where it is easily accessible at all times for inspection, cleaning, and removal of accumulated grease.
- Minimum grease interceptor size shall be 750 gallons; the maximum size shall be 1500 gallons unless authorized by OCSD in writing.
- Grease interceptors shall have two compartments. The inlet compartment shall be 2/3 of the total capacity of the interceptor and in all cases shall be longer than the maximum inside width of the interceptor. The outlet compartment shall have a minimum capacity of 1/3 of the total interceptor capacity. The liquid depth shall not be less than 2 feet 6 inches nor more than 6 feet.
- Access to each grease interceptor shall be provided by a manhole over the inlet and a manhole over the outlet. There shall also be an access manhole for each 10 feet of length for interceptors over 20 feet long. Manholes shall extend to grade, have a minimum size of 24 inches diameter or square opening, and shall have a gasketed cover at grade.
- The inlet and outlet shall have a baffle tee or similar flow device with a minimum cross sectional area equal to the required cross sectional area of the inlet. Each baffle shall extend from at least 4 inches above the liquid level to within at least 12 inches of the inside floor of the interceptor.
- Adequate partitions or baffles shall extend at least 6 inches above the liquid level. Flow from inlet compartment to outlet compartment shall be through a quarter bend, or similar device equivalent in cross sectional area to the inlet into the interceptor, and shall extend down to within 12 inches of the inside floor.
- The Inlet, outlet and main baffle shall have a free vent area equal to the required cross sectional area of the inlet pipe.

For more details regarding construction, structural, and material requirements, consult Appendix H of the UPC.

Options

Fats, Oils and Grease Program
Pharmaceutical Disposal Program
Water Camp

E-notify

More Information
Email: **Ingrid Hellebrand**
Phone: (714) 593-7115

Email: **Tom Meregillano**
Phone: 714-593-7457

Fats, Oils & Grease Program

Put Fats, Oils and Grease (FOG) in the trash were they belong

Sewer blockages can be a direct result of fats, oils, and grease that you may be unknowingly discharging into the sewer system.
These blockages are a serious problem that can lead to a hazardous sewage spill. The blockages can be caused by a buildup of FOG that creates a clog in the sewer pipe.
Your help is needed to stop these blockages from occurring. In order to stop sewer blockages, please properly dispose of fats, oils, and grease by following these simple instructions:

- Never pour fats, oils, and grease down the sink or garbage disposal.
- Before washing, scrape and dry wipe pots, pans, and dishes with a paper towel and dispose of it in the trash.
- Use the grease can and plastic liners provided to collect all your excess fats, oils, and grease.
- Place the plastic liner inside your grease can.
- Cool fats, oils, and grease and pour into the grease can.
- **Mix oils and grease with other absorbent material like paper towels, kitty litter, or coffee grounds.**
- Once the grease can is full, remove and tightly secure the liner. Place it in the trash along with other absorbent material like paper towels, kitty litter, or coffee grounds.

The removal of a grease blockage and the cleanup associated with a sewage spill is very expensive and may result in liability and property damages. Sewage spills also harm the environment and cause beach closures.

Thank you for your help in preventing sewer blockages and spills..

View the video "A Can CAN Make a Difference"

Orange County Sanitation District

Mission –
We protect public health and the environment by providing effective wastewater collection, treatment, and recycling.

10844 Ellis Avenue
Fountain Valley, CA
92708-7018

for more information call (714) 962-2411 or visit our web site www.ocsd.com

Answers *to questions about...*

Fats, Oils and Grease (FOG)

Public Education Outreach Program

- **Background** The Orange County Sanitation District (OCSD) is the third largest publicly owned wastewater treatment agency west of the Mississippi River. OCSD treats an average of 243 million gallons of sewage per day from 2.5 million people and approximately 1,000 businesses and industries in central, north and west Orange County. OCSD operates two treatment plants, one in Fountain Valley and one in Huntington Beach, California.

  In OCSD's 471 square mile service area, sewage from 21 cities, three special districts and some unincorporated areas of Orange County are transported to OCSD through 12,000 miles of sewer pipelines.

- **Problem** When large volumes of fats, oils or grease (FOG) enter sewer pipes, they solidify and accumulate, resulting in narrowing of the pipe's internal opening. Eventually the inside of the pipe can become completely clogged, causing sewage to back up into homes and businesses, or onto the streets and into storm drains that lead to the ocean.

  Such spills are unhealthy, harm the environment, and can be expensive to clean up. In the case of food service establishments such as restaurants, they can also lead to fines and business closures.

  The problem is simply that people have been putting fats, oils and grease down their drains and garbage disposals. That has to stop. The drain is not a dump.

- **FOG Public Education Outreach Program** The State of California's Regional Water Quality Control Board for the Santa Ana Region has issued an order (No. R8-2002-0014) to local cities and sewer districts to begin controlling the release of fats, oils and grease (FOG) into the sewer system from food service establishments, homes and businesses.

  This FOG Public Education Outreach Program is a joint effort undertaken by 22 cities and districts to inform food service establishments, residents and businesses about the problems fats, oils and grease can cause in the sewer system, and to teach better ways to dispose of these materials. The Orange County Sanitation District coordinated the production of the educational materials.

- **Program Participants:**

  City of Anaheim
  City of Brea
  City of Buena Park
  City of Cypress
  El Toro Water District
  City of Fullerton
  Garden Grove Sanitary District
  City of Huntington Beach
  Irvine Ranch Water District
  City of La Habra
  Midway City Sanitary District
  City of Newport Beach
  City of Orange
  County of Orange
  Orange County Sanitation District
  City of Placentia
  Rossmoor/Los Alamitos Area Sewer District
  City of Santa Ana
  City of Seal Beach
  City of Stanton
  City of Yorba Linda
  Yorba Linda Water District

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- **Food Service Establishments** Restaurants and other food service establishments are the primary sources of fats, oils and grease in the sewer system. There are two preferred ways for food service establishments to collect fats, oils and grease:

  Grease Interceptors – large underground devices connected to the outgoing sewer system. When full, they must be emptied and cleaned by permitted waste pickup and disposal companies. Installation of a grease interceptor ranges from $8,000 for new construction to $10,000 to $15,000 for a retrofit.

  Grease Barrels – covered barrels for higher quality cooking grease are collected by commercial companies for recycling. This solution alone may not adequately prevent grease from entering the sewer system from sinks unless other kitchen best management practices are followed.

- **General Public** Residential sewer users, not just restaurants, are also sources of FOG problems, especially residents in multifamily buildings. That's why this FOG education program addresses residents as well as businesses.

  Residents can avoid such sewer problems by mixing fats, oils and grease with absorbent materials such as paper towels or kitty litter and putting them where they belong—in the trash.

- **For More Information** Please contact Ingrid Hellebrand, Senior Public Information Specialist with the Orange County Sanitation District, at (714) 593-7115 or ihellebrand@ocsd.com.

- **Resources/Links:**

  Orange County Sanitation District
  www.ocsd.com
  General FOG information.

  Orange County Grand Jury
  www.ocgrandjury.org/reports.asp
  An April 25, 2001 grand jury report shows what the relationship between FOG and sewer spills was thought to be at that time.

  Orange County Health Care Agency,
  Ocean Water Protection Program
  www.ocbeachinfo.com/downloads/index.htm
  Information on sewer spills and beach closures, and annual reports on ocean and bay water quality.

  Orange County Health Care Agency,
  Food Protection Program
  www.ocfoodinfo.com/closures.htm
  Information on restaurant closures.

  United States Environmental Protection Agency
  http://cfpub1.epa.gov/npdes/home.cfm?program_id=4
  The "home page" for sewer spill information but also data on discharge permits, etc.

  California Regional Water Quality Control Board,
  Santa Ana Region
  www.waterboards.ca.gov/santaana/
  Information on our Region 8's water quality control board.

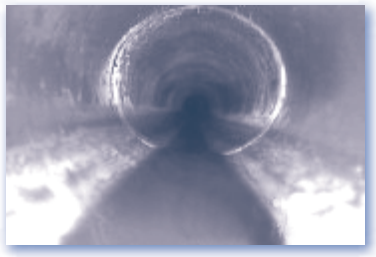
Sacramento
FOG Outreach Materials

Employee – Food Service Establishment Information Sheet

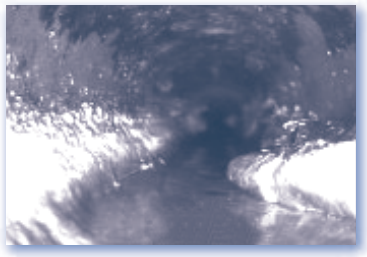
WHY A FATS, OILS AND GREASE PROGRAM

INTRODUCTION

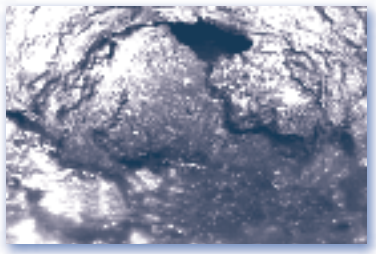
Fats, oils and grease (FOG) cause serious problems in the sewer system. FOG sticks to the walls of the pipes when put down the drain. Over time, FOG can restrict the flow in a pipe until a sewer clog or overflow occurs. Clogs and overflows can create smelly, dirty messes—possibly damaging the business, property, profits, as well as the environment.



Clean Pipe



Grease Coated Pipe



Grease Clogged Pipe

Sewer Spill

DON'T GET STUCK PAYING FINES AND CLEANUP COSTS

FOG blockages can cause sewer overflows into businesses, nearby homes or local waterways, potentially causing a loss of business. Overflows impacting public health, water ways and storm drains may result in expensive fines and cleanup costs. Preventing FOG from entering sewers can avoid these problems.

BENEFITS OF KEEPING FOG FROM GOING DOWN THE DRAIN

Preventing grease-related sewer blockages and overflows benefits your employer and the environment by:

- Avoiding expensive clean-up costs and penalties
- Avoiding the loss of business due to sewer back-ups
- Keeping the environment clean

To order information on the Fats, Oils and Grease Control Program, please contact: 916-875-FATS or visit:

WWW.STOPTHECLOG.COM

Employee – Food Service Establishment Instruction Sheet

PROPER DISPOSAL OF FATS, OILS AND GREASE

BEST MANAGEMENT PRACTICES (BMPS)

PROPER DISPOSAL

Put food waste in the garbage. Do not put food waste into sinks, drains, garbage disposals, dishwashers or anything that connects to the sewer or storm drain systems.

WIPING/SCRAPING

Wipe or scrape pots, pans, dishware and work areas into trash to remove fats, oils and grease (FOG) and food residues from cookware, dishware, etc., before washing.

PROPER WATER TEMPERATURE

Use mild water temperatures (120° F to 140° F) in all sinks, especially in pre-rinse sinks.

DRAIN SCREENS

Use easily cleaned and removable drain screens in sink drains, floor drains, kitchen sinks, mop sinks and hand sinks.

HOOD FILTERS

Clean exhaust hood filters in sinks, not outside.

SPILLS

Block off sinks, floor drains or storm drains near any FOG related spill and clean up using absorbent materials, such as absorbent sweep, cat litter or paper towels. Place used materials in a separate sealed bag before placing it in the trash. Mop the area and dispose of mop water in the mop sink.

OVERFLOWS

Prevent outdoor spills and overflows from entering the storm drain by creating a barrier using dirt, cat litter or other absorbent material to contain the spill or overflow until cleaned. Overflows from outdoor interceptors may result in fines and costs associated with clean-up (see *Grease Trap Maintenance* and *Grease Interceptor Maintenance* instruction sheets). Inform management so they can call the local sewer agency to report the overflow.

RECYCLING

Recycle used cooking oil and grease by collecting and storing in a recycling barrel or bin.

GREASE REMOVAL DEVICE MAINTENANCE

Frequently clean indoor grease traps and, when possible, supervise all cleaning and maintenance of outdoor grease interceptors to ensure the devices are properly maintained.

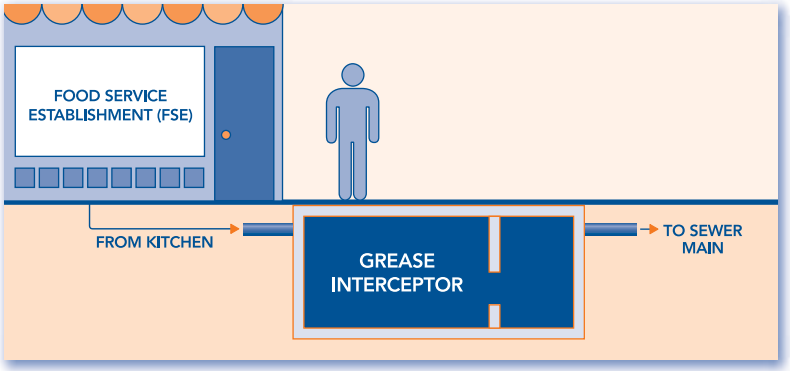
Employee – Food Service Establishment Information Sheet

GREASE REMOVAL DEVICES

WHAT ARE GREASE REMOVAL DEVICES

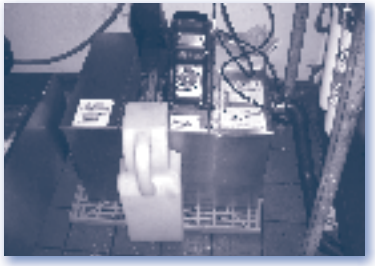
Grease removal devices separate fats, oils and grease (FOG) from wastewater before the water enters the sewer. There are large outdoor underground grease interceptors and smaller indoor grease traps.

WHICH GREASE REMOVAL DEVICE DO YOU HAVE



Outdoor Underground Grease Interceptor

Sample Indoor Manual Grease Trap



Sample Indoor Automatic Grease Trap

WHERE IS THE GREASE REMOVAL DEVICE AT YOUR RESTAURANT

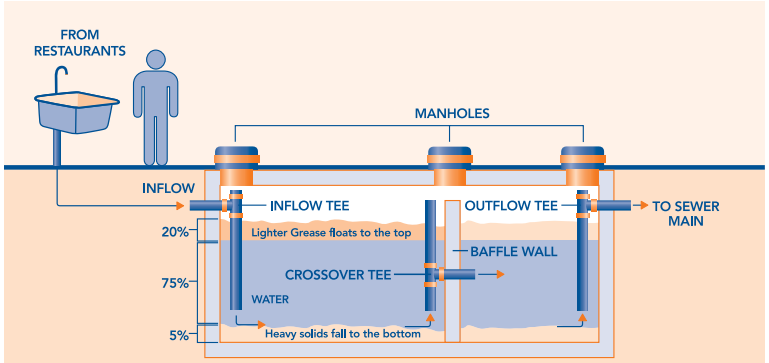
Learn where your grease removal device is located in order to ensure proper maintenance and usage. Large underground grease interceptors are located outdoors and small indoor **manual** or **automatic** grease traps are usually located near the sink area, either above ground or in the floor. Proper maintenance of grease interceptors and grease traps prevents FOG from going down the drain, clogging pipes and potentially causing a sewer overflow in the restaurant.

Employee – Food Service Establishment Instruction Sheet

GREASE INTERCEPTOR MAINTENANCE

INTRODUCTION

A grease interceptor is an outdoor underground device that removes fats, oils and grease (FOG) from wastewater before it enters the sewer. Wastewater enters the interceptor from kitchen drains and is slowed down so solids can settle to the bottom. Grease, being lighter than water, floats to the top. The grease interceptor should be pumped completely every three months. The greasy content of the interceptor is known as "brown" grease and is generally disposed at a wastewater treatment facility, but may become part of renewable energy sources in the future.



OUTDOOR UNDERGROUND GREASE INTERCEPTOR EXAMPLE

BEST MANAGEMENT PRACTICES

Follow the *Proper Disposal of Fats, Oils and Grease Best Management Practices (BMPs)* instruction sheet so interceptors do not have to be pumped as frequently.

MAINTENANCE

Have the interceptor pumped out completely at least once every three months. When possible, supervise all cleaning and maintenance of grease interceptors to make sure all FOG (liquids and solids) are removed from the interceptor after pumping.

GREASE WASTE HAULER

A licensed Grease Hauler should record the volume of grease and liquid removed and provide a receipt.

IF AN OVERFLOW OCCURS

We recommend you take the following actions:

- Stop the flow of water into kitchen drains that empty into the interceptor by turning the faucet(s) off.
- Stop any flow to a storm drain using absorbent materials, such as cat litter or dirt, and cleanup overflows.
- Call your local sewer agency at (916) 875-6730 as soon as possible.
- Call a plumber to inspect sewer lines, verify the interceptor is working properly and clean up the spill.
- Never use water to hose or spray FOG spills into a storm drain.
- When cleaning a small spill yourself, use absorbent materials, placing the used materials in a separate sealed bag before throwing away.

Prevent outdoor grease overflows from impacting public health and the environment, including storm drains, by properly disposing of FOG and maintaining the grease removal device.

Employee – Food Service Establishment Instruction Sheet

GREASE TRAP MAINTENANCE

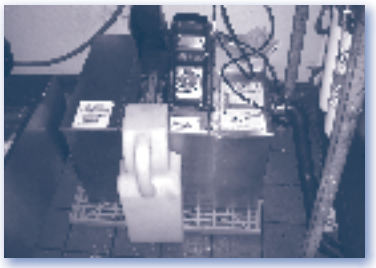
INTRODUCTION

There are two types of grease traps: **manual** and **automatic**. You should know where your grease trap is located and how to open and maintain it.

Follow the *Proper Disposal of Fats, Oils and Grease Best Management Practices (BMPs)* instruction sheet so that traps do not have to be cleaned as often.

Sample Manual Grease Trap*

(Maintenance Recommended Weekly)



Sample Automatic Grease Trap*

(Maintenance Recommended Daily)

MAINTENANCE

Automatic grease traps should be easily accessible and checked daily. **Automatic** grease traps are designed to automatically remove captured grease and oil waste. Daily maintenance of these systems should include emptying the food waste basket strainer and checking whether the grease and oil collection container needs emptying. **Manual** grease traps need to be cleaned at least weekly. However, if the trap is more than 25 percent full of grease after one week, the trap should be cleaned more often. Never use hot water, acids, caustics, solvents or emulsifying agents when cleaning grease traps. Before cleaning the **manual** trap you may want to put ice down the sink that drains to the trap to cool the water and lemon juice to help with the odor.

*For more information about maintaining your grease traps, consult your owner's manual or contact the manufacturer.

DISPOSAL OF GREASE TRAP WASTE

Grease from **automatic** grease traps may be mixed with used oil and grease that is placed in a recycling bin. However, you should ask the renderer if they allow the mixing of **automatic** grease trap waste oil and used cooking/fryer oil.

Grease from a **manual** grease trap cannot be recycled. It is considered the same as "brown" grease from a grease interceptor due to the large amount of water that is mixed with the grease. To dispose of grease from a **manual** grease trap, solidify the grease by mixing it with an absorbent material, such as cat litter, then seal it in a separate bag before throwing it away.

MAINTENANCE RECORDS

Keep maintenance records showing who cleaned the trap and on what date.

IF AN OVERFLOW OCCURS

Stop water flowing to the grease trap and take immediate action to contain and cleanup the overflow. Let management know immediately. The local sewer agency may need to be notified and a plumber called to clean sewer lines and check if the trap is working properly. When cleaning any overflow yourself, use absorbent materials, placing the used materials in a separate sealed bag before throwing it away.

Employee – Food Service Establishment Instruction Sheet

HOW TO RECYCLE KITCHEN GREASE

INTRODUCTION

Recycling used cooking oil and grease from fryers and other cooking equipment keeps fats, oils and grease (FOG) out of the sewer and storm drain systems. Used cooking oil and grease that has not been mixed with water is also known as "yellow" grease and can be recycled into animal feed, lubricants and fuels such as biodiesel. The used cooking oil and grease should be collected in sealed bins or sealed containers that can be stored outside. Small quantities of oil that cannot be recycled should be solidified with absorbent materials, placing the used materials in a separate sealed bag before throwing it away. Large quantities of cooking oil should be recycled.

DON'Ts OF RECYCLING GREASE

- DON'T pour FOG into a sink, floor drain, storm drain, dumpster, plastic bags, outdoor surfaces or landscaped areas.
- DON'T combine FOG from the **manual** grease trap or grease interceptor with the recyclable oils and grease.*
- DON'T wash recycling area or outdoor spills into the sewer or storm drain.

* See *Grease Trap Maintenance* and *Grease Interceptor Maintenance* instruction sheets for more information on how to dispose of non-recylable FOG.

DO's OF RECYCLING GREASE

- DO save used cooking oil for recycling by emptying into solid containers that you can easily lift and pour into a sealable grease recycling bin.
- DO combine used oil and grease collected from an **automatic** grease trap with the recycled grease bin/container contents after asking the renderer if it is okay to mix these oils.
- DO keep bins and containers sealed, tightly closed or locked to prevent illegal dumping and to keep insects, animals, rainwater and wind out. If the bins and containers are stored outside, keep them under a roof and away from storm drains.
- DO report overflowing or leaking bins or containers to management.

RECYLCED GREASE STORAGE AREA

- Keep area clean by using absorbent sweep or mop and put dirty mop water in the mop sink.
- Place used absorbent sweep or cat litter, paper towels or similar materials for cleaning in a separate sealed plastic bag before placing in the trash.
- Keep spill clean-up kits containing rags, absorbent sweep, kitty litter, etc., near the storage area in an accessible location.
- Keep the exterior of the container clean by using absorbent materials to wipe off any noticeable grease.

To order information on the Fats, Oils and Grease Control Program, please contact: 916-875-FATS or visit:

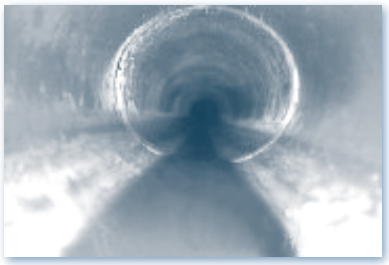
WWW.STOPTHECLOG.COM

Owner / Operator – Food Service Establishment Information Sheet

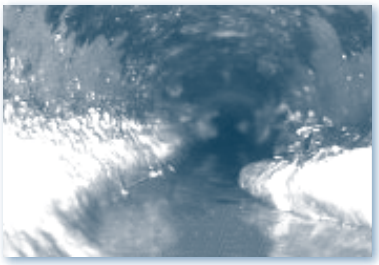
WHY A FATS, OILS AND GREASE PROGRAM

INTRODUCTION

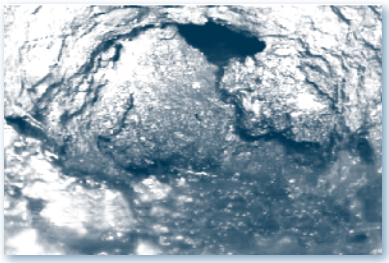
Fats, oils and grease (FOG) cause serious problems in the sewer system. FOG sticks to the walls of the pipes when put down the drain. Over time, FOG can restrict the flow in a pipe until a sewer clog or overflow occurs. Clogs and overflows can create smelly, dirty messes—possibly damaging your business, property, profits, as well as the environment.



Clean Pipe



Grease Coated Pipe



Grease Clogged Pipe

Sewer Spill

DON'T GET STUCK PAYING FINES AND CLEANUP COSTS

FOG blockages can cause sewer overflows into businesses, nearby homes or local waterways, potentially causing a loss of business. Overflows impacting public health, water ways and storm drains may result in expensive fines and cleanup costs. Preventing FOG from entering sewers can avoid these problems.

BENEFITS OF KEEPING FOG FROM GOING DOWN THE DRAIN

Preventing grease-related sewer blockages and overflows benefits your business, your pocketbook and the environment by:

- Avoiding expensive clean-up costs and penalties
- Avoiding the loss of business due to sewer back-ups
- Keeping the environment clean

Owner / Operator – Food Service Establishment Instruction Sheet

PROPER DISPOSAL OF FATS, OILS AND GREASE BEST MANAGEMENT PRACTICES (BMPS)

TRAINING

Explain that fats, oils and grease (FOG) are a problem when washed down drains, because they can clog the sewers and create overflows.

SIGNAGE

Post *Proper Disposal of Fats, Oils and Grease Best Management Practices (BMPs)* signs near sinks and dishwashers.

PROPER WATER TEMPERATURE

Use mild water temperatures (120° F to 140° F) in all sinks. This is especially important in pre-rinse sinks.

DRAIN SCREENS

Install/use removable drain screens in all sink drains (floor sink drains, kitchen sinks, mop sinks and hand sinks) to capture solid materials. The screen openings should be 1/8" to 3/16" and removable to make the screen easy to clean. Adding a second screen can help prevent solid materials from entering the sewer when cleaning the first screen.

CLEAN HOOD FILTERS

Clean exhaust hood filters in sinks, not outside. This prevents pollutants from entering the storm drains.

RECYCLING

Recycle used cooking oil and grease by collecting and storing in a recycling barrel or bin.

SPILLS

Block off sinks and floor drains near any FOG related spill and clean up using absorbent materials, such as absorbent sweep, cat litter or paper towels. Place used absorbent material in plastic bags before placing in the trash. Mop the area and dispose of mop water in the mop sink.

OVERFLOWS

Prevent outdoor spills and overflows from entering the storm drain by creating a barrier using dirt, cat litter or other absorbent material to contain the overflow until all grease is cleaned. Call the local sewer agency as soon as possible. Overflows from outdoor interceptors may result in fines and costs associated with cleanup (see *Grease Trap Maintenance* and *Grease Interceptor Maintenance* instruction sheets).

GREASE REMOVAL DEVICE MAINTENANCE

Regularly service grease interceptors and grease traps. Use only licensed waste haulers (see *Selecting A Grease Hauler* information sheet). When possible, witness all cleaning and maintenance of outdoor grease interceptors to ensure the device is properly serviced (see *Grease Interceptor Maintenance* instruction sheet). **Manual** indoor grease traps should be cleaned weekly at minimum, or daily depending on the use of BMPs, number of customers and type of food served. Clean indoor **automatic** grease traps daily (see *Grease Trap Maintenance* instruction sheet).

RECORD KEEPING

Keep receipts from a California Department of Food and Agriculture licensed grease waste hauler for two years.

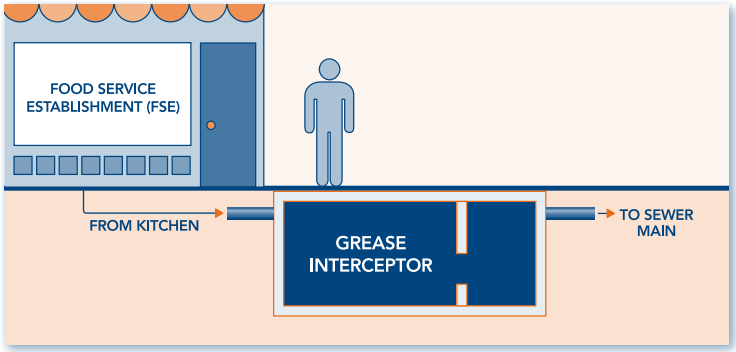
Owner / Operator – Food Service Establishment Information Sheet

GREASE REMOVAL DEVICES

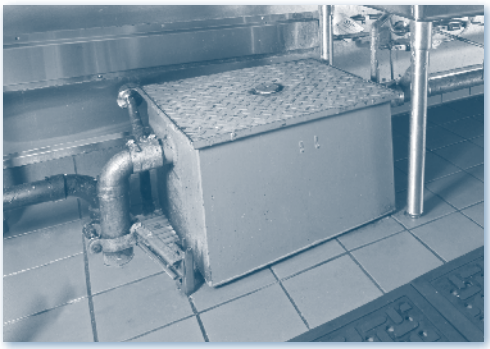
WHAT ARE GREASE REMOVAL DEVICES

Grease removal devices separate fats, oils and grease (FOG) from wastewater before the water enters the sewer. There are large outdoor underground grease interceptors and smaller indoor grease traps.

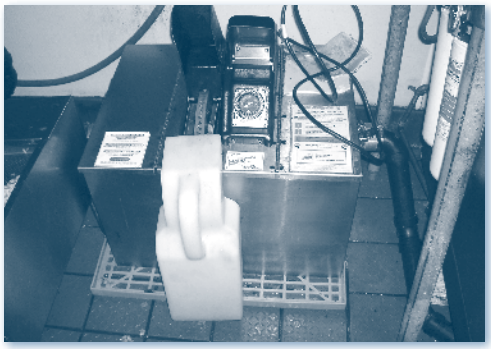
WHICH GREASE REMOVAL DEVICE DO YOU HAVE



Outdoor Underground Grease Interceptor



Sample Indoor
Manual Grease Trap



Sample Indoor
Automatic Grease Trap

WHERE IS THE GREASE REMOVAL DEVICE AT YOUR RESTAURANT

Learn where your grease removal device is located in order to ensure proper maintenance and usage. Proper maintenance of grease interceptors and grease traps prevents FOG from clogging pipes and potentially causing a sewer backup. We recommend your business install a grease removal device if you do not already have one. Grease removal devices are approved by the local building department or sewer agency. To find which building department or sewer agency services your area visit www.stoptheclog.com.

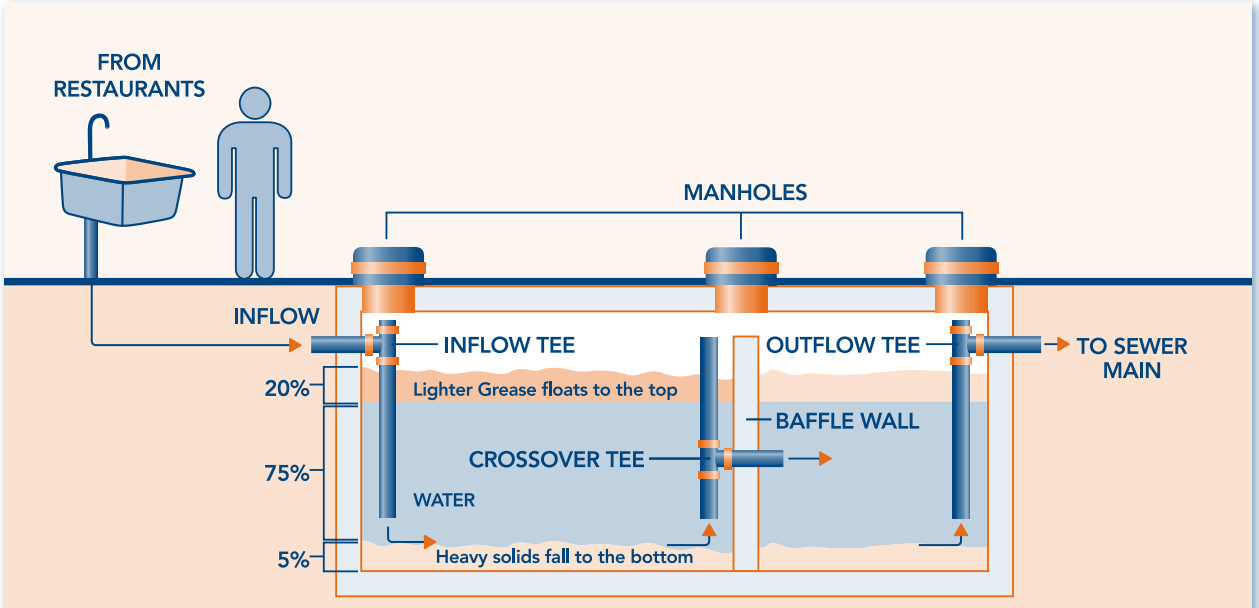
Owner / Operator – Food Service Establishment Instruction Sheet

GREASE INTERCEPTOR MAINTENANCE

INTRODUCTION

A grease interceptor is an outdoor underground device that removes fats, oils and grease (FOG) from wastewater before it enters the sewer. Interceptors are one of the most effective grease removal devices for food service establishments (FSEs). Grease interceptors require routine maintenance to keep FOG from entering the sewer system and causing overflows.

Wastewater enters the interceptor from kitchen drains, and is slowed down so solids can settle to the bottom. Grease, being lighter than water, floats to the top. The grease interceptor should be pumped completely every three months. The greasy content of the interceptor pumped out is known as "brown" grease and is generally disposed at a wastewater treatment facility, but may become part of renewable energy sources in the future. The required maintenance frequency for grease interceptors may be significantly reduced by following proper grease disposal practices (see *Proper Disposal of Fats, Oils and Grease BMPs* instruction sheet). New FSEs and remodeled FSEs maybe required to install a grease interceptor. Refer to your local building department or sewer agency to find out if a grease interceptor is required for your new or remodeled FSE (see *Requirements for New and Remodeled FSEs* information sheet).



OUTDOOR UNDERGROUND GREASE INTERCEPTOR EXAMPLE

GREASE INTERCEPTOR MAINTENANCE (CONTINUED)

MAINTENANCE

Maintenance of interceptors includes removing all of the liquids and solids and disposing of the material in accordance with all federal, state and local laws. A rule of thumb is to clean the interceptor when 25 percent of the total volume is a combination of grease and solids. Consult with a reputable Grease Hauler to determine the appropriate maintenance schedule for your business (see ***Selecting A Grease Hauler*** information sheet).

The interceptor should be pumped out completely at least once every three months. Waiting too long to clean an interceptor can create an odor problem. Dishwashers should not be plumbed to grease interceptors that are less than 750 gallons, because the higher temperature of the dishwater and the use of detergents keep grease from separating from the water.

DISPOSAL OF GREASE INTERCEPTOR WASTE

Removal and disposal of solids and liquids from a grease interceptor must be performed by a licensed Grease Hauler. When possible, witness the Grease Hauler completely pumping out all liquids and solids from the interceptor.

MAINTENANCE RECORDS

The licensed Grease Hauler should record the date, volume of grease and liquid removed and provide a receipt. Keep receipts from California Department of Food and Agriculture licensed Grease Haulers for two years to demonstrate proper interceptor maintenance.

IF AN OVERFLOW OCCURS

We recommend you take the following actions:

- Stop the flow of water into kitchen drains that empty into the interceptor by turning the faucet(s) off.
- Stop any flow to a storm drain using absorbent materials, such as cat litter or dirt, and cleanup overflows.
- Call your local sewer agency at 916-875-6730 as soon as possible.
- Call a plumber to inspect sewer lines, verify the interceptor is working properly and clean up the spill.
- Never use water to hose or spray fats, oils and grease (FOG) spills into a storm drain.
- When cleaning a small spill yourself, use absorbent materials, placing the used materials in a separate sealed bag before throwing away.
- Clean sewer lines from the interceptor outlet to the main sewer line, in addition to cleaning the lines from the building to the interceptor.

Prevent outdoor grease overflows from impacting public health and the environment, including storm drains, by properly disposing of FOG and maintaining your grease removal device.

Owner / Operator – Food Service Establishment Instruction Sheet

GREASE TRAP MAINTENANCE

INTRODUCTION

There are two types of grease traps: **manual** and **automatic**. Grease traps require frequent maintenance in order to remove fats, oils and grease (FOG) from wastewater before it enters the sewer. Grease traps are generally under the sink, but can be found in the floor.

You should know where your grease trap is located and how to open and maintain it.

Sample Manual Grease Trap*
(Maintenance Recommended Weekly)

Sample Automatic Grease Trap*
(Maintenance Recommended Daily)

Follow the *Proper Disposal of FOG Best Management Practices (BMPs)* instruction sheet so traps do not have to be cleaned as often.

MAINTENANCE

Automatic grease traps should be easily accessible and checked daily. **Automatic** grease traps are designed to automatically remove captured grease and oil waste. Daily maintenance of these systems should include emptying the food waste basket strainer and checking whether the grease and oil collection container needs emptying. **Manual** grease traps need to be cleaned at least weekly. However, if the trap is more than 25 percent full of grease after one week, the trap should be cleaned more often. Never use hot water, acids, caustics, solvents or emulsifying agents when cleaning grease traps. Dishwashers should not be plumbed to grease traps, because the higher temperature of dishwater and the use of detergents keep grease from separating from the water. Before cleaning the manual trap you may want to put ice down the sink that drains to the trap, and lemon juice to help with the odor.

DISPOSAL OF GREASE TRAP WASTE

Grease from **automatic** grease traps can be mixed with used oil and grease that is placed in a recycling bin. However, you should ask the renderer if they allow the mixing of **automatic** grease trap waste oil and used cooking/fryer oil.

Grease from a **manual** grease trap cannot be recycled. It is considered the same as "brown" grease from a grease interceptor due to the large amount of water that is mixed with the grease. To dispose of grease from a **manual** grease trap solidify the grease by mixing it with an absorbent material, such as cat litter, then seal it in a separate bag before throwing it away.

MAINTENANCE RECORDS

Food service employees or cleaning services may maintain indoor grease traps. Maintenance records should be kept for two years to demonstrate proper maintenance of the grease trap. These records should include the name of who cleaned the trap and on what date.

IF AN OVERFLOW OCCURS

Stop water flowing to the grease trap and take immediate action to contain and cleanup the overflow. The local sewer agency may need to be notified and a plumber called to clean sewer lines and check if the trap is working properly. When cleaning any overflow yourself use absorbent materials, placing the used materials in a separate sealed bag before throwing it away.

* For more information about maintaining your grease traps, consult your owner's manual or contact the manufacturer.

Owner / Operator – Food Service Establishment Instruction Sheet

HOW TO RECYCLE KITCHEN GREASE

INTRODUCTION

Recycling used cooking oil and grease from fryers and other cooking equipment keeps fats, oils and grease (FOG) out of the sewer and storm drain systems. The used cooking oil and grease should be collected in sealed bins or sealed containers that can be stored outside, preferably under a roof. Use a California Department of Food and Agriculture licensed renderer for disposal of recycled kitchen grease. Recycling waste cooking oil helps prolong the life of grease traps and interceptors. Used cooking oil and grease that has not been mixed with water is also known as "yellow" grease and can be recycled into animal feed, lubricants, and fuels such as biodiesel. Small quantities of oil that cannot be recycled should be solidified with absorbent materials, placing the used materials in a separate sealed bag before throwing away. Large quantities of used cooking oil should be recycled.

DON'Ts OF RECYCLING GREASE

- DON'T pour FOG into a sink, floor drain, storm drain, dumpster, plastic bags or on outdoor surfaces or landscaped areas.
- DON'T combine FOG from the **manual** grease trap or grease interceptor with the recyclable oils and grease.
- DON'T wash recycling area or outdoor spills into the sewer or storm drain.

DO's OF RECYCLING GREASE

- DO save used cooking oil for recycling in sealed bins or sealed containers by emptying into solid containers that you can easily lift and pour.
- DO combine used oil and grease collected from an **automatic** grease trap with the recycled grease bin/container contents after asking the renderer if its okay to mix the oils.
- DO keep bins and containers sealed, tightly closed or locked to prevent illegal dumping and to keep insects, animals, rainwater and wind out. If the bins and containers are stored outside, keep them under a roof and away from storm drains.
- DO train all employees on spill response and reporting procedures, including use of absorbent materials, proper disposal and reporting overflows or spills to management.

RECYCLED GREASE STORAGE AREA

- Grease bin storage areas should be located greater than 30 feet away from a storm drain.
- Keep area clean by using absorbent sweep or mop and put dirty mop water in the mop sink.
- Keep spill clean-up kits containing rags, absorbent sweep, kitty litter, etc., near the storage area in an accessible location.
- Keep the exterior of the container clean by using absorbent materials to wipe off any noticeable grease.
- Place used absorbent sweep, cat litter, paper towels or similar materials for cleaning in a separate sealed bag before placing it in the trash.

QUESTIONS TO ASK A RENDERER

- Do you provide the containers for the grease?
- How often will the grease be picked up?
- How often are grease bins replaced?
- If you provide them, what size are the containers?
- Do you allow the mixing of "yellow" grease from an **automatic** grease trap with the recycled grease?

See *Licensed Grease Haulers* information sheet for a list of licensed renderers in the Sacramento area.

To order information on the Fats, Oils and Grease Control Program, please contact: 916-875-FATS or visit:

WWW.STOPTHECLOG.COM

Owner / Operator – Food Service Establishment Information Sheet

SELECTING A GREASE HAULER

INTRODUCTION

Restaurant owners and operators are responsible for properly maintaining their outdoor underground grease interceptors. A reputable Grease Hauler can help with maintenance by recommending an appropriate cleaning schedule and notifying you of any mechanical problems with the grease interceptor.

By carefully selecting a licensed Grease Hauler you should:

- Receive the service you paid for
- Ensure grease is properly managed
- Avoid illegal dumping and under bidding
- Reduce the chance of experiencing a sewer overflow
- Avoid sewer and stormwater fines or penalties

SERVICES SHOULD INCLUDE

Services provided by Grease Haulers may vary, but at a minimum, should include:

- Complete removal of grease layer, settled solids and wastewater. Do not accept skimming the top layer of grease only, as debris also collects at the bottom of the interceptor.
- A thorough cleaning, including removing baffle and lid if possible, scraping the sides, lid and baffles to remove as much of the grease as possible and replacing the baffle and lid.
- Proper disposal of grease waste and water at an approved location.
- A contract which states disposal will comply with all federal, state and local laws and regulations.
- A receipt with the date and volume removed.

TIPS

Ask the hauler/pumper to describe their pumping process. Compare costs of service, availability and scheduling. The cost of hauling is charged per gallon of waste and costs will vary, so check with different companies. Ask other restaurants for their opinions and experiences with Grease Haulers/ Recyclers. When possible, witness/observe all activities performed by the Grease Hauler. If the Grease Hauler does not provide adequate answers to your questions, you may want to consider interviewing additional Grease Haulers. Enforcement actions against waste haulers for improperly disposing of waste do occur and many times restaurant owners pay for improper pumping and disposal.

For a list of Sacramento area Grease Haulers/Pumpers/Recyclers, refer to the Yellow Pages under "Grease Traps," "Grease Haulers," "Septic Tanks and Systems" or see the list of **Licensed Grease Haulers**.

Owner / Operator – Food Service Establishment Information Sheet

LICENSED GREASE HAULERS

A-1 Septic Service
P.O. Box 762
West Sacramento, CA 95691
(916) 371-4160

ABC Plumbing, Heating & Air Conditioning
205 22nd Street
Sacramento, CA 95816
(916) 448-0801

Ace Plumbing, Heating &Air
4405 Franklin Blvd.
Sacramento, CA 95820
(916) 422-2333

Advanced Septic Service
6513 Auburn Blvd.
Citrus Heights, CA 95621
(916) 726-5150

All Pumping & Septic
1289 Sonoma Avenue
Sacramento, CA 95815
(916) 925-1333

All Valley Environmental Inc.
523 N. Brawley Avenue
Fresno, CA 93706
(559) 498-8378

Ameriguard Maintenance Services, LLC*
4681 E. Vine Avenue
Fresno, CA 93725
(559) 497-2925

APS Environmental Inc.
6643 32nd Street 103
North Highlands, CA 95660
(916) 454-2000

Best Construction & Maintenance Inc.
8550 Jackson Road
Sacramento, CA 95826
(916) 383-4533

Chucks & Auburn Septic
4504 Yankee Hill Ct.
Rocklin, CA 95677
(916) 624-8500

Cook's Portable Toilets & Septic
1402 Riosa Road
Lincoln, CA 95648
(916) 645-8560

Darling International*
11946 Carpenter Road
Crows Landing, CA 95313
(209) 667-9153

G & C Septic Service
12851 Stockton Blvd.
Galt, CA 95632
(916) 366-1111

Howards Grease Trap Pumping
8185 Cashel Way
Sacramento, CA 95829
(916) 681-0433

Liquid Environmental Solutions of CA
Corporate Office
12626 High Bluff Drive, Suite 240
San Diego, CA 92130-2070
866-694-7327

Roto Rooter Plumbers
2551 Albatross Way
Sacramento, CA 95815
(916) 482-1422

Sacramento Rendering Company* dba SRC Pumping Co.
P.O. Box 276424
Sacramento, CA 95830
(916) 363-4821

Sweet Septic Systems
5701 Mother Lode Drive
Placerville, CA 95667
(916) 622-8768

* Licensed renderer with the California Department of Food and Agriculture

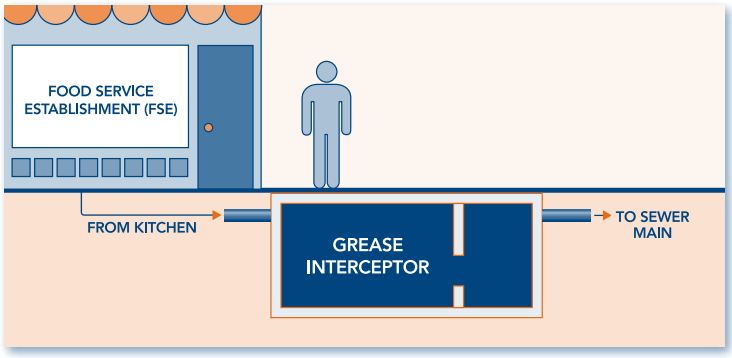
Note: The list of haulers above are licensed by the California State Department of Food and Agriculture. The Sacramento Regional County Sanitation District, County Sanitation District No. 1 and its contributing agencies do not make any representations or warranties, expressed or implied to the fitness, capacity or ability of the licensed Grease Haulers in the above list. The licensed Grease Haulers listed above are listed strictly for your reference purposes and in no way should be considered as an endorsement by the County or the aforementioned Sanitation Districts and their contributing agencies of the services the listed haulers provide and/or their respective compliance records. Prior to the use of any of the Grease Haulers listed above, you should determine the license status of any Grease Hauler you employ. The above list was created in November 2006 and may not be inclusive. Updated lists are available at www.stoptheclog.com.

Owner / Operator – Food Service Establishment Information Sheet

REQUIREMENTS FOR NEW AND REMODELED FOOD SERVICE ESTABLISHMENTS

INTRODUCTION

Fats, oils and grease (FOG) cause serious problems in the sanitary sewer system. FOG sticks to the walls of the pipes when poured down the drain and, over time, restricts the flow until a sewer clog or overflow occurs. These clogs and overflows can create smelly, dirty messes, possibly damaging your business, property, and profits, as well as the environment.



REQUIREMENTS

When constructing a new facility that serves food, also known as food service establishments (FSEs), or remodeling an existing FSE, you may be required to put in an appropriately sized outdoor underground grease interceptor per Uniform Plumbing Code. Before you start a project we recommend you contact your local building department or sewer service provider for grease interceptor construction requirements. To find out who the building department or sewer agency is in your area visit www.stoptheclog.com. For more information on grease interceptors see the **Grease Removal Device** information sheet and the **Grease Removal Device Manufacturers** list. Check with your building department or sewer agency to ensure all plumbing code requirements are met and proper permits are obtained.

OTHER GREASE REMOVAL DEVICES

When FSEs cannot install an outdoor underground grease interceptor due to space limitations, utility line disruption or an inadequate slope of wastewater drainage, the FSE can request a variance from the building department or sewer agency. The building department or sewer agency will decide if factors exist that do not allow installation of a grease interceptor and may allow installation of another type of grease removal device, such as a grease trap.

INSPECTIONS, FINES, PENALTIES

Your facility may be inspected at any time by the authority with jurisdiction to ensure proper maintenance of the grease removal equipment and proper disposal of grease waste. If a sanitary sewer overflow occurs, your facility could be held responsible for clean up costs and potentially be assessed fines and penalties.

GREASE REMOVAL DEVICE MANUFACTURERS

Areo Power Unitized Fueler Inc.
103 Smithtown Blvd.
Smithtown, NY 11787
(800) 242-AREO
www.areotank.com

Big Dipper® Thermaco, Inc. Sales Affiliates
(800) 633-4204
www.big-dipper.com

Grease Gard
FOG Environmental, LLC
P.O. Box 939
Newberg, OR 97132
(888) 364-3684
www.greasegard.com

Jensen Precast
5400 Raley Blvd.
Sacramento, CA 95838
(916) 991-8800
(800) 843-9569
www.jensenprecast.com

Josam Co.
525 W. US Hwy 20
Michigan City, IN 46360
(800) 365-6726
www.josam.com

Light Commercial Products
2640 South Work Street
Falconer, NY 14733-1716
(716) 665-1132
Fax: (716) 665-1135
www.zurn.com

Oldcastle Precast Group
www.oldcastle-precast.com
Pleasanton, CA
(925) 846-8183

Sweet Septic
5701 Mother Lode Drive
Placerville, CA
(800) 622-8768

Zurn Plumbing Products
1801 Pittsburg Ave.
Eric, PA 16502
(814) 445-0921
www.zurn.com

Green Turtle (USA)
201 South Tryon Street, Suite 1475
Charlotte, NC 28202
(877) 428-8187
www.greenturtletech.com

Note: Neither the County of Sacramento nor the Sacramento Regional County Sanitation District, County Sanitation District No. 1. and its contributing agencies make any representations or warranties, expressed or implied to the fitness, capacity or ability of the Grease Removal Device Manufacturers set forth in the above list. The Grease Removal Device Manufacturers listed above are listed strictly for your reference purposes and in no way should be considered as an endorsement by the County or the aforementioned Sanitation Districts and their contributing agencies of the services the listed manufacturers provide and/or their respective compliance records. The above list was created in November 2006 and may not be inclusive. Updated lists are available at www.stoptheclog.com.

Food Service Establishment

EMPLOYEE QUIZ

QUESTIONS

1. Why is pouring fats, oils and grease (FOG) down the drain a problem?
   - A) It can cause a sewer overflow.
   - B) It clogs the drain.
   - C) It may result in expensive fines and cleanup.
   - D) All of the above

2. Which of the following is NOT a Best Management Practice (BMP)?
   - A) Wipe or scrape food before washing.
   - B) Wash spilled oil down the drain.
   - C) Use absorbent materials to clean up FOG related spills.
   - D) Use easy to clean and removable screens in all drains and sinks.

3. What is the purpose of a grease removal device?
   - A) To separate FOG from wastewater before water enters sewer.
   - B) To pump grease from kitchen equipment into the trash.
   - C) To store kitchen grease.
   - D) All of the above

4. How often should the grease interceptor be pumped?
   - A) 5 times a day
   - B) at least monthly
   - C) 4 times a year
   - D) once a year

5. You should always use water to clean FOG spills.
   - A) True
   - B) False

6. An automatic indoor grease trap should be maintained two times per week.
   - A) True
   - B) False

7. Where should grease and oil be recycled?
   - A) grease recycling bin
   - B) trash cans
   - C) down the sink
   - D) in a paper bag

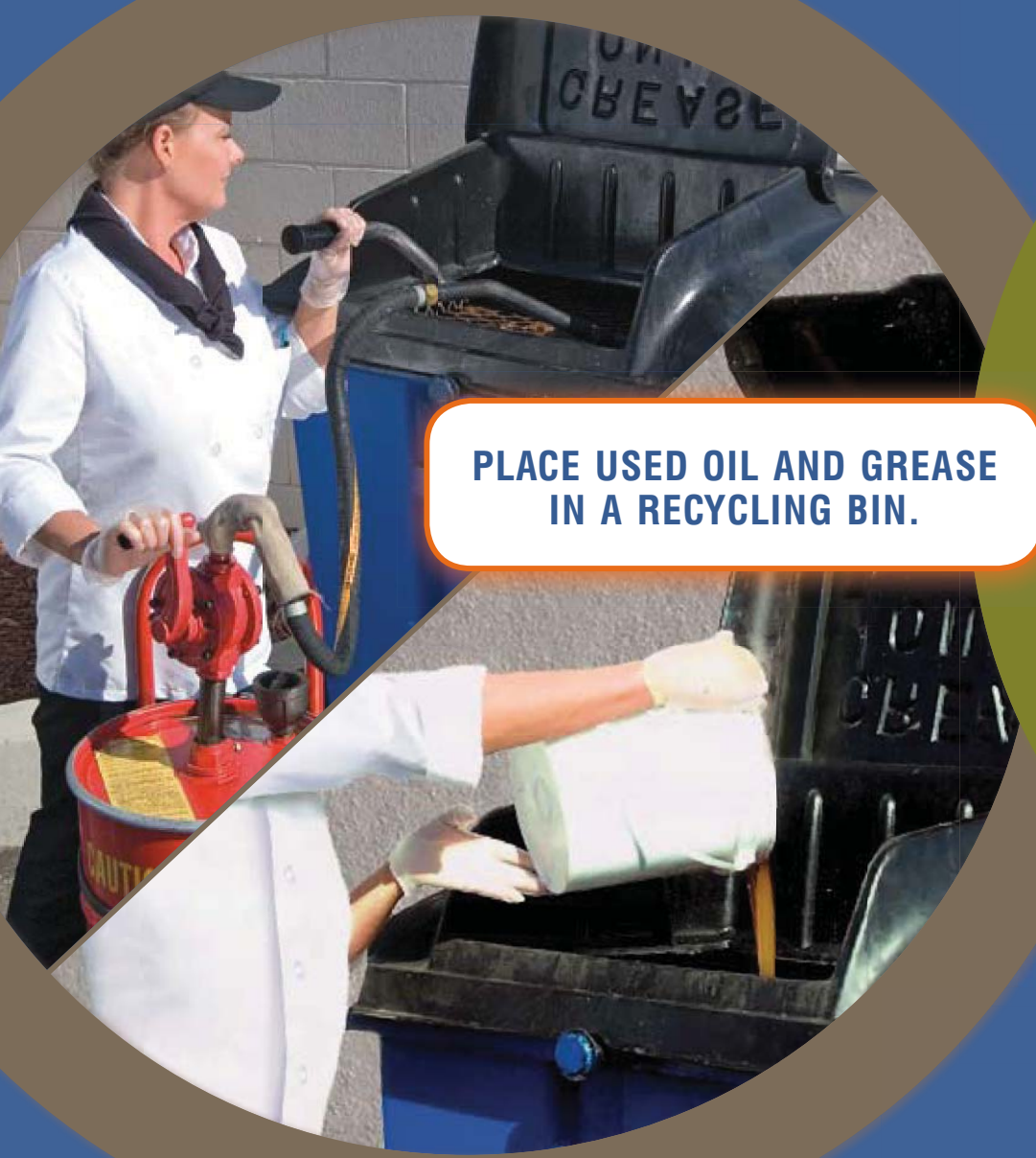
8. What are two types of indoor grease traps?
   - A) neutral and automatic
   - B) computer and automatic
   - C) manual and automatic
   - D) foreign and manual

1) D: Pouring fats, oils and grease (FOG) down drains can lead to all of the results listed. If FOG gets into storm drains then it could result in expensive fines and cleanup. Sewer pipes can get clogged from FOG and can result in a sewer overflow. **2)** B: Oil should never be washed down the drain. **3)** A: Grease removal devices help prevent FOG going into sewer lines. **4)** B: Grease interceptors need to be checked at least once a month to make sure it is not full. **5)** B: Water should never be used to clean FOG spills, because it will end up down the drain. Use absorbent materials and throw them away in the trash bin after the spill is cleaned. **6)** B: Automatic indoor grease traps should be cleaned daily. **7)** A: Grease and oil should be recycled in a grease recycling bin located in a well maintained storage area. **8)** manual and automatic.

PROPER DISPOSAL OF FATS, OILS AND GREASE

TOP BEST MANAGEMENT PRACTICES (BMPS)

FATS · OILS · GREASE CLOGS CONTROL PROGRAM



PLACE USED OIL AND GREASE IN A RECYCLING BIN.

DRY WIPE ALL FOOD WASTE FROM DISHWARE, COOKWARE AND WORK AREAS INTO THE GARBAGE.

KEEP ALL SPILLED GREASE OR OIL FROM GOING DOWN DRAINS BY USING ABSORBENT MATERIALS TO BLOCK AND CLEAN UP SPILLS.

KEEP GREASE TRAPS AND INTERCEPTORS CLEAN.

To order information on the Fats, Oils and Grease Control Program, please contact: 916-875-FATS or visit:

WWW.STOPTHECLOG.COM

Residential Fact Sheet

Fats, Oils and Grease (FOG) Control Program

What is this program?	The Fats, Oils and Grease (FOG) Control Program is designed to reduce the number of sewer pipe blockages and related overflows by educating residents about properly disposing of fats, oils and grease.
What food items are considered fats, oils and grease?	Fats, oils and grease are natural by-products of the cooking and food preparation process. Common sources include food scraps, meat fats, cooking oils, lard, baked goods, salad dressings, sauces, marinades, dairy products, shortening, butter and margarine.
Why is it important to properly dispose of fats, oils and grease?	Preventing grease-related sewer blockages and overflows benefits your home, your pocketbook and the environment. The build up of fats, oils and grease in the sewer system eventually results in sewer backups that can overflow onto streets and even into homes, damaging properties and the environment. Approximately 80 percent of grease-related sewer blockages and overflows occur in residential areas. Sewer system maintenance in neighborhoods that experience sewer blockages due to fats, oils and grease is expensive and can contribute to the amount that customers pay for sewer service.
What are the proper methods for disposing of fats, oils and grease in the kitchen?	**Proper disposal is easy!** 1. Fats, oils and grease should **never** be poured down the sink. Sink drains and garbage disposals are not designed to properly handle these materials. 2. Before washing, scrape and dry wipe pots, pans and dishes with paper towels and dispose of materials in the trash. 3. Pour fats, oils and grease after it has cooled into a container, such as an empty glass jar or coffee can. Once the container is full, secure the lid and place it in the trash. For large volumes, contact your local agency for recycling options. 4. Use sink strainers to catch food items, then empty the strainer into the trash.
Who is sponsoring this program?	Sacramento Regional County Sanitation District (SRCSD), County Sanitation District 1 (CSD-1) and the cities of Folsom, Sacramento and West Sacramento have formed a regional partnership to educate residents about proper disposal of fats, oils and grease.
How can I get more information?	For more information about the Fats, Oils and Grease Control Program, please visit **www.stoptheclog.com** or contact:

SRCSD and CSD-1 *Includes Citrus Heights, Elk Grove, Rancho Cordova and unincorporated areas of Sacramento County* (916) 876-6000	City of Folsom (916) 355-7272
	City of Sacramento (916) 264-5001
	City of West Sacramento (916) 617-4850

www.stoptheclog.com

FATS·OILS·GREASE
CLOGS
CONTROL PROGRAM
stoptheclog.com
Can your
fats, oils and
grease

Your Neighborhood Can Help Stop the Clog!

Sewer blockages have occurred in your neighborhood.

Sewer maintenance crews have performed work in your area. Please read the information below for ways to help prevent blockages in the future.

Preventing sewer blockages benefits your home, your pocketbook and the environment. Remember that every household plays an important role in preventing neighborhood sewer blockages.

The build-up of fats, oils and grease—which include cooking oils, salad dressings, sandwich spreads, meat juices, meat fat and other similar products—eventually results in sewer backups that can overflow onto streets and even into the home, damaging properties and the environment.

Take action!

You can do your part by properly disposing of fats, oils and grease.

- **Never pour** fats, oils and grease down the sink or garbage disposal.
- **Before washing, scrape and dry wipe** pots, pans and dishes with paper towels and dispose of materials in the trash.

- **Pour fats, oils and grease after it has cooled into a container,** such as an empty glass jar or coffee can. Once the container is full, secure the lid and place it in the trash.*
- **Use sink strainers** to catch food items, then empty the strainer into the trash.

* For larger volumes, contact your local agency for recycling options.

FATS · OILS · GREASE CLOGS CONTROL PROGRAM

A partnership between the Sacramento Regional County Sanitation District, County Sanitation District 1 and the cities of Folsom, Sacramento and West Sacramento.*

**Includes Citrus Heights, Elk Grove, Rancho Cordova and unincorporated areas of Sacramento County.*

For more information about this program, contact:
Sacramento Regional County Sanitation District and
County Sanitation District 1 — (916) 876-6000

www.stoptheclog.com

FATS·OILS·GREASE
CLOGS
CONTROL PROGRAM
stoptheclog.com
Can your fats, oils and grease

Can your fats, oils and grease

FATS·OILS·GREASE CLOGS CONTROL PROGRAM

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Beware of the Clog!

The Fats, Oils and Grease (FOG) Program is designed to provide you with the tools and knowledge to help prevent the "Clog" from visiting your home or business and causing a sewage backup or overflow.

Some common FOG found in kitchens includes cooking oils, condiments such as salad dressings and sandwich spreads, meat juices and fat. When FOG is poured down drains and garbage disposals, it can cause blockages (see video), which can cause the sewer to back up into your home or business through sinks, drains and toilets. Cleaning and plumbing repairs associated with these back ups can be very expensive and disruptive.

Whether you're a business that generates FOG or a resident of the Sacramento area, you're encouraged to do your part to help prevent sewer blockages. Doing so will benefit your home, your pocketbook and your community.

The FOG Program is a joint partnership between the Sacramento Regional County Sanitation District, Sacramento Area Sewer District (includes the cities of Citrus Heights, Elk Grove, Rancho Cordova and unincorporated areas of Sacramento County) and the cities of Folsom, Sacramento and West Sacramento.

For more details about the FOG Program click here.

National Award for FOG Program

The Fats, Oils and Grease (FOG) Program was recently awarded the 2008 National Environmental Achievement Award in the Public Information and Education - Educational Program category by the National Association of Clean Water Agencies (NACWA). The award is for the FOG Control Program Information Kit, a collaborative effort between the Cities of Folsom, Sacramento, and West Sacramento, Sacramento Area Sewer District, and Sacramento Regional County Sanitation District (SRCSD).

NACWA represents the interests of over 300 public agencies and organizations that have made the pursuit of scientifically based, technically sound and cost effective laws and regulations their objective. NACWA members serve the majority of the sewered population in the United States and collectively treat and reclaim more than 18 billion gallons of wastewater daily.

If you live outside of the Sacramento Regional County Sanitation District service area, please refer to your local sewer service provider for proper disposal techniques.

HOME | SEARCH | CONTACT US
About Us | Projects | Education | Sewer Problems | Rates & Fees
Facts & Info | Financial Info | Wastewater Treatment | The Environment

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Revised: December 2, 2008

Versión Español

Food Service Establishments: Building Departments

Citrus Heights
(916) 727-4760

Elk Grove
(916) 478-2235

Folsom
(916) 351-3555

Rancho Cordova
(916) 851-8760

Sacramento (City)
(916) 808-5656

Sacramento (Unincorporated County)
(916) 874-6141

West Sacramento
(916) 617-4645

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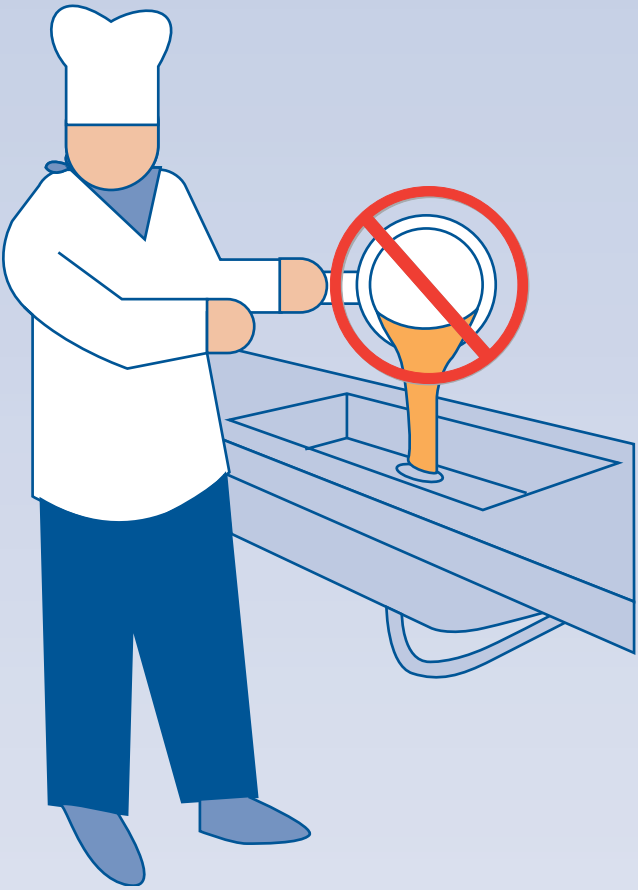
City of San Francisco
FOG Outreach Materials

San Francisco Public Utilities Commission - **Fats, Oils And Grease Reduction Program**

SFPUC

WATER
HETCH HETCHY
WATER & POWER
CLEAN WATER

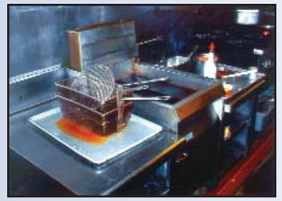


Eliminate Fats Oils & Grease

From our

SEWERS

Fats, Oils and Grease CLOG THE SEWERS!



Sewage backups and overflows are often the result of grease buildup, which can lead to costly clean ups and repairs, as well as public health concerns.

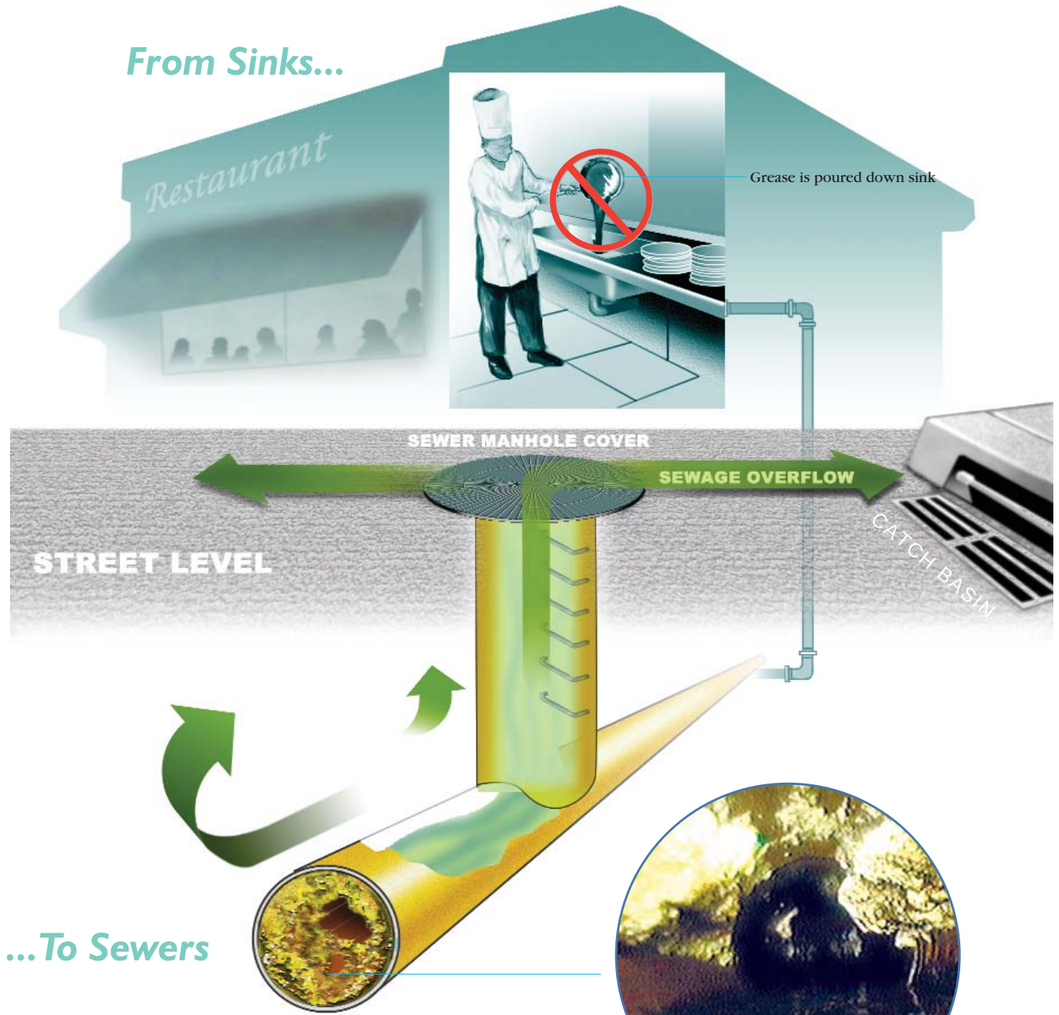
Restaurants and other food handling facilities that may not have the proper management practices in place are a primary source of fats, oils and grease (FOG) entering San Francisco's sanitary sewer system.

FOG is a byproduct of cooking that can be found in:

- Food Scraps
- Meat Fats
- Lard
- Cooking Oil
- Butter and Margarine
- Baking Goods
- Sauces
- Dairy Products

When FOG is repeatedly washed down sink or floor drains in food preparation areas, it can accumulate in your plumbing system (the pipes on your property) and can also reach the pipes in the City sewer system.

When not disposed of properly, enough FOG can buildup in the City sewer system to block the entire pipe, causing sewage backups and overflows.



GREASE BUILDUP - Actual photo of sewer pipe interior taken by remote controlled camera showing grease buildup.

The City and County of San Francisco gratefully acknowledges the Bureau of Sanitation of the City of Los Angeles, Department of Public Works for select artwork used in the SFPUC FOG reduction program brochure.

FOG Affects Everyone

Your Business:

- As FOG builds up in sewer pipes, the accumulated food particles attract insects and vermin and also cause odor problems and public health hazards.
- You could be responsible for expensive plumbing repairs and property damage resulting from FOG accumulated in the side-sewer vents (i.e., pipes) that connect your business to the City sewer.
- Health code violations or closures caused by sewage backups can greatly impact your business operations.

The Environment:

- FOG buildup in the sewer can lead to overflows onto City streets.
- Sewage overflows near local water bodies, such as the Bay and Pacific Ocean can impact water quality and marine life.

The City & County of San Francisco:

- Each month the City receives dozens of calls reporting sewer blockages and overflows, leading to costly maintenance and the potential for fines from regulatory agencies.
- Maintenance and repair costs related to sewer lines clogged by FOG could lead to increased sewer fees.

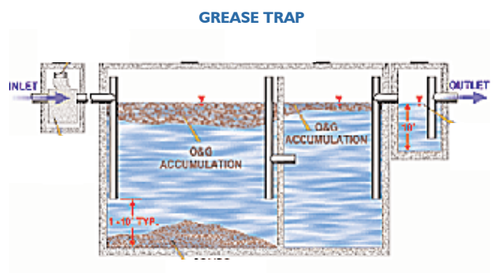
Sewer Grease_Commercial2.qxd 6/30/2004 11:24 AM Page 1

Prevention Methods FOG FREE SEWERS

To help prevent sewage backups and overflows, FOG must be kept out of sewers by controlling it at the source. Here's how:

- Implementation of Best Management Practices (BMP) during daily operations to keep FOG out of drains leading to the sewer.
  - Use "dry" clean-up methods – scrape grease and food from plates, trays, pots, cookware, utensils, and other cooking surfaces into the trash for disposal.
  - Do not pour grease down sinks or floor drains. Instead, recycle as much used grease as possible.
  - Post "No Grease" signs over sink and floor drains.
  - Train all of your employees on proper handling of used fats, oils and grease.

- Installation, where required, of a properly sized grease trap or interceptor that can handle the amount of FOG residue usually generated by the establishment.
- Proper maintenance of grease traps or interceptors, exhaust hood filters, and floor mats.
- Practicing caution when using chemicals and additives (including soaps and detergents) that claim to dissolve grease. Some additives simply pass grease down pipes where it can clog sewer lines in other areas.



FOG Reduction Checklist

Remember, restaurants and food handling establishments are responsible for minimizing how much of their FOG is entering San Francisco's sanitary sewer system. Follow this quick self-assessment checklist to see if your business is properly managing fats, oils and grease.

- Have employees all been trained on Best Management Practices for fats, oils and grease handling, cleanup, and storage?
- Do employees remove food waste with "dry" clean-up methods such as scraping, wiping, or sweeping before using "wet" methods that use water?
- Does your business have a grease trap (inside) or interceptor (outside) in order to ensure that wastewater discharges do not exceed the current City limits for oil and grease?
- Is your grease trap or interceptor being cleaned by staff or a contractor on a regular basis?
- Are exhaust hood filters, floors mats, floors and grills cleaned so that wash water does not go into the sewer without first going through a grease trap or interceptor?
- Are only licensed companies used to haul away and/or recycle fats, oil and grease?

For a complete FOG Reduction Self-Assessment Checklist, visit:
http://pollutionprevention.sfwater.org

FOG Reduction Program RESOURCES

The SFPUC FOG Reduction Program can assist restaurants and food handling facilities with the following resources, available in English, Spanish and Chinese:

- FOG Best Management Practices Guide
- FOG Posters
- FOG Self-Assessment Checklists
- NO GREASE signs (for above sink and floor drains)
- Guidance on sizing of grease traps and interceptors
- General technical assistance with FOG-related questions

Report Sewer Backups

- From 8:00 a.m. to 5:00 p.m. call (415) 695-2096
- Outside of the hours above, call (415) 695-2020

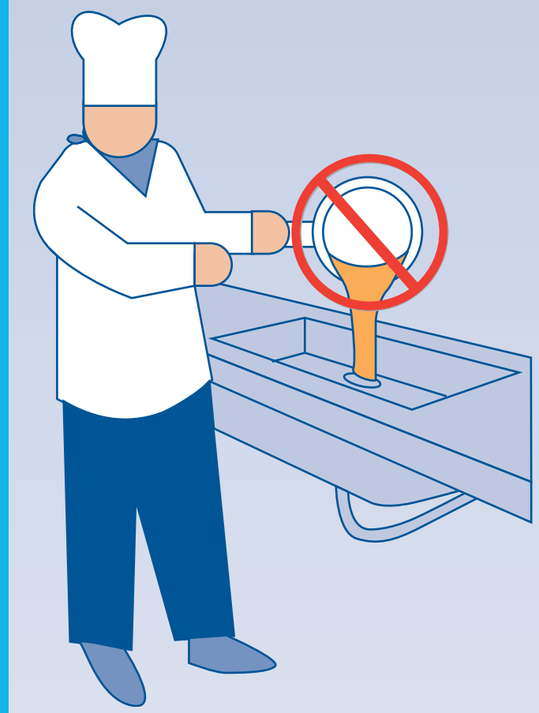
FOR INFORMATION

For information on the San Francisco FOG Reduction Program, please call the San Francisco Public Utilities Commission (SFPUC), Bureau of Environmental Regulation and Management (BERM) at (415) 695-7310 or visit us at *http://pollutionprevention.sfwater.org*

Published by SFPUC COMMUNICATIONS 6/2004

San Francisco Public Utilities Commission - **Fats, Oils And Grease Reduction Program**

SFPUC
WATER
HETCH HETCHY WATER & POWER
CLEAN WATER

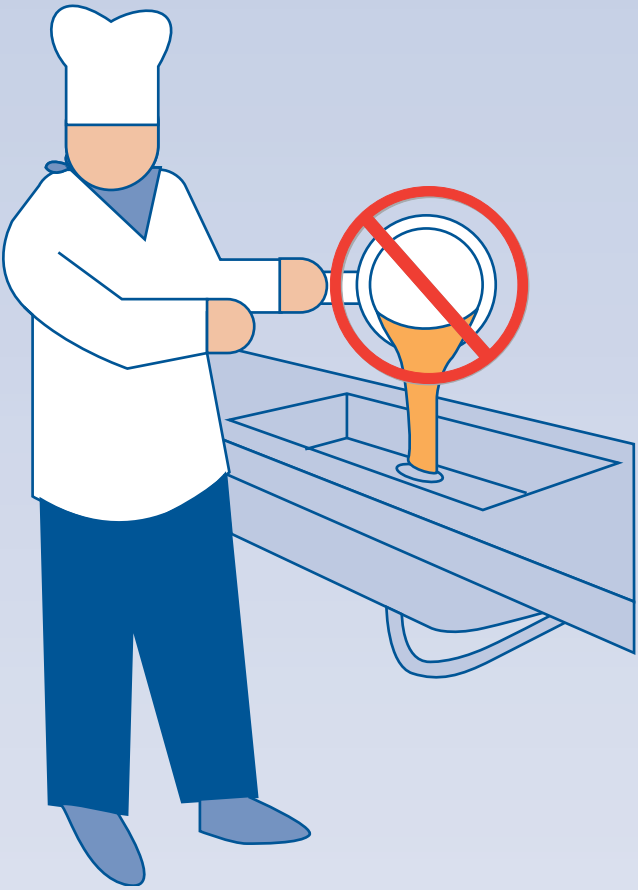


Eliminate Fats Oils & Grease From our SEWERS

San Francisco Public Utilities Commission - **Fats, Oils And Grease Reduction Program**

SFPUC

WATER
HETCH HETCHY
WATER & POWER
CLEAN WATER

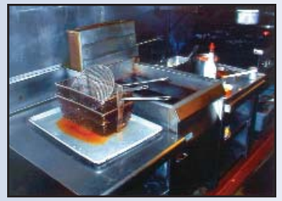


Eliminate Fats Oils & Grease

From our

SEWERS

Fats, Oils and Grease CLOG THE SEWERS!



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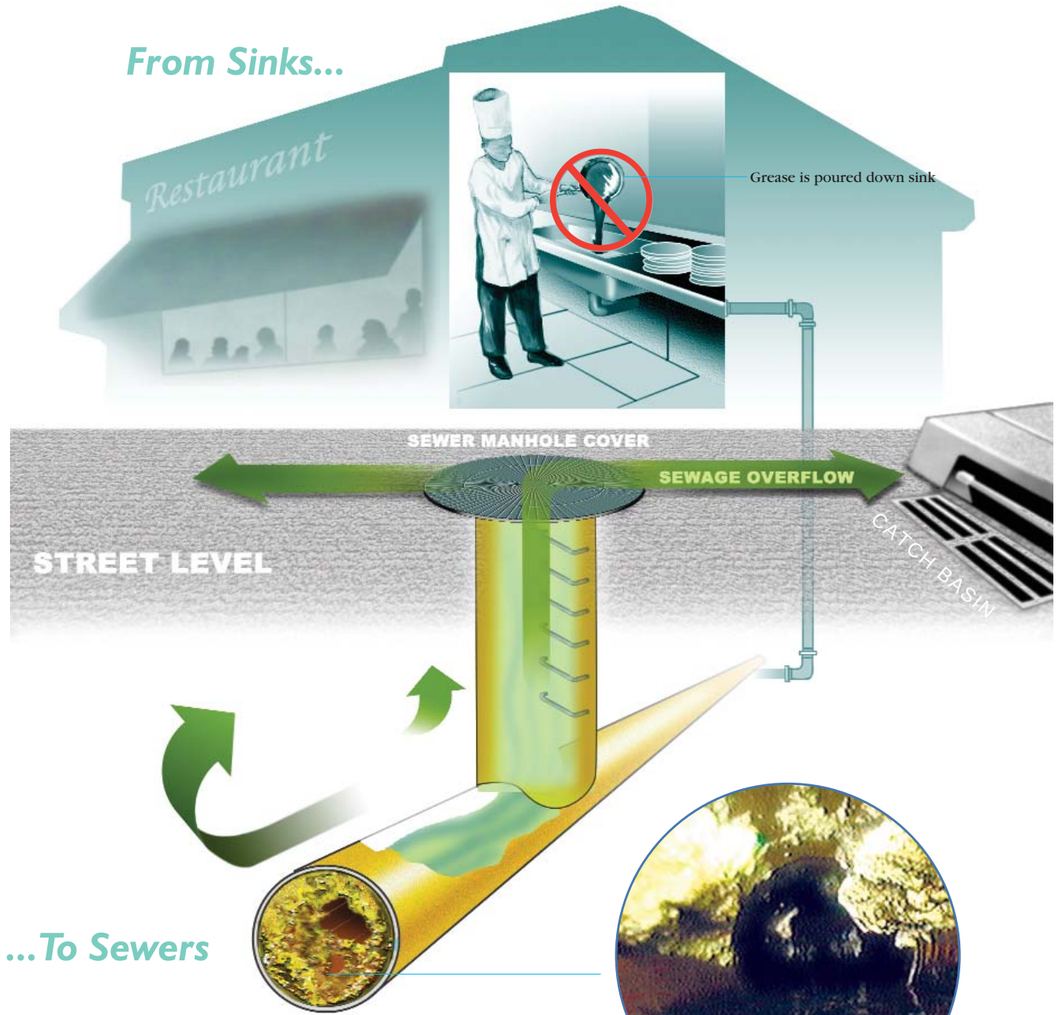

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The Environment:

- FOG buildup in the sewer can lead to overflows onto City streets.
- Sewage overflows near local water bodies, such as the Bay and Pacific Ocean can impact water quality and marine life.

The City & County of San Francisco:

- Each month the City receives dozens of calls reporting sewer blockages and overflows, leading to costly maintenance and the potential for fines from regulatory agencies.
- Maintenance and repair costs related to sewer lines clogged by FOG could lead to increased sewer fees.

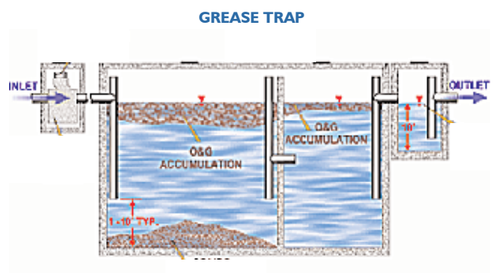
Sewer Grease_Commercial2.qxd 6/30/2004 11:24 AM Page 1

Prevention Methods FOG FREE SEWERS

To help prevent sewage backups and overflows, FOG must be kept out of sewers by controlling it at the source. Here's how:

- Implementation of Best Management Practices (BMP) during daily operations to keep FOG out of drains leading to the sewer.
  - Use "dry" clean-up methods – scrape grease and food from plates, trays, pots, cookware, utensils, and other cooking surfaces into the trash for disposal.
  - Do not pour grease down sinks or floor drains. Instead, recycle as much used grease as possible.
  - Post "No Grease" signs over sink and floor drains.
  - Train all of your employees on proper handling of used fats, oils and grease.

- Installation, where required, of a properly sized grease trap or interceptor that can handle the amount of FOG residue usually generated by the establishment.
- Proper maintenance of grease traps or interceptors, exhaust hood filters, and floor mats.
- Practicing caution when using chemicals and additives (including soaps and detergents) that claim to dissolve grease. Some additives simply pass grease down pipes where it can clog sewer lines in other areas.



FOG Reduction Checklist

Remember, restaurants and food handling establishments are responsible for minimizing how much of their FOG is entering San Francisco's sanitary sewer system. Follow this quick self-assessment checklist to see if your business is properly managing fats, oils and grease.

- Have employees all been trained on Best Management Practices for fats, oils and grease handling, cleanup, and storage?
- Do employees remove food waste with "dry" clean-up methods such as scraping, wiping, or sweeping before using "wet" methods that use water?
- Does your business have a grease trap (inside) or interceptor (outside) in order to ensure that wastewater discharges do not exceed the current City limits for oil and grease?
- Is your grease trap or interceptor being cleaned by staff or a contractor on a regular basis?
- Are exhaust hood filters, floors mats, floors and grills cleaned so that wash water does not go into the sewer without first going through a grease trap or interceptor?
- Are only licensed companies used to haul away and/or recycle fats, oil and grease?

For a complete FOG Reduction Self-Assessment Checklist, visit:
http://pollutionprevention.sfwater.org

FOG Reduction Program RESOURCES

The SFPUC FOG Reduction Program can assist restaurants and food handling facilities with the following resources, available in English, Spanish and Chinese:

- FOG Best Management Practices Guide
- FOG Posters
- FOG Self-Assessment Checklists
- NO GREASE signs (for above sink and floor drains)
- Guidance on sizing of grease traps and interceptors
- General technical assistance with FOG-related questions

Report Sewer Backups

- From 8:00 a.m. to 5:00 p.m. call (415) 695-2096
- Outside of the hours above, call (415) 695-2020

FOR INFORMATION

For information on the San Francisco FOG Reduction Program, please call the San Francisco Public Utilities Commission (SFPUC), Bureau of Environmental Regulation and Management (BERM) at (415) 695-7310 or visit us at *http://pollutionprevention.sfwater.org*

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San Francisco Public Utilities Commission - **Fats, Oils And Grease Reduction Program**

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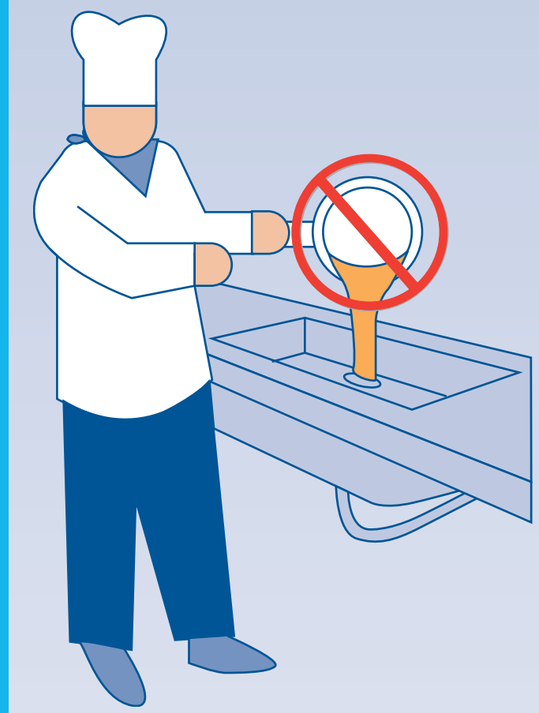


Eliminate Fats Oils & Grease From our SEWERS

SFPUC
Water
Hetch Hetchy
Water & Power
Clean Water

San Francisco Public Utilities Commission

San Francisco FOG Program

Fats, Oil and Grease

San Francisco
Water Pollution
Prevention Program

FOG (fats, oil and grease) is a major problem in San Francisco's sewers. When not disposed of properly, FOG forms thick layers inside sewers constricting flow, similar to the way cholesterol affects blood flow in our arteries. Clogged sewers result in sewage spills and overflows. FOG also attracts flies and vermin and causes odor problems, which creates environmental and public health concerns.

Improper cleanup practices allow food particles, oil and grease, and cleaning products to flow to the sanitary sewer. In certain parts of San Francisco FOG can enter storm drains and flow directly to the ocean and bay causing serious pollution.

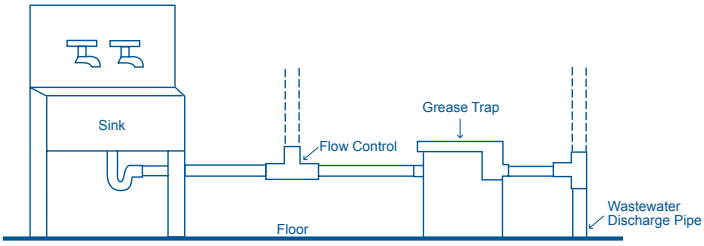
Restaurants are a significant source of FOG because of the amount of grease used in cooking and other food prep work.

The following sections provide Best Management Practices (BMPs), which greatly reduce the amount of FOG entering the city's sewers and storm drains. By doing your part you can contribute to a cleaner and healthier San Francisco.

HOW GREASE TRAPS AND INTERCEPTORS WORK

Every business that disposes of FOG (restaurants, food handling operations, hospitals, day care and senior centers) should have a grease trap or interceptor to prevent these materials from entering and clogging sewer lines. The diagram below shows a typical grease trap. Grease traps are typically indoor fixtures located under or near the sink. A grease interceptor is much larger and is usually located in a vault outside of the premises. Both traps and interceptors work under the same principle.

Grease traps and interceptors work by separating the grease and oils from wastewater. Greasy wastewater entering the trap passes through a vented flow control fitting that regulates the flow of the wastewater. The wastewater then passes over a series of separator baffles, or regulating devices within the trap, that separate fats, oil and grease. The FOG then floats to the top of the trap and accumulates until it is manually removed. Solids accumulate at the bottom of the trap and must also be manually removed. The wastewater continues to flow through the trap into a discharge pipe, and from there to the city's sewer system.



MAINTAINING YOUR GREASE TRAP

Grease traps should be cleaned on a regular basis. This is a simple procedure that can take as little as five minutes. Grease traps can be cleaned by in-house staff or by a licensed grease hauler or recycler. The interval between cleaning depends on the individual establishment. A good rule of thumb is to clean grease traps weekly. If grease traps are more than 25% full of solids when cleaned weekly, the cleaning frequency must be increased. Management should witness or inspect the cleaning to ensure it is done properly.

1. Make sure that all flow is stopped to the trap by shutting the isolation valve located in the inlet piping to the trap.
2. Remove the cover of the trap and scoop out any fats, oil and grease that has collected on top.

Deposit the fats, oil and grease in a grease recycling container. Most FOG can be recycled, and should be collected by a fat renderer or other grease recycling company. Check the phone book under “Grease Traps” for the name and location of such companies.

3. Bail out the water remaining in the trap to facilitate cleaning, discharging it to the sanitary sewer system.
4. Remove baffles if possible.
5. Scrape the sides, the lid and the baffles with a putty knife to remove as much of the FOG as possible and deposit it in a grease waste container. This grease (solids collected on the bottom and sides) is not recycled and is treated as waste. It should not be thrown in the trash and should be hauled away.
6. Replace the baffle and lid.
7. Record the volume of grease removed on the maintenance log.
8. Keep a maintenance log. Keep it up to date and readily accessible. This serves as a record of the cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce costs.

If the trap is not cleaned frequently or correctly it will not perform properly and could put your establishment at risk of violating the city’s sewer use ordinance, which could lead to enforcement and fines.

BACTERIAL AND ENZYME PRODUCTS

Manufacturers of bacterial additives claim that their products break down grease and enhance the performance of grease traps and interceptors. Such additives cannot be substituted for a grease trap or interceptor, nor should they reduce your frequency of regular maintenance and inspection. It is important to note that high temperature, high or low pH levels, sanitizers and other cleaning products can render them ineffective.

In addition these products can emulsify FOG, which simply keeps grease and oil in suspension and allows it to flow to the sewer system where it can resolidify.

MAINTAINING YOUR GREASE INTERCEPTOR

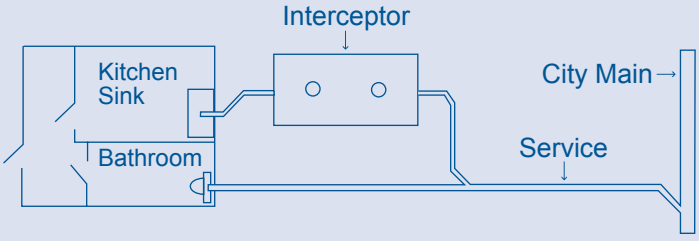
A grease interceptor is a concrete chamber or vault located outside of the premises. The minimum size is 750 gallons.

A licensed grease hauler or recycler should perform grease interceptor maintenance. The interceptor vaults require special training and equipment. It is very important that a restaurant representative be present during any cleaning, pumping, or skimming performed by a contractor to ensure that no shortcuts are taken. **The minimum services should include:**

- Complete pumping and cleaning of the interceptor and sample box, not just skimming the grease layer.
- Deodorizing and thorough cleaning of affected areas, as necessary.
- Disposal or reclamation of grease and oil at an approved location.
- Refilling the vault with clean water, not with water already pumped out.

The cleaning frequency depends on the individual establishment. Interceptors require cleaning at least every six months. However, that frequency depends on the capacity of the device, the amount of grease in the wastewater, and the degree to which the facility has contributed to blockages in the past. Thus, the frequency can range from every two weeks to every six months. *If the interceptor is not cleaned frequently or correctly, it will not perform properly. This could put your establishment at risk of violating the city's sewer use ordinance, which could lead to enforcement and fines.*

Careful recordkeeping is one the best ways to ensure that your grease interceptor is being cleaned and maintained on a regular basis. A Cleaning Verification Form is provided in the back of this brochure for your convenience.



FOG PREVENTION AND CLEANUP

Remove food waste with “dry” cleanup methods such as scraping, wiping, or sweeping before using “wet” methods that use water. Wet methods typically wash the water and waste materials into the drains where they eventually collect on the interior walls of the drainage pipes. Do not pour FOG down the drain and do not use the sinks to dispose of food scraps.

To practice dry cleanup:

- Use rubber scrapers to remove FOG from cookware, utensils, chafing dishes and serving ware.
- Use absorbent material to soak up oil and grease under fryer baskets.
- Use paper towels to wipe down work areas. Cloth towels will accumulate grease and oil that will eventually end up in your drains from towel washing and rinsing.
- Keep water temperature at or below 140 degrees F when using “wet” clean up techniques.
- Post “NO GREASE” signs at appropriate locations.

SPILL CLEANUP PLAN

Each establishment should have a spill cleanup plan that includes:

- Procedures for different types of spills.
- Schedule of training and refreshing employees about the procedures.
- Cleanup kits in well marked, accessible locations.
- Designation of a key employee who monitors cleanup.
- A printed plan posted in the work area.

EXHAUST HOOD FILTERS & FLOOR MATS

FOG accumulates in exhaust hood filters and deposits on the roof. When it rains, runoff from the roof flows into the sanitary sewers and storm drains.

Exhaust hood filters should be cleaned on a regular basis. Again, the rule of thumb is to clean when there is excessive FOG buildup. If the filters are cleaned on the premises, make sure the runoff from the filters flows through the grease trap or interceptor.

Most facilities will contract with a service company to professionally clean large filters. Small hoods can be cleaned with spray detergents and wiped down with non-cloth material for cleaning. Spraying hot water with little or no detergent over a mop sink connected to a grease trap or interceptor can effectively clean hood filters. After a hot water rinse (separately trapped), filter panels can go into the dishwasher. For hoods to operate properly in the removal of grease-laden vapors, the ventilation system will also need to be balanced with sufficient make-up air.

When possible, floor mats should be cleaned inside the premises inside a mop sink connected to a grease trap or interceptor. When cleaning outside, runoff should be directed to the sanitary sewer and away from storm drains.

FOG RECYCLING AND HAULING

There are two types of FOG generated by a restaurant or other food service establishment:

"Yellow grease" is a type of grease that can be recycled. It is generated from pots, pans, grills, and deep fat fryers and comes from butter, lard, vegetable fats and oils, meats, nuts, and cereals. Rendering facilities take this grease and recycle it for use as animal feed additives, in soap production, oils, cosmetics and skin care products, and in composting.

"Brown grease" is the kind of grease collected in a grease trap or interceptor. It is not recyclable and must be disposed of only at landfills that accept this type of waste, or at some other facility designed to handle it.

Contract with a licensed company to haul away and/or recycle fats, oil and grease. These companies often clean grease traps and interceptors as well. As stated in section 2, only licensed haulers and recyclers should clean grease interceptors.

Recyclers and haulers usually provide storage containers, most often 25-gallon drums, to store oil and grease on the premises before it is picked up for hauling.

The following BMPs provide guidance on the storage of fats, oil and grease:

1. Cover outdoor grease and oil storage containers. Uncovered grease and oil storage containers can collect rainwater and overflow.
2. Place grease and oil storage containers away from storm drains and catch basins.
3. Use absorbent pads or other material to create a berm to catch grease and oil if containers must be located near a storm drain or catch basin. Avoid using free flowing materials such as kitty litter or saw dust.
4. Have a spill prevention plan in place. Empty containers before they are full to avoid spills. Use a cover to transport grease trap and interceptor contents to a grease storage container. Provide employees with the proper equipment (ladles, containers, etc.) to transport materials without spilling.

QUESTIONS TO ASK A RENDERER OR HAULER

1. Do you provide collection containers?
2. Do you provide transportation?
3. Can I expect revenue for my material? If not, what is your service fee?
4. What are your specifications? What constitutes contamination?
5. If there is a problem, who should I contact?

San Francisco has a comprehensive and established composting program available to restaurants. In addition, the city has a Food Donation Program available. Sunset Scavenger and Golden Gate Disposal & Recycling collect food scraps, food soiled paper and plants/green waste daily from restaurants participating in the program. Participating restaurants receive a 25% discount on their garbage rates.

Golden Gate Disposal and Recycling *(Marina, Pacific Heights, Cow Hollow, Russian Hill, Chinatown, Nob Hill, and South of Market)*
(415) 626-4000

Sunset Scavenger *(Sunset, Richmond, Sea Cliff, Western Addition, Haight Ashbury, Twin Peaks, Castro, Mission, Bernal Heights, Potrero Hill, Bayview Hunters Point)*
(415) 330-1300

EXCESS EDIBLE FOOD CAN BE DONATED TO:

San Francisco Food Bank *(for perishable fresh produce, bread and other packaged food)*
(415) 282-1900

Food Runners *(for prepared, perishable and frozen food)*
(415) 929-1866

Employee Training in the Best Management Practices discussed earlier is an essential part in controlling and reducing the amount of FOG a restaurant generates. High employee turnover in the food industry makes regular training even more important.

- ➪ Discuss good BMP practices with all employees at least quarterly.
- ➪ Systematically inform new employees about these best management practices.
- ➪ Post cleanup guidelines and the name of each shift's designated spill cleanup monitor in a visible location.
- ➪ Complete the checklist below and share it with employees.
- ➪ Post "NO GREASE" signs at appropriate locations.

GENERAL INFORMATION

- ☐ All management personnel have reviewed this brochure.
- ☐ All employees have been advised of these BMPs.

Grease Traps / Interceptors

- ☐ A grease trap is located inside the facility.
- ☐ A grease interceptor is located outside the facility.
- ☐ Frequency of pumping/ removing grease: every_____ weeks, _____ months
- ☐ Recent records of grease pumping are on file.

Equipment Cleaning

- ☐ The following items are cleaned in such a manner so that all washwater goes to the grease trap or interceptor or is hauled off site:
  - Grease filters
  - Floor mats
  - Floors (mop water and rinse water)
  - Grills
  - Other _____

Dumpsters and Recycling Containers

- ☐ Dumpsters and recycling containers are always covered.
- ☐ There are no signs or leaks or missing drain plugs.
- ☐ Spilled materials around garbage containers are picked up regularly.
- ☐ If water is used to clean the area, washwater is collected or directed to the sanitary sewer.

Spill Response

- ☐ In case of a grease spill, absorbents are readily available.
- ☐ Employees are trained:
  - To control and clean up spills
  - To call for assistance in case of emergencies.

For More Information on
FOG Best Management Practices, call:
San Francisco Public Utilities Commission
Bureau of Environmental
Regulation and Management
Water Pollution Prevention Program
(415) 695-7375 (hotline)

Visit us online at ***www.sfwater.org***

To report illegal dumping to the
storm drain or sewer system, Call:
Mon. - Fri., 8-5 p.m. **(415) 695-7310**
Evenings/Weekends **(415) 695-2020**

City and County of San Francisco
Public Utilities Commission
Bureau of Environmental
Regulation and Management
Water Pollution Prevention Program
3801 3rd Street, Suite 600
San Francisco, CA 94124
(415) 695-7310

Employee Training Log

Employee's Initials	Date

Record Verification Form

Grease Interceptor Cleaning Record Verification Form

Facility Name _____

Address _____

Telephone _____

Service Company _____

Address _____

Telephone _____

Date	Remarks / Condition of Interceptor / Trap	Initials	
		Cleaned by	Witnessed by

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FATS, OILS & GREASE REDUCTION SELF-ASSESSMENT CHECKLIST

for San Francisco Restaurants and Food Handling Facilities

The San Francisco Public Utilities Commission (SFPUC) has created this checklist for restaurants and food handling establishments in San Francisco so that they can evaluate their own management of fats, oils and grease (FOG). By going through this checklist, managers and owners will know whether or not their operations are properly managing fats, oils and grease and minimizing how much of their FOG is being discharged into the sanitary sewer system.

Follow the BMPs in this checklist to keep fats, oils & grease out of our city sewers!

☐ **Does your business have a grease trap (inside) or interceptor (outside) of the facility?**

If yes - is it appropriately sized and serviced frequently enough to be properly preventing fats, oils & grease from entering the sewer lines? _____

If no - are you certain that your operation does not discharge fats, oils & grease to sewer lines? ____

☐ **Is your grease trap or interceptor being cleaned (by staff or a contractor) on a regular basis?**

Weekly is a good rule of thumb but if grease traps are more than 50% full of solids when cleaned weekly, the cleaning frequency needs to be increased. Note that many companies that haul away and/or recycle grease also clean traps and interceptors.

☐ **Is management witnessing or inspecting the cleaning to ensure it is done properly?**

☐ **Is the cleaning & maintenance log kept up to date and readily accessible? Is the volume of grease removed recorded on the log? Frequency of pumping/removing grease is every ____ weeks /_____ months?** *NOTE: This serves as a record of the cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce costs.*

SEE LAST PAGE FOR GREASE TRAP AND INTERCEPTOR CLEANING STEPS

For more information on the San Francisco FOG Program, or to get additional assistance for your business, contact the SFPUC Water Pollution Prevention Program at (415) 695-7310, or visit *www.sfwater.org* (enter "FOG" or "fats, oils and grease" in the search field of this homepage).

FOG PREVENTION AND CLEANUP: BEST MANAGEMENT PRACTICES (BMPs)

Dry Cleanup

☐ Do workers remove food waste with the "dry" clean-up methods (such as scraping, wiping, or sweeping) before using "wet" methods that use water?

Wet methods typically wash the water and waste materials into the drains where it eventually collects on the interior walls of the drainage pipes.

☐ Do workers know not to pour FOG down the drain and not to use the sinks to dispose of food scraps? Do they know not to put liquid grease or hardened grease into the garbage or compost bins? Do they follow these rules regularly?

☐ Are the following dry clean up practices followed:

__ Use of rubber scrapers to remove FOG from cookware, utensils, chafing dishes and serving ware.

__ Use of absorbent material to soak up oil and grease under fryer baskets.

__ Use of paper towels to wipe down work areas. Cloth towels will accumulate grease and oil that will eventually end up in your drains from towel washing and rinsing.

__ Keeping water temperature in sinks at 140 degrees F or below when using "wet" clean up techniques.

__ Posting of "NO GREASE" signs at appropriate locations such as above sink drains.

__ Placement of drain screens in all sinks and floor drains

Spill Cleanup Plan

☐ Does the establishment have a spill cleanup plan that includes the following?

__ Procedures for different types of spills

__ Schedule of training and refreshing employees about the procedures

__ Cleanup kits in well marked, accessible locations

__ Designation of a key employee who monitors cleanup

__ A printed plan posted in the work area.

☐ In case of a grease spill, are absorbent materials readily available?

EXHAUST HOOD FILTERS AND FLOOR MATS: BEST MANAGEMENT PRACTICES (BMPS)

FOG accumulates in exhaust hood filters and deposits on the roof.

When it rains, runoff from the roof flows into the sanitary sewers and storm drains.

☐ Are exhaust hood filters cleaned on a regular basis?

The rule of thumb is to clean when there is excessive FOG buildup.

☐ If the filters are cleaned on the premises, does the runoff from the filters flow through a grease trap or interceptor?

- ❖ Most facilities will contract with a service company to professionally clean large filters.
- ❖ Small hoods can be cleaned with spray detergents and wiped down with non-cloth material.
- ❖ Note that after a hot water rinse (separately trapped), filter panels can go into the dishwasher.

☐ Is the ventilation system balanced with sufficient make-up air in order for hoods to operate properly in removing grease-laden vapors?

☐ When possible, are floor mats cleaned inside the premises inside a mop sink connected to a grease trap or interceptor?

☐ When cleaning floor mats outside, is runoff directed to the sanitary sewer and away from storm drains?

☐ Are the items listed below cleaned in such a manner that all washwater goes to the grease trap or interceptor or is hauled off site?

__ Grease filters __ Floor mats ___ Floors (mop water and rinse water) ___Grills

FOG RECYCLING & HAULING: BEST MANAGEMENT PRACTICES (BMPS)

☐ Are only licensed companies used to haul away and/or recycle fats, oil and grease?

- ❖ Note that yellow grease is recyclable and brown grease is not and must be disposed of at landfills that accept this type of waste, or at some other facility designed to handle it.
- ❖ Note that many recyclers and haulers provide storage containers, most often 25-gallon drums, to store oil and grease on the premises before it is picked up for hauling.

☐ Are the following BMPs followed in storing of fats, oil and grease:

__ Cover outdoor grease and oil storage containers. Uncovered grease and oil storage containers can collect rainwater and overflow.

__ Place grease and oil storage containers away from storm drains and catch basins. The farther away the containers are from these structures, the more time someone has to clean up spills before they reach the sewer system.

__ Use absorbent pads or other material to create a berm to catch grease and oil if containers must be located near a storm drain or catch basin. Avoid using free flowing materials such as kitty litter or saw dust.

__ Have a spill prevention plan in place. Empty containers before they are full to avoid spills. Use a cover to transport grease trap and interceptor contents to a grease storage container. Provide employees with the proper equipment (ladles, containers, etc.) to transport materials without spilling.

EMPLOYEE TRAINING

☐ Have employees all been trained on Best Management Practices (BMPs) for handling fats, oils and grease?

An effective training program will:

- Discuss good FOG BMP practices with all employees at least quarterly.
- Systematically inform new employees about these best management practices.
- Post cleanup guidelines and the name of each shift's designated spill cleanup monitor in a visible location.
- Review the location of "NO GREASE" signs to ensure they are posted at all appropriate locations.

☐ Have all management personnel reviewed the San Francisco FOG Program Guide provided by the SFPUC?

☐ Are all employees trained:

- To control and clean up spills
- To call for assistance in case of emergencies.

☐ Are employees trained on the following regarding dumpsters and recycling containers:

- Dumpsters and recycling containers are always to be covered.
- There should be no signs of leaks or missing drain plugs.
- Spilled materials around garbage containers should be picked up regularly.
- If water is used to clean the area, washwater should be collected or directed to the sanitary sewer.

FOOD COMPOSTING/RECYCLING AND FOOD DONATION RESOURCES

Has your establishment considered participating in the San Francisco commercial composting program?

- Participating restaurants receive a 25% discount on their garbage rates.
- For Golden Gate Disposal and Recycling (Marina, Pacific Heights, Cow Hollow, Russian Hill, Chinatown, Nob Hill, and South of Market) Call (415) 626-4000
- For Sunset Scavenger (Sunset, Richmond, Sea Cliff, Western Addition, Haight Ashbury, Twin Peaks, Castro, Mission, Bernal Heights, Potrero Hill, Bayview Hunters Point) Call (415) 330-1300

Has your establishment considered donating excess edible food?

- San Francisco Food Bank (for perishable fresh produce, bread and other packaged food): (415) 282-1900
- Food Runners (for prepared, perishable and frozen food): (415) 929-1866

GREASE TRAP CLEANING CHECKLIST

If the trap is not cleaned frequently or correctly it will not perform properly and could put your establishment at risk of violating the city's sewer use ordinance - this could lead to enforcement and fines.

- ☐ Is all flow being stopped to the trap by shutting the isolation valve located in the inlet piping to the trap?
- ☐ Is the cover of the trap being removed and are any fats, oil and grease that have collected on top scooped out? Is the grease being deposited into a grease recycling container?
- ☐ Is the remaining water in the trap being bailed out to facilitate cleaning, and is it then discharged into the sanitary sewer system?
- ☐ Are the baffles removed (if possible)?
- ☐ Are the sides, the lid and the baffles being scraped with a putty knife to remove as much of the FOG as possible and is the grease deposited into a grease waste container?

  NOTE: This grease (solids collected on the bottom and sides) is not recycled and is treated as waste. It should not be thrown in the trash and should be hauled away.
- ☐ Are the baffle and lid replaced?

Note about bacterial and enzyme products:

Additives, such as bacterial and enzyme products, cannot be substituted for a grease trap or interceptor. Nor should they reduce your frequency of regular maintenance and inspection. It is important to note that high temperature, high or low pH levels, sanitizers and other cleaning products can render them ineffective. In addition these products can emulsify FOG, which simply keeps grease and oil in suspension and allows it to flow to the sewer system where it can resolidify.

GREASE INTERCEPTOR CLEANING CHECKLIST

If the interceptor is not cleaned frequently or correctly it will not perform properly and could put your establishment at risk of violating the city's sewer use ordinance -- this could lead to enforcement and fines.

- ☐ Is your grease interceptor at least 750 gallons in size?
- ☐ Does a licensed grease hauler or recycler perform your grease interceptor maintenance?
- ☐ Is a restaurant representative present during any cleaning, pumping, or skimming preformed by a contractor to insure that no shortcuts are taken?
- ☐ Is your interceptor cleaned frequently enough?
  - ➪ Frequency may range from every two weeks to at least every six months.
  - ➪ Frequency depends on the capacity of the device, the amount of grease in the wastewater, and the degree to which the facility has contributed to blockages in the past.
- ☐ Does service, at minimum, include the following:
  - Complete pumping and cleaning of the interceptor and sample box, not just skimming the grease layer.
  - Deodorizing and thorough cleaning of affected areas, as necessary.
  - Disposal/reclamation of grease and oil at an approved location.
  - Refilling the vault with clean water, not with water already pumped out.

Questions to Ask a FOG Rendered or Hauler:

1. Do you provide collection containers?
2. Do you provide transportation?
3. Can I expect revenue for my material? If not, what is your service fee?
4. What are your specifications? What constitutes contamination?
5. If there is a problem, who should I contact?

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FATS, OILS & GREASE REDUCTION SELF-ASSESSMENT SHORTLIST

for San Francisco Restaurants and Food Handling Facilities

This one page Inspection Shortlist has been prepared by the San Francisco Public Utilities Commission (SFPUC) as a guide for restaurants and food handling establishments on how to better manage the fats, oils and grease (FOG) that they generate. This list is a short version of a more detailed Self-Assessment Checklist. Please consult the complete Self-Assessment Checklist for more details and information on the actions listed below which, when implemented, will minimize the amount of FOG generated and discharged into the sanitary sewer system.

- ☐ **Does your business have a grease trap (inside) or interceptor (outside) of the facility? Is it properly sized and appropriately serviced so that it is adequate in preventing fats, oils and grease from entering the City sewer lines?** Note that additives, such as bacterial and enzyme products, cannot be substituted for a grease trap or interceptor.
- ☐ **Is management witnessing or inspecting the cleaning to ensure it is done properly? Is a cleaning & maintenance log kept that tracks dates and volumes removed? Is it up to date and readily accessible?**
- ☐ **Do workers follow fats, oils and grease prevention and clean up Best Management Practices (BMPs)?** Examples include using dry clean-up methods (like wiping), not pouring FOG down drains, and posting of No Grease signs above sink and floor drains. See the full Self-Assessment Checklist for a listing of all BMPs.
- ☐ **Does the establishment have a spill cleanup plan and have absorbent materials available?**
- ☐ **Are exhaust hood filters, floor mats, floors and grills cleaned on a regular basis and in such a manner that the wash water does not go into the sewer without first going through a grease trap or interceptor?**
- ☐ **Is the ventilation system balanced with sufficient make-up air in order for hoods to operate properly in removing grease-laden vapors?**
- ☐ **Are Best Management Practices (BMPs) followed in storing of fats, oil and grease and in maintaining trash and recycling containers?** Examples include covering all such outdoor containers and placing containers away from drains. See the full Self-Assessment Checklist for a listing of all BMPs.
- ☐ **Are only licensed companies used to haul away and/or recycle fats, oil and grease?**
- ☐ **Have all employees (management and non-management) been trained on Best Management Practices (BMPs) for fats, oils and grease prevention, clean up and storage?**
- ☐ **Has your establishment considered participating in the San Francisco commercial composting program or considered donating excess edible food?**
  - Participants in the commercial composting program receive a 25% discount on their garbage rates.
  - For more information on the composting program or food donations, go to www.sfwater.org (enter fats, oils and grease into the search field).

For more information on the San Francisco FOG Program, to obtain the complete *Self-Assessment Checklist*, or to get additional assistance for your business, contact the **SFPUC Water Pollution Prevention Program at (415) 695-7310, or visit *www.sfwater.org*** (enter "FOG" or "fats, oils and grease" into the search field on of this homepage).

PUT FOG IN ITS PLACE!
HOW YOU CAN KEEP FATS, OILS AND GREASE (FOG) OUT OF OUR SEWERS
QUE PUEDE USTED HACER PARA QUE LAS GRASAS Y LOS ACEITES NO ENTREN EN NUESTRAS ALCANTARILLAS
FATS, OILS AND GREASE (FOG), WHEN POURED DOWN DRAINS CREATES COSTLY PROBLEMS FOR OUR SEWER SYSTEM. THESE GOOEY WASTES ENTER THE PLUMBING SYSTEM THROUGH SINKS, DISHWASHERS AND FLOOR DRAINS IN KITCHEN AND STORAGE AREAS. IMPROPER DISPOSAL PRACTICES CAN RESULT IN SEWER BACKUPS AND OVERFLOWS INTO STREETS, THE BAY AND THE OCEAN
EL DESECHAR GRASAS O ACEITES EN LOS DRENAJES CREA PROBLEMAS COSTOSOS A NUESTRO SISTEMA DE ALCANTARILLADO. ESTOS DESECHOS ENTRAN EN LAS CAÑERÍAS A TREVÉS DE FREGADEROS, MÁQUINAS DE LAVAPLATOS, Y DRENAJES EN ÁREAS DE COCINA Y ALMACENAMIENTO. LA ELIMINACIÓN INDEBIDA DE ESTOS DESECHOS TIENE COMO RESULTADO EL ESTANCAMIENTO DE NUESTRO SISTEMA DE ALCANTARILLADO, DESBORDANDOSE EN LAS CALLES, LA BAHÍA Y EL OCÉANO
SCRAPE THE SCRAPS!
Always scrape grease and food scraps from pots & pans, dishes, grills, trays, utensils and cooking surfaces into the trash or green waste container for proper disposal.
Quite y raspe bien la grasa y restos de alimentos de ollas, cacerolas, platos, parrillas, bandejas, etc. y échelos en la basura o en el recipiente verde para su eliminación apropiada.
EMPLOYERS: TAKE RESPONSIBILITY!
• Train employees on best management practices
• Post "no dumping" signs at storm drains
• Do not allow dumping or sweeping of waste into outdoor drains
• Entrene a sus empleados en métodos apropiados para la eliminación de grasas y aceites.
• Ponga avisos de no tirar grasas o aceites en las alcantarillas.
• No permita que se tiren, ni se barran desperdicios en los drenajes.
MAINTAIN TRAPS AND INTERCEPTORS!
• Make sure your interceptors are sized to handle the volume of grease your business generates.
• Keep interceptors and traps in proper working order; clean and service them regularly.
• Cerciórese de que sus interceptores tengan la capacidad para manejar el volumen de grasa que su negocio genere.
• Dele mantenimiento regular a los interceptores y a las trampas o dispositivos para atrapar grasas y aceites para que estén en buen funcionamiento.
CONTROL AND RECYCLE YOUR GREASE!
• Never put grease down sinks, floor drains, garbage disposals, toilets or outside storm drains.
• Recycle used Fats, Oils and Grease!*
• Nunca eche grasa en el fregadero, drenajes del piso, aparatos trituradores para la eliminación de basura, letrinas o en las alcantarillas.
• ¡Recicle la grasa y los aceites!*
QUESTION YOUR CLEANING AGENTS!
Read labels before using chemicals, soaps and detergent additives that claim to dissolve Fats, Oils and Grease. Some simply pass them down the plumbing pipes.
Lea bien las etiquetas antes de usar productos químicos, aditivos en jabones y detergentes que dicen disolver grasas y aceites. Algunos de ellos simplemente los pasan a las cañerías.
*Call the Water Pollution Prevention Hotline at (415) 695-7375 or visit our website at www.sfwater.org for FOG recycling vendors.
Llame al Programa de Prevención Contra la Contaminación del Agua (415) 695-7375 o visite nuestra página en la internet www.sfwater.org para encontrar lugares donde reciclen grasas y aceites.

GRASA

GREASE

油脂

SFPUC

WATER

HETCH HETCHY WATER & POWER

CLEAN WATER

San Francisco
Water Pollution Prevention Program
PUBLIC UTILITIES COMMISSION

PUC - No Grease sign

199 300 BLK

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix H
Grants/Loans Documents

APPLYING TO ICAT

This page last reviewed March 30, 2009

Overview

Once per year (approximately), a solicitation of new applicatons is made available on this website. All applications submitted in response are evaluated against a set of technical, economic, programmatic and fiscal criteria. Applicants whose applications are satisfactory are invited to submit complete project budgets and commercialization plans. Then, to the extent funds are available, projects are selected for recommendation to the ARB's governing Board. The Board makes the final approvals for ICAT grants.

Process

1. Download (or request by mail) application materials when they are made available. You should subscribe to the ICAT list-serve to be notified that the solicitation and other ICAT information is available.
2. Submit an application per the instructions and forms in the solicitation. Applications are considered preproposals.
3. Preproposals will be reviewed and a small number of applicants will be invited to submit full proposals..
4. Full proposals will be reviewed by ARB staff (with advice from outside reviewers) regarding:
   - The potential to improve the prevention or control of emissions.
   - The technical innovativeness and feasibility of the technology.
   - The potentials for commercial application in California and enhancement of the state's economy.
   - The stage of development of the innovation (past the laboratory stage but not yet on the market).
   - The feasibility, definition and cost of the project.
   - The applicant's ability to fund the non-ICAT funded part of the project.
5. The ARB's Executive staff will rank the projects according to their staff comments and the apparent utility of the technologies to ARB programs.
6. Some projects will be provisionally accepted for grants, according to rank and available funding.
7. Staff will recommend those applicants' projects to the Board, which must approve the grants.
8. Grant agreement documents are executed and the project commences.
9. Grantees must make periodic and final reports to ARB and submit invoices for completed work.

If you have any questions or comments about the content of the ICAT web pages,
please contact Steve Church by email at schurch@arb.ca.gov or Seong Park by email at spark@arb.ca.gov.

Innovative Clean Air Technologies

The Board is one of six boards, departments, and offices under

the umbrella of the California Environmental Protection Agency.
Cal/EPA | **ARB** | CIWMB | DPR | DTSC | OEHHA | SWRCB

WHAT ICAT FUNDS

This page last reviewed March 27, 2009

What ICAT Funds

ICAT funds projects to develop technologies that have passed the laboratory stage of development into the prototype or demonstration stages. Fundable projects must meet certain criteria. These are discussed in detail in the solicitation of applications. Briefly, the most important criteria are:

A. The technology must promote emission reductions in California by:

- introducing a new prevention or control technology, or
- increasing the degree of control provided by an existing technology, or
- reducing the cost or other practical impediment to a control technology, or
- increasing the scope of application of a control technology

B. The technology must have a potential for commercialization, preferably by the applicant or its business partners. The commercialization should have a potential for adding to the California economy.

C. The innovation must be at an appropriate stage of development. ICAT funding is limited to pilot projects (preferably located in the field), prototype creation and deployment, and field demonstrations of near market-ready systems. Marketing work is not supported.

D. The proposed project must have definitive goals, specific tasks to achieve them, a schedule and a reasonable cost for the work proposed.

E. The applicant must arrange at least 50 percent of the funding for the project, of which at least 10 percent must be the applicant's own cash.

F. The applicant must be financially stable and competent to commercialize the innovation.

About $1 million is budgeted each year for new ICAT projects. Currently, each application can receive a maximum of $250,000. Please have a look at our ICAT projects page for examples of some of the Projects Already Funded.

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please contact Steve Church by email at schurch@arb.ca.gov or Seong Park by email at spark@arb.ca.gov.

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CONTACTS FOR THE ICAT PROGRAM

This page last reviewed May 20, 2009

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Grant Administrator:	**Sally Jorgensen** Ph: (916) 323-1500 Fax: (916) 322-4357 Email: sjorgens@arb.ca.gov
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ICAT Email:	**icat@arb.ca.gov**
ICAT Email List Server:	**Link to ICAT List Server**

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PURPOSE OF ICAT

This page last reviewed March 27, 2009

Development of any new air pollution control technology is a process that ranges from basic research, including idea development and proof-of-concept, through prototyping, demonstration and commercialization (see below). Many times, development proceeds through the early stages only to stop for various reasons upon reaching the demonstration stage. Some of these reasons include lack of funding, technical difficulties or lack of specific technical or commercial expertise. ARB's ICAT program is intended to provide support and incentivize continued development through the demonstration stage for technologies that show promise for reducing air pollution in California. ICAT does this by providing funding, technical support, and networking with other parties who can bring their own resources and expertise.

Stages of Technology Development

1. Idea Development

2. Proof of Concept

3. Pilot/Prototype

4. Demonstration

5. Commercial Sales

The Innovative Clean Air Technologies (ICAT) program supports businesses through steps 3 and 4. The follow-on to a successful ICAT project is the successful commercial introduction of a new technology.

ICAT supports technically solid projects that can demonstrate the commercial utility in California of technical innovations that will improve emission prevention or control**.** ICAT assists technologies that can help reduce emissions while promoting new industries and jobs in California, improve industrial productivity and reduce control costs.

Here is what a previous ICAT contractor had to say:

> *"... when we proposed to ICAT to develop a technology that we had, we had proven the concept on a very small scale in the laboratories ... but we didn´t have the funding necessary to take the next step to build a prototype device. ICAT offered that possibility to us and they were willing to share those costs."*
>
> Mr. Charlie Carlisle
> Manager of Research and Development
> CHA Corporation

If you have any questions or comments about the content of the ICAT web pages,
please contact Steve Church by email at schurch@arb.ca.gov or Seong Park by email at spark@arb.ca.gov.

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FEDERAL
Incentives/Policies for Renewables & Efficiency

U.S. Department of Treasury - Renewable Energy Grants

Back

Last DSIRE Review: 06/10/2009

Incentive Type: Federal Grant Program

Eligible Renewable/Other Technologies: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, Municipal Solid Waste, CHP/Cogeneration, Solar Hybrid Lighting, Hydrokinetic, Tidal Energy, Wave Energy, Ocean Thermal, Microturbines

Applicable Sectors: Commercial, Industrial, Agricultural

Amount: 30% of property that is part of a qualified facility, qualified fuel cell property, solar property, or qualified small wind property
10% of all other property

Max. Limit: $1,500 per 0.5 kW for qualified fuel cell property
$200 per kW for qualified microturbine property
50 MW for CHP property, with limitations for large systems

Terms: Grant applications must be submitted by 10/1/2011. Payment of grant will be made within 60 days of the grant application date or the date property is placed in service, whichever is later.

Web Site: http://www.treas.gov/recovery

Authority 1: H.R. 1: Div. B, Sec. 1104 & 1603 (The American Recovery and Reinvestment Act of 2009)

Date Enacted: 2/17/2009

Date Effective: 1/1/2009

Summary:
Note: The American Recovery and Reinvestment Act of 2009 (H.R. 1) allows taxpayers eligible for the federal business energy investment tax credit (ITC) to take this credit or to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The new law also allows taxpayers eligible for the renewable electricity production tax credit (PTC) to receive a grant from the U.S. Treasury Department instead of taking the PTC for new installations. (It does not allow taxpayers eligible for the residential renewable energy tax credit to receive a grant instead of taking this credit.) Taxpayers may not use more than one of these incentives. If an entity receives a grant and has previously received the business ITC or the PTC, the credit will be recaptured through an increase in taxes during the year in which the grant is awarded by the amount of the credit taken in previous years. Receiving a credit in the past does not reduce the amount of the grant. The grant is not included in the gross income of the taxpayer.

The *American Recovery and Reinvestment Act of 2009* (H.R. 1), enacted in February 2009, created a renewable energy grant program that will be administered by the U.S. Department of Treasury. This cash grant may be taken in lieu of the federal business energy investment tax credit (ITC).

Grants are available to eligible property* placed in service in 2009 or 2010, or placed in service by the specified credit termination date,** if construction began in 2009 or 2010:

- **Solar.** The grant is equal to 30% of the basis of the property for solar energy. Eligible solar-energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Passive solar systems and solar pool-heating systems are *not* eligible. Hybrid solar-lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible.
- **Fuel Cells.** The grant is equal to 30% of the basis of the property for fuel cells. The grant for fuel cells is capped at $1,500 per 0.5 kilowatt (kW) in capacity. Eligible property includes fuel cells with a minimum capacity of 0.5 kW that have an electricity-only generation efficiency of 30% or higher.
- **Small Wind Turbines.** The grant is equal to 30% of the basis of the property for small wind turbines. Eligible small wind property includes wind turbines up to 100 kW in capacity.
- **Qualified Facilities.** The grant is equal to 30% of the basis of the property for qualified facilities. Qualified facilities include wind energy facilities, closed-loop biomass facilities, open-loop biomass facilities, geothermal energy facilities, landfill gas facilities, trash facilities, qualified hydropower facilities, and marine and hydrokinetic renewable energy facilities.
- **Geothermal Heat Pumps.** The grant is equal to 10% of the basis of the property for geothermal heat pumps.
- **Microturbines.** The grant is equal to 10% of the basis of the property for microturbines. The grant for microturbines is capped at $200 per kW of capacity. Eligible property includes microturbines up to two megawatts (MW) in capacity that have an electricity-only generation efficiency of 26% or higher.
- **Combined Heat and Power (CHP).** The grant is equal to 10% of the basis of the property for CHP. Eligible CHP property generally includes systems up to 50 MW in capacity that exceed 60% energy efficiency, subject to certain limitations and reductions for large

systems. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the grant may be reduced for less-efficient systems.

It is important to note that only tax-paying entities are eligible for this grant. Federal, state and local government bodies, non-profits, qualified energy tax credit bond lenders, and cooperative electric companies are not eligible to receive this grant. Partners or pass-thru entities for the organizations described above are also not eligible to receive this grant. Grant applications must be submitted by October 1, 2011. The U.S. Treasury Department will make payment of the grant within 60 days of the grant application date or the date the property is placed in service, whichever is later.

The U.S. Department of Treasury has not yet released guidelines and is not accepting applications currently for this grant. It is expected that guidelines will be released by July 2009. The Department of Treasury has issued a program plan for the grant program. This plan describes the objectives of the grant program, briefly mentions the timeline for grant awards and lists some of the monitoring and evaluation requirements.

**Definitions of eligible property types and renewable technologies can be found in the U.S. Code, Title 26, § 45 and § 48.*

***Credit termination date of January 1, 2013 for wind; January 1, 2014 for closed-loop biomass, open-loop biomass, landfill gas, trash, qualified hydropower, marine and hydrokinetic; January 1, 2017 for fuel cells, small wind, solar, geothermal, microturbines, CHP and geothermal heat pumps.*

Contact:

Grant Information
U.S. Department of Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220
Phone: (202) 622-2000
Fax: (202) 622-6415
E-Mail: 1603Questions@do.treas.gov
Web Site: http://ww.treasury.gov

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Please note: The information on the DSIRE web site provides an overview of incentives and other policies, but it should not be used as the only source of information when making purchasing decisions, investment decisions, tax decisions or other binding agreements. Please refer to the individual contact provided in each record to verify that a specific incentive or other policy is applicable to your specific project.

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FEDERAL
Incentives/Policies for Renewables & Efficiency

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Renewable Electricity Production Tax Credit (PTC)

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Last DSIRE Review: 06/10/2009

Incentive Type: Corporate Tax Credit

Eligible Renewable/Other Technologies: Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power (i.e., Flowing Water), Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Commercial, Industrial

Amount: 2.1¢/kWh for wind, geothermal, closed-loop biomass; 1.0¢/kWh for other eligible technologies. Generally applies to first 10 years of operation.

Eligible System Size: Marine and Hydrokinetic: Minimum capacity of 150 kW
Agricultural Livestock Waste: Minimum capacity of 150 kW

Web Site: http://www.irs.gov/pub/irs-pdf/f8835.pdf

Authority 1: 26 USC § 45

Date Enacted: 1992

Summary:
Note: The American Recovery and Reinvestment Act of 2009 (H.R. 1) allows taxpayers eligible for the federal renewable electricity production tax credit (PTC) to take the federal business energy investment tax credit (ITC) or to receive a grant from the U.S. Treasury Department instead of taking the PTC for new installations. The new law also allows taxpayers eligible for the business ITC to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The Treasury Department issued Notice 2009-52 in June 2009, giving limited guidance on how to take the federal business energy investment tax credit instead of the federal renewable electricity production tax credit. The Treasury Department will issue more extensive guidance at a later time.

The federal renewable electricity production tax credit (PTC) is a per-kilowatt-hour tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year. Originally enacted in 1992, the PTC has been renewed and expanded numerous times, most recently by H.R. 1424 (Div. B, Sec. 101 & 102) in October 2008 and again by H.R. 1 (Div. B, Section 1101 &1102) in February 2009.

The October 2008 legislation extended the in-service deadlines for all qualifying renewable technologies; expanded the list of qualifying resources to include marine and hydrokinetic resources, such as wave, tidal, current and ocean thermal; and made changes to the definitions of several qualifying resources and facilities. The effective dates of these changes vary. Marine and hydrokinetic energy production is eligible as of the date the legislation was enacted (October 3, 2008), as is the incremental energy production associated with expansions of biomass facilities. A change in the definition of "trash facility" no longer requires that such facilities burn trash, and is also effective immediately. One further provision redefining the term "non-hydroelectric dam," took effect December 31, 2008.

The February 2009 legislation revised the credit by: (1) extending the in-service deadline for most eligible technologies by three years (two years for marine and hydrokinetic resources); and (2) allowing facilities that qualify for the PTC to opt instead to take the federal business energy investment credit (ITC) or an equivalent cash grant from the U.S. Department of Treasury. The ITC or grant for PTC-eligible technologies is generally equal to 30% of eligible costs.*

The tax credit amount is 1.5¢/kWh in 1993 dollars (indexed for inflation) for some technologies, and half of that amount for others. The rules governing the PTC vary by resource and facility type. The table below outlines two of the most important characteristics of the tax credit -- in-service deadline and credit amount -- as they apply to different facilities. The table includes changes made by H.R. 1, in February 2009, and the inflation-adjusted credit amounts are current for the 2008 tax year. (See the history section below for information on prior rules.)

Resource Type	In-Service Deadline	Credit Amount
Wind	December 31, 2012	2.1¢/kWh
Closed-Loop Biomass	December 31, 2013	2.1¢/kWh
Open-Loop Biomass	December 31, 2013	1.0¢/kWh
Geothermal Energy	December 31, 2013	2.1¢/kWh
Landfill Gas	December 31, 2013	1.0¢/kWh
Municipal Solid Waste	December 31, 2013	1.0¢/kWh
Qualified Hydroelectric	December 31, 2013	1.0¢/kWh
Marine and Hydrokinetic (150 kW or larger)**	December 31, 2013	1.0¢/kWh

The duration of the credit is generally 10 years after the date the facility is placed in service, but there are two exceptions:

- Open-loop biomass, geothermal, small irrigation hydro, landfill gas and municipal solid waste combustion facilities placed into service after October 22, 2004, and before enactment of the *Energy Policy Act of 2005*, on August 8, 2005, are only eligible for the credit for a five-year period.

- Open-loop biomass facilities placed in service before October 22, 2004, are eligible for a five-year period beginning January 1, 2005.

In addition, the tax credit is reduced for projects that receive other federal tax credits, grants, tax-exempt financing, or subsidized energy financing. The credit is claimed by completing Form 8835, "Renewable Electricity Production Credit," and Form 3800, "General Business Credit." For more information, contact IRS Telephone Assistance for Businesses at 1-800-829-4933.

History
As originally enacted by the *Energy Policy Act of 1992*, the PTC expired at the end of 2001, and was subsequently extended in March 2002 as part of the *Job Creation and Worker Assistance Act of 2002* (H.R. 3090). The PTC then expired at the end of 2003 and was not renewed until October 2004, as part of H.R. 1308, the *Working Families Tax Relief Act of 2004*, which extended the credit through December 31, 2005. The *Energy Policy Act of 2005* (H.R. 6) modified the credit and extended it through December 31, 2007. In December 2006, the PTC was extended for yet another year -- through December 31, 2008 -- by the *Tax Relief and Health Care Act of 2006* (H.R. 6111).

The American Jobs Creation Act of 2004 (H.R. 4520), expanded the PTC to include additional eligible resources -- geothermal energy, open-loop biomass, solar energy, small irrigation power, landfill gas and municipal solid waste combustion -- in addition to the formerly eligible wind energy, closed-loop biomass, and poultry-waste energy resources. The *Energy Policy Act of 2005* (EPAct 2005) further expanded the credit to certain hydropower facilities. As a result of EPAct 2005, solar facilities placed into service after December 31, 2005, are no longer eligible for this incentive. Solar facilities placed in-service during the roughly one-year window in which solar was eligible are permitted to take the full credit (i.e., 2.1¢/kWh) for five years.

** Prior to H.R. 1, geothermal facilities were already eligible for a 10% tax credit under the energy ITC. It is not clear at this time if geothermal electric facilities will be eligible for a 10% tax credit, as defined by the ITC rules, or the full 30% tax credit now available for PTC eligible technologies in general.*

*** H.R. 1424 added marine and hydrokinetic energy as eligible resources and removed "small irrigation power" as an eligible resource effective October 3, 2008. However, the definition of marine and hydrokinetic energy encompasses the resources that would have formerly been defined as small irrigation power facilities. Thus H.R. 1424 effectively extended the in-service deadline for small irrigation power facilities by 3 years, from the end of 2008 until the end of 2011 (since extended again through 2013).*

Contact:

Public Information - IRS
U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web Site: http://www.irs.gov

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Please note: The information on the DSIRE web site provides an overview of incentives and other policies, but it should not be used as the only source of information when making purchasing decisions, investment decisions, tax decisions or other binding agreements. Please refer to the individual contact provided in each record to verify that a specific incentive or other policy is applicable to your specific project.

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Renewable Energy Production Incentive (REPI)

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Last DSIRE Review: 03/18/2009

Incentive Type: Production Incentive
Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal
Applicable Sectors: Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative, Native Corporations
Amount: 2.1¢/kWh (subject to availability of annual appropriations in each federal fiscal year of operation)
Terms: 10 years
Web Site: http://apps1.eere.energy.gov/repi
Authority 1: 42 USC § 13317
Date Enacted: 10/24/1992 (subsequently amended)
Authority 2: 10 CFR 451

Summary:
Note: Contact the program administrator to find out the current funding status of this program.

Established by the federal *Energy Policy Act of 1992*, the federal Renewable Energy Production Incentive (REPI) provides incentive payments for electricity generated and sold by new qualifying renewable energy facilities. Qualifying systems are eligible for annual incentive payments of 1.5¢ per kilowatt-hour in 1993 dollars (indexed for inflation) for the first 10-year period of their operation, *subject to the availability of annual appropriations in each federal fiscal year of operation.* REPI was designed to complement the federal renewable energy production tax credit (PTC), which is available only to businesses that pay federal corporate taxes.

Qualifying systems must generate electricity using solar, wind, geothermal (with certain restrictions), biomass (excluding municipal solid waste), landfill gas, livestock methane, or ocean resources (including tidal, wave, current and thermal). The production payment applies only to the electricity sold to another entity. Eligible electric production facilities include not-for-profit electrical cooperatives, public utilities, state governments and political subdivisions thereof, commonwealths, territories and possessions of the United States, the District of Columbia, Indian tribal governments or political subdivisions thereof, and Native Corporations.

Payments may be made only for electricity generated from an eligible facility first used before October 1, 2016. Appropriations have been *authorized* for fiscal years 2006 through fiscal year 2026. If there are insufficient appropriations to make full payments for electricity production from all qualified systems for a federal fiscal year, 60% of the appropriated funds for the fiscal year will be assigned to facilities that use solar, wind, ocean, geothermal or closed-loop biomass technologies; and 40% of the appropriated funds for the fiscal year will be assigned to other eligible projects. Funds will be awarded on a pro rata basis, if necessary.

Contact:

Christine Carter
U.S. Department of Energy
1617 Cole Blvd.
Golden, CO 80401-3393
E-Mail: christine.carter@go.doe.gov
Web Site: http://www.energy.gov

Information Specialist - REPI
U.S. Department of Energy
Washington, DC
E-Mail: repi@ee.doe.gov
Web Site: http://www.energy.gov

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DSIRE SOLAR

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Last Updated: 07/06/2009

FEDERAL
Incentives/Policies for Renewables & Efficiency

Printable Version

Clean Renewable Energy Bonds (CREBs)

Back

Last DSIRE Review: 04/14/2009

Incentive Type:	Federal Loan Program
Eligible Renewable/Other Technologies:	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal
Applicable Sectors:	Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative
Amount:	Varies
Terms:	Certain terms for "new" CREBs differ from those for prior allocations. See IRS Notice 2009-33 for details
Web Site:	http://www.irs.gov/irb/2007-14_IRB/ar17.html
Authority 1:	26 USC § 54 (Old CREBs)
Date Effective:	08/08/2005
Expiration Date:	12/31/2009
Authority 2:	26 USC § 54A (New CREBs)
Date Enacted:	10/03/2008
Date Effective:	10/03/2008
Authority 3:	26 USC § 54C (New CREBs)
Date Enacted:	10/03/2008 (subsequently amended)
Date Effective:	10/03/2008
Authority 4:	IRS Notice 2009-33
Date Effective:	04/07/2009
Expiration Date:	08/04/2009

Summary:

Note: The terms "new" and "old" CREBs are used in the following summary to distinguish between prior CREB allocations and the new CREB authorizations made by the U.S. Congress in 2008 and 2009. The use of the term "new CREBs" has legal significance in that new CREBs authorized under 26 USC § 54A and 54C have substantially different rules than prior CREB allocations authorized under 26 USC § 54.

Clean renewable energy bonds (CREBs) may be used by certain entities -- primarily in the public sector -- to finance renewable energy projects. The list of qualifying technologies is generally the same as that used for the federal renewable energy production tax credit (PTC). CREBs may be issued by electric cooperatives, government entities (states, cities, counties, territories, Indian tribal governments or any political subdivision thereof), and by certain lenders. CREBs are issued -- theoretically -- with a 0% interest rate.* The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.

The Energy Improvement and Extension Act of 2008 (Div. A, Sec. 107) allocated $800 million for new Clean Renewable Energy Bonds (CREBs). In February 2009, the American Recovery and Reinvestment Act of 2009 (Div. B, Sec. 1111) allocated an additional $1.6 billion for new CREBs, for a total new CREB allocation of $2.4 billion. The Energy Improvement and Extension Act of 2008 also extended the deadline for previously reserved allocations ("old CREBs") until December 31, 2009, and addressed several provisions in the existing law that previously limited the usefulness of the program for some projects. A separate section of the law extended CREBs eligibility to marine energy and hydrokinetic power projects.

In April 2009 the IRS issued Notice 2009-33 soliciting applications for the new CREB allocation and providing interim guidance on certain program rules and changes from prior CREB allocations. The expiration date for new CREB applications under this solicitation is August 4, 2009. Further guidance on CREBs is available in IRS Notices 2006-7 and 2007-26 to the extent that the program rules were not modified by 2008 and 2009 legislation.

Participation in the program is limited by the volume of bonds allocated by Congress for the program. Participants must first apply to the Internal Revenue Service (IRS) for a CREBs allocation, and then issue the bonds within a specified time period. The new CREBs allocation totaling $2.4 billion does not have a defined expiration date under the law; however, the recent IRS solicitation for new applications requires the bonds to be issued within 3 years after the applicant receives notification of an approved allocation (see History section below for information on previous allocations). Public power providers, governmental bodies, and electric cooperatives are each reserved an equal share (33.3%) of the new CREBs allocation. The tax credit rate is set daily by the U.S. Treasury Department. Under past allocations, the credit could be taken quarterly on a dollar-for-dollar basis to offset the tax liability of the bondholder. However, under the new CREBs allocation, the credit has been reduced to 70% of what it would have been otherwise. Other important changes are described in IRS Notice 2009-33.

CREBs differ from traditional tax-exempt bonds in that the tax credits issued through CREBs are treated as taxable income for the bondholder. The tax credit may be taken each year the bondholder has a tax liability as long as the credit amount does not exceed the limits

established by the federal *Energy Policy Act of 2005*. Treasury rates for prior CREB allocations, or "old" CREBs are available here, while rates for new CREBs and other qualified tax credit bonds are available here.

History

The federal *Energy Policy Act of 2005* (EPAct 2005) established Clean Energy Renewable Bonds (CREBs) as a financing mechanism for public sector renewable energy projects. This legislation originally allocated $800 million of tax credit bonds to be issued between January 1, 2006, and December 31, 2007. Following the enactment of the federal *Tax Relief and Health Care Act of 2006*, the IRS made an additional $400 million in CREBs financing available for 2008 through Notice 2007-26.

In November 2006, the IRS announced that the original $800 million allocation had been reserved for a total of 610 projects. The additional $400 million (plus surrendered volume from the previous allocation) was allocated to 312 projects in February 2008. Of the $1.2 billion total of tax-credit bond volume cap allocated to fund renewable-energy projects, state and local government borrowers were limited to $750 million of the volume cap, with the rest reserved for qualified mutual or cooperative electric companies.

For further information on CREBs, contact Zoran Stojanovic or Timothy Jones of the IRS Office of Associate Chief Counsel at (202) 622-3980. Questions on recent IRS Notice 2009-33 can be directed to Janae Lemley at (636) 255-1202.

**In practice, for a variety of reasons bond issuers have sometimes had to issue the bonds at a discount or make supplemental interest payments in order to find a buyer.*

Contact:

Public Information - IRS
U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web Site: http://www.irs.gov

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SGIP—What's New

2009 SGIP and Fuel Cell Classes Available

May 11, 2009 – Join us for a web-based seminar reviewing PG&E's Self-Generation Incentive Program (SGIP), including eligible technologies, process, and helpful resources to ensure a streamlined SGIP Process. Sign up today.

May 19, 2009 – Speaker Ron Ishii will provide an overview of stationary fuel cell technologies, including history, development, performance, using examples from residential, commercial and industrial applications. The course is intended to provide utility customers, contractors, architects, and designers with an overview of fuel cells, their performance, availability, and economics. Sign up today.

August 11, 2009 – Join us for a web-based seminar reviewing PG&E's Self-Generation Incentive Program (SGIP), including eligible technologies, process, and helpful resources to ensure a streamlined SGIP Process. Sign up today.

20 Percent California Supplier Adder

Per Section 3.5 of the 2009 SGIP Handbook, an additional incentive of 20 percent will be provided for the installation of eligible distributed generation technologies from a California Supplier. "California Supplier" means any sole proprietorship, partnership, joint venture, corporation, or other business entity that manufactures eligible distributed generation technologies in California and that meets the criteria set forth in the handbook.

Advanced Energy Storage (AES) Systems

Beginning in 2009, the Self-Generation Incentive Program offers incentives for Advanced Energy Storage (AES). AES systems are technologies that convert electricity into another form of stored energy and then converted back to electricity at another time. AES systems must be coupled with an eligible self-generation technology, currently fuel cells and wind turbines, and be able to discharge at a rated capacity for a four- hour period. Note that Advanced Energy Storage systems utilizing hydrogen as the storage medium are not eligible at this time. For more information, please view our frequently ask questions.

Incentive Cap Increased to 3 MW

On April 24, 2008, the CPUC issued Decision (D.) 08-04-049 granting in part (D.) 04-12-045 to allow SGIP Administrators to pay qualifying distributed generation projects incentives up to 3 megawatts (MW) from prior years' carryover funds, with incentives over 1 MW reduced per the revised incentive structure. This modification shall apply for the SGIP in 2008 and 2009 only, unless modified by further order of this Commission. Please see the revised 2008 SGIP Handbook and Form for more details.

Eligible 2008 SGIP Technologies

Please be aware that as of January 1, 2008, the SGIP only offers incentives for wind and fuel cell projects. Internal combustion engines, microturbines, and small and large gas turbines will no longer be offered incentives through this program. 2007 Reservation Request Applications received by December 31, 2007, still qualify under the 2007 SGIP guidelines.

Minimum Operating Efficiency Requirements

Assembly Bill 2778 (AB 2778) required that Level 3 systems must satisfy a minimum operating efficiency by either satisfying the waste heat efficiency standard requirements or by meeting a minimum electric efficiency. In addition, all internal combustion engines, microturbines and gas turbines that operate on fossil fuel must satisfy both a 60 percent overall system efficiency and a NOx efficiency equal or less than .07lbs/MWh.

Application Fee Requirements

Application fees will only be required for uncertified new technologies that are in the process of being certified by a nationally recognized testing laboratory.

Contact US

E-mail
selfgen@pge.com

Phone
415-973-6436

Fax

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Our Self-Generation Incentive Program

This program provides financial incentives for the installation of new, qualifying self-generation equipment.

In SDG&E's service territory the CPUC approved program runs through January 1, 2012.

Background

- California Assembly Bill 970, signed by Governor Davis on September 6, 2000 required the California Public Utilities Commission (CPUC) to initiate certain load control and distributed generation activities.
- On March 27, 2001, the CPUC issued Decision 01-03-073, creating the statewide Self-Generation Incentive Program.
- The Program was extended through December 31, 2007, in Decision 04-12-045 (codifying AB 1685).
- Decision 08-01-029 further extended the Program through January 1, 2012 (codifying AB 2778).

2008 Incentives for Installation of Qualifying Equipment

Incentive Levels	Eligible Technologies	Incentive ($9/Watt)	Minimum system size	Maximum system size *
Level 2 Renewable Non-Solar	Wind Turbines	$1.50	30 kW	5.0 MW
	Renewable Fuel Cells	$4.50	30 kW	5.0 MW
Level 3 Non-Renewable	Non-Renewable Fuel Cells **	$2.50	None	5.0 MW

* Maximum system size is 5.0 MW, however, output capacity above the first 1.0 MW is not eligible for incentives.

** System must utilize waste heat recovery meeting Public Utilities Code 216.6

Program Administrator

The California Center for Sustainable Energy (CCSE) is designated as program administrator in SDG&E's service territory. For more information and to apply to the program contact the CCSE's Self Generation Incentive Program Resource Center

- Self Generation Incentive Program Resource Center

Project Costs as of October 2007

The Self-Generation Incentive Program Working Group has compiled a list of all statewide Self-Generation Incentive Program systems.

- List of all Statewide SGIP systems

The list includes data on a project specific basis and aggregated for the following companies.

- Pacific Gas & Electric
- California Center for Sustainable Energy
- Southern California Gas
- Southern California Edison

CALIFORNIA

Incentives/Policies for Renewables & Efficiency

California Feed-In Tariff

Back

Last DSIRE Review: 11/06/2008

Incentive Type: Production Incentive

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Municipal Solid Waste, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel, Fuel Cells using Renewable Fuels

Applicable Sectors: Commercial, Industrial, Residential

Amount: Tariff is based on CPUC market price referent (MPR) and is adjusted by time-of-use factors. A higher rate is provided for solar energy between 8 a.m. and 6 p.m.

Terms: Customers may enter into 10-, 15- or 20-year contracts

Web Site: http://www.cpuc.ca.gov/PUC/energy/Renewables/feedintariffssum.htm

Authority 1: CA Public Utilities Code § 399.20

Date Enacted: 9/29/2006

Authority 2: CPUC Resolution E-4137

Date Enacted: 2/14/2008

Date Effective: 2/14/2008

Authority 3: SB 380

Date Enacted: 9/28/2008

Date Effective: 1/1/2009

Summary:

California enacted legislation (Assembly Bill 1969) in September 2006 requiring every electrical corporation to file with the California Public Utilities Commission (CPUC) a standard tariff for renewable energy output produced by a public water or wastewater agency that is a retail customer of an electrical corporation. A subsequent CPUC decision (D.07-07-027), issued in July 2007, authorized two expansions of the tariffs. First, Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) were required to submit separate tariffs for the purchase of eligible renewable generation from entities other than public water and wastewater agencies. Second, PG&E, SCE and San Diego Gas and Electric (SDG&E) were all required to offer both a full buy/sell option and an excess sale option in each tariff submitted for approval. Other electrical corporations were only required to offer the full buy/sell option, but they could offer both options if they chose to do so. The end result is an effective feed-in tariff to encourage small, customer-owned renewables up to 1.5 MW in capacity.

The California feed-in tariff allows eligible customer-generators to enter into 10-, 15- or 20-year standard contracts with their utilities to sell the electricity produced by small renewable energy systems -- up to 1.5 megawatt (MW) -- at time-differentiated market-based prices. The price paid will be based on the CPUC's market price referent (MPR) table, shown in CPUC Resolution E-4137. Time-of-use adjustments will be applied by each utility and will reflect the increased value of the electricity to the utility during peak periods and its lesser value during off-peak periods. A special, higher-level rate is provided for solar electricity generated between 8 a.m. and 6 p.m.

As the feed-in tariff is meant to help the utilities meet California's renewable portfolio standard (RPS), all green attributes associated with the energy, including renewable energy credits (RECs), transfer to the utility with the sale. Any customer-generator who sells power to the utility under this tariff may not participate in other state incentive programs. The tariffs will be available until the combined statewide cumulative capacity of eligible generation installed equals 500 MW. Each utility will be responsible for a portion of that cumulative total based on their proportionate sales.

For more information. contact the program administrators for the utilities:

Southern California Edison
George Wiltsee
(626) 302-4945
george.wiltsee@sce.com
http://www.sce.com/EnergyProcurement/renewables/renewables-standard-contracts.htm

Pacific Gas and Electric
Feed-inTariffs@pge.com
http://www.pge.com/b2b/energysupply/wholesaleelectricsuppliersolicitation/standardcontractsforpurchase/

San Diego Gas and Electric
Michael J. Iammarino,
(858) 654-8270
MJIammarino@semprautilities.com
http://www.sdge.com/environment/renewableenergy/

Contact:

Jaclyn Marks
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-1170
Phone 2: (800) 649-7570
Fax: (415) 703-1158
E-Mail: Jm3@cpuc.ca.gov

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GRANT SOLICITATION AND APPLICATION PACKAGE

American Recovery and Reinvestment Act of 2009 Cost Share

PON-08-011
PIER
Energy Research, Development and Demonstration Program

June 18, 2009

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GRANT SOLICITATION AND APPLICATION

Subject Area: American Recovery and Reinvestment Act Cost Share

1. Release Date: June 18, 2009

2. Purpose:
This is a competitive solicitation, limited to applicants who are submitting applications to the federal government in response to energy research and development-related American Recovery and Reinvestment Act of 2009 (ARRA) funding opportunity announcement(s) (FOAs). The California Energy Commission (Energy Commission) through the Public Interest Energy Research (PIER) Program is offering eligible applicants funding to be used as cost share for their application to the federal government. The Energy Commission plans to allocate up to $21 million of PIER electricity funds for cost share for current and future research-related ARRA funding opportunities.

To be eligible for funding, applicants must fulfill all of these requirements:

- Seek and obtain an award through one of the ARRA funding opportunity announcements identified in this solicitation.
- Address the pre-application requirements and final application evaluation criteria contained in this solicitation AND obtain a minimum passing score.
- Submit applications that are consistent with the goals of the PIER program (Public Resources Code Section 25620 et seq.) and of the relevant federal funding opportunity announcement.

3. Background:
The Energy Commission administers the PIER Program, which supports and funds energy research, development, and demonstration (RD&D) projects that will help improve the quality of life in California by bringing environmentally safe, affordable, and reliable energy services and products to the marketplace. The PIER Program annually awards up to $62.5 million to conduct the most promising public interest energy research by partnering with RD&D organizations including individuals, businesses, utilities, and public or private research institutions. The PIER Program funds pioneering RD&D in the following programmatic areas: energy efficiency and demand response, renewable resources, advanced electricity generation, transmission and distribution, advanced transportation technologies, energy-related environmental research and climate science.

President Obama signed ARRA into law on February 17, 2009. Since then, the U.S. Department of Energy has released several solicitations on a variety of energy RD&D topics. They span the entire range of topics funded by PIER. It is the Energy

Commission's policy to encourage and support California entities applying for ARRA funding.

4. ARRA Funding Opportunity Announcements:
To participate in this solicitation, applicants must submit applications to the federal government in response to one or more of the following ARRA funding opportunity announcements:

- Enhanced Geothermal Systems Component Research and Development/Analysis, DE-FOA-0000075
- Enhanced Geothermal Systems Demonstration, DE-FOA-0000092
- Geothermal Technologies Program, DE-FOA-0000109
- High Penetration Solar Deployment, DE-FOA-0000085

The Energy Commission reserves the right to add or delete ARRA funding opportunity announcements from this Solicitation.

Table 1: Due Dates and FOA Specific information

ARRA Funding Opportunity Announcement	FOA Issue Date	Pre-Applications to Energy Commission by 4:00 p.m.	LOI Provided To Applicants	Final Applications to Energy Commission by 4:00 p.m.	Tentative Dates for Federal Award Notifications	Technical Contact	Workshop Date[1]
Enhanced Geothermal Systems Component Research and Development/Analysis DE-FOA-0000075	5/27/09	7/07/09	7/10/09	7/24/09 Scored with Geothermal Scoring Criteria	9/09	Gail Wigget gwiggett@energy.state.ca.us 916-653-7551	**Date**: June 26, 2009 **Time**: 9:00-11:00 a.m. **Location**: 1516 9th Street, Sacramento, CA 95814, Hearing Room B **Computer Logon**: https://energy.webex.com meeting # 923 835 568 Password: meeting@9am.
Enhanced Geothermal Systems Demonstration DE-FOA-0000092	5/27/09	7/20/09	7/23/09	8/06/09 Scored with Geothermal Scoring Criteria	9/09	Gail Wiggett	**Date**: June 26, 2009 **Time**: 9:00-11:00 a.m
Geothermal Technologies Program DE-FOA-0000109	5/27/09	7/10/09	7/15/09	7/29/09 Scored with Geothermal Scoring Criteria	12/09-1/10	Gail Wiggett	**Date**: June 26, 2009 **Time**: 9:00-11:00 a.m
High Penetration Solar Deployment DE-FOA-0000085	5/27/09	7/16/09	7/23/09	8/06/09 Scored with Solar Scoring Criteria	8/09	Prab Sethi psethi@energy.state.cau.us 916-654-4509	**Date**: June 26, 2009 **Time**: 1:00-3:00 p.m.

[1] For further details please see section 15. Workshop

5. Funding Information

The estimated funding available for this solicitation is up to $21 million of PIER funds. The Energy Commission reserves the right to adjust the available funding for this solicitation. The maximum ARRA cost share to be awarded for any one application is provided in Table 2.

Pursuant to Executive Order S-09-09,[2] the Energy Commission may be prohibited from awarding match funding under this solicitation. The Applicant will be responsible for obtaining sufficient cost share to meet ARRA funding requirements if the Energy Commission is unable to successfully execute a funding agreement.

Table 2: Funding Maximums by FOA

ARRA Funding Opportunity Announcement	Maximum Energy Commission Cost Share for a Single project
Enhanced Geothermal Systems Component Research and Development/Analysis, DE-FOA-0000075	$380,000
Enhanced Geothermal Systems Demonstration, DE-FOA-0000092	$250,000
Geothermal Technologies Program, DE-FOA-0000109	$410,000
High Penetration Solar Deployment, DE-FOA-0000085	$500,000

The Energy Commission reserves the right to adjust the cost share for any single project.

6. Eligible Projects

To be eligible to receive cost share award, the project must advance the science and technology of energy technologies and meet the minimum scoring criteria. The project must also correspond to the eligibility requirements of the relevant ARRA funding opportunity announcement **and receive ARRA funding from the federal government**.

Projects must be based in California.

To be eligible for funding, applicants must fulfill all of these requirements:

- Seek and obtain an award through one of the ARRA funding opportunity announcements identified in this solicitation.

[2] http://gov.ca.gov/executive-order/12460/.

- Address the pre-application requirements and final application evaluation criteria contained in this solicitation AND obtain a minimum passing score.
- Submit applications that are consistent with the goals of the PIER program (Public Resources Code Section 25620 et seq.) and of the relevant federal funding opportunity announcement.

7. Eligible Applicants

This is an open solicitation and all types of organizations may be eligible to apply.[3] Proposals submitted under this solicitation may request funding only for new projects or new tasks associated with existing projects. Organizations may submit multiple applications. However, each application must be for a distinct, separate project and must be submitted separately adhering to all requirements contained in this solicitation.

California business entities as well as non-California business entities conducting intrastate business in California are required to register and be in good standing with the California Secretary of State to enter into an agreement with the Energy Commission. If not currently registered with the California Secretary of State, Applicants are encouraged to contact the Secretary of State's Office as soon as possible to avoid potential delays in beginning the proposed project (should the application be successful). For more information, contact the Secretary of State's Office via its website at www.sos.ca.gov.

8. Project Selection and Award Process:

The Energy Commission will employ the following two-step process involving submission of a pre-application and, if invited, a final application. Pre-applications and final applications that meet the eligibility requirements will be reviewed by an Evaluation Committee. The Evaluation Committee may consist of Energy Commission staff, staff of other agencies, private consultants, and/or other designated representatives of the State. The Evaluation Committee can utilize application reviewers to provide input on one or more applications. The Evaluation Committee and any application reviewers will keep the contents of the pre-applications and final applications confidential until they become publicly accessible.

a) Pre-Applications

- The Energy Commission will consider pre-applications that contain all of the following information:
  - Cover Page (Attachment A).

[3] Please refer to the relevant ARRA funding opportunity announcement(s) for federal eligibility requirements.

- Project Summary. For a pre-application to pass, **the Project Summary must address all bullets or questions specified in the appropriate project summary requirements, or provide a statement of why the bullet or question is not applicable**. The project summary requirements are specified in Attachment B.
- California Environmental Quality Act (CEQA) Compliance Form (Attachment O, Form 1) if applicable.
- Short biographies, no more than 200 words per person (for the Project Manager/Principal Investigator and key project personnel (individuals in your organization or subcontractors)), emphasizing education, licensing, and experience related to the activities to be performed in the proposed project. Be specific. Do not submit complete resumes.
- Signature of the organization's authorized representative.

- **Grounds for rejection**: A pre-application **WILL** be rejected and not considered for funding if it:
  - Does not include the signature of the organization's authorized representative.
  - Requests an amount for any Project/Activity greater than the amount identified in Table 2.
  - Is not received by the Energy Commission by the specified date and time as listed in Table 1, corresponding to the applicable ARRA funding opportunity announcement(s).
  - Contains any information the Applicant has labeled as confidential, secret or protected in any manner. The Applicant's application will be returned and will not be considered.
  - Is inconsistent with the goals of PIER and/or the relevant ARRA funding source.
- The Energy Commission will provide a Letter of Intent (LOI) to Provide Funding for selected pre-applications. Applicants may include the Letter of Intent in an application for funding through any of the federal funding opportunity announcements specified in this solicitation. **Applicants that do not receive a Letter of Intent will not be eligible for cost share funding pursuant to this solicitation.** The Energy Commission will send a letter of rejection to unsuccessful applicants**.**
- A Summary including the applicant's name, requested PIER amount and project title will be made public. Applications will not be made public until the Notice of Proposed Awards (NOPA) is released.
- Applicants may request a debriefing to determine why their pre-application was not selected. A request for debriefing must be received no later than 30 days after Letters of Rejection are postmarked.

b) Final Applications

- Applicants must receive a Letter of Intent to submit a final application to the Energy Commission. **Receipt of a Letter of Intent does NOT guarantee that the final application will be approved for funding.**
- The final application must include the following:
  - Written proof that the application has been submitted to the federal government in response to an ARRA funding opportunity announcement. An example of written proof includes a printed copy of e-mail from appropriate federal agency confirming the receipt of the Applicant's relevant application.
  - A response to the scoring criteria (Attachment C).
  - A PIER Budget Workbook (Attachment F), Scope of Work (Attachment D), Product Schedule (Attachment G), CEQA Compliance Form (Attachment O, Form 2) if applicable, and Permitting Information Form (Attachment P) if applicable.

- **Grounds for Rejection.**
  - A final application **WILL** be rejected and not considered for funding if:
    - The Applicant has not submitted an application by the required deadline to the federal government in response to a federal ARRA solicitation.
    - The application is not received by the Energy Commission Grants and Loans office by 4 p.m. on the due date as specified in Table 1.
    - Contains any information the Applicant has labeled as confidential, secret or protected in any manner. The Applicant's application will be returned and will not be considered.
    - Is inconsistent with the goals of PIER and the relevant FOA.
    - Requests an amount for any Project/Activity greater than the amount identified in Table 2.
  - A final application **MAY** be rejected and not considered for funding if:
    - It does not include a Resolution (if applicable). A resolution authorizing submission of the application is required from a local jurisdiction's governing body (Sample in Attachment Q).
- A Scoring Committee will score the final applications using the relevant criteria (Attachment C), taking into consideration the comments of reviewers. Scoring will be based on the merits of the project proposal. Table 1 defines the scoring criteria that will be applied to each proposal submitted pursuant to the relevant FOA. Each proposal will be scored against other proposals

competing under the same FOA. Rank orders will be established for eligible projects under each FOA.

- The Energy Commission may invite applicants to a clarification interview for their final applications. Applicants may appear in person at the Energy Commission or discuss the application by telephone. The Energy Commission will provide no reimbursement to any applicant for the interview appearance.
- A minimum score of 70% is required for the application to pass and be considered for cost share funding (eligible project). Additional scoring information is in Attachment C. Eligible projects will be ranked according to their overall score.
- Applicants whose projects are eligible and who meet the criteria of a California-Based Entity (CBE) may have preference points added to their final technical score, subject to certain restrictions. Please see Attachment M for more information. Applicants must request and demonstrate eligibility by filling out and submitting as part of the application package the questionnaire contained in Attachment N. Otherwise eligible applicants who do NOT submit the Attachment N questionnaire shall NOT be eligible for the CBE Preference Points.
- Projects obtaining at least the minimum score will be considered for cost share funding, starting with the highest ranked project. The Energy Commission reserves the right to determine the number of final applications it will fund, and for each application to negotiate with the Applicant: the final project scope, any additional special terms and conditions, and the level of funding received pursuant to this solicitation.
- After taking into consideration CBE preference points, eligible projects will be ranked within the federal solicitation category starting with the highest ranked project.
- The Energy Commission reserves the right to determine the number of final applications it will fund under each federal solicitation rank list, and for each winning application to negotiate with the Applicant: the final project scope, any additional special terms and conditions, and the level of funding received pursuant to this solicitation.
- The results of the Energy Commission's decision of proposed funding level, the rank order of proposers, and the amount of each proposed award will be released through a Notice of Proposed Awards (NOPA).
- Applicants may request a debriefing to determine why their Application was not selected. A request for debriefing must be received no later than 30 days after the release of NOPA.
- Applicants proposed for an award pursuant to this solicitation will be required to prepare a detailed set of award documents, including but not limited to: a Scope of Work (Attachment D), a schedule of products and due dates (Attachment G), and detailed budget documents.

- Upon receiving the required documents, the Energy Commission will prepare a Grant Agreement, including applicable Terms and Conditions[4] and any additional terms and conditions, and send it to the grant recipient for review, approval, and signature.
- The Grant Agreement will be scheduled and heard at an Energy Commission Business Meeting for approval. If approved, the Energy Commission will fully execute the Grant Agreement. Recipients are approved to begin the project only after the date of the full and final execution of the Grant Agreement.
- If the Energy Commission is unable to successfully execute a funding agreement with an Applicant, the Applicant will be responsible for obtaining sufficient cost share to meet ARRA funding requirements.

9. Schedule of Application and Award Process:

Event	Date
Release of Solicitation	June 18, 2009
Workshop	June 26, 2009
Posting of Questions & Answers from Workshop	June 29, 2009
Deadline to Submit Written Questions	June 30, 2009
Posting of Questions and Answers	July 6, 2009
Deadline to Submit Pre-Applications	By 4 p.m. on the date listed in Table 1
Release of Letters of Intent	As listed in Table 1
Deadline to Submit Final Applications	By 4 p.m. on the date listed in Table 1
Approval of Awards at Energy Commission Business Meeting	TBD

Further information will be released in addendums as it becomes available.

10. Confidential Information:

Do not submit confidential information as part of the pre-application or final application. Applications containing such information will be returned without consideration.

[4] Samples of the required detailed award documents and the Grant Terms and Conditions can be found at [http://www.energy.ca.gov/contracts/] as part of this solicitation package. However, please note that the Energy Commission reserves the right to modify the award documents and/or the Grant Terms and Conditions prior to executing Grant Agreements.

Applicants may *propose* to deliver confidential products during the course of the project if funded. If necessary, instructions on submitting confidential products will be provided by the Energy Commission prior to executing the Grant Agreement.

11. Administrative Information:

Federal

Projects selected by the federal government for ARRA funding must comply with federal administrative and national policy requirements. Applicants must review the relevant ARRA funding opportunity announcement(s) for information regarding these requirements.

State

- **Payment of Prevailing Wage**

Some projects under this solicitation might be considered public works pursuant to the California Labor Code. If the project is a public work, prevailing wage is required. The California Department of Industrial Relations (DIR) has jurisdiction to decide whether a particular project is or is not a public work. If the project involves construction, alteration, demolition, installation, repair or maintenance work, it probably would be considered by DIR to be a public work. Examples of the activities that would probably lead DIR to find that the project involves public works include: cement work, site preparation such as grading, surveying, electrical work such as wiring, and carpentry work. Certain workers are entitled to prevailing wage, such as operating engineers, surveyors, carpenters, laborers, etc. However, other trades are not entitled to prevailing wage, such as engineers and project superintendents.

Applicants are encouraged to determine if the proposed project involves public works as soon as possible. In order to determine if the proposed project involves public works, please contact DIR as directed in Attachment J. If the Applicant is unsure whether the proposed project involves public works and has not received a determination from DIR that the project is not a public work, the proposed budget must provide for the payment of prevailing wages. Indicate whether the proposed budget includes prevailing wage.

If the proposed project is a public work, DIR maintains a list of covered trades and the applicable prevailing wage. Any agreement resulting from this solicitation will include the requirements for a public works project, such as paying prevailing wage, keeping payroll records, complying with working hour requirements, and apprenticeship obligations. See the sample terms and conditions, the Special Condition regarding Prevailing Wage Compliance (Attachment J), and Prevailing Wage Compliance Certification Form (Attachment K).

For detailed information about prevailing wage and the process to determine if the proposed project is a public work, see the Prevailing Wage Compliance Questions and Answers (Attachment L).

- **California Environmental Quality Act**

Projects selected for funding may meet the definition of a "project" for purposes of the California Environmental Quality Act (CEQA). (See Public Resources Code section 21000 et seq.) If this occurs, the Energy Commission's Legal staff will review the projects to determine whether an exemption applies that would prevent further actions under CEQA. If no exemption applies, certain CEQA requirements (such as, preparation of a negative declaration or environmental impact report) will have to be met prior to the Energy Commission approving the grant. The Applicant will have to pay the cost for these activities. Please refer to Title 20, California Code of Regulations, Chapter 6, Article 1, including section 2308. CEQA must be addressed in Attachment O.

12. Submission Deadlines:

Pre-applications

Five written (physical) copies of each pre-application must be ***received*** by the Energy Commission's Grants and Loans Office by 4:00 p.m. on the due date in accordance with Table 1. Neither postmark dates of mailing nor electronic transmissions (i.e., facsimile (Fax) or e-mail) are acceptable in whole or in part under any circumstances. The Energy Commission will reject all applications not received by the Grants and Loans Office by the stated due date and time.

Pre-applications may be mailed or hand delivered to:

Crystal Willis
California Energy Commission
Grants and Loans Office
Attn: American Recovery and Reinvestment Act of 2009 Cost Share
1516 Ninth Street, MS-1
Sacramento, CA 95814
cpresley@energy.state.ca.us

Final applications

Five written (physical) copies and one CD with electronic files for all documents submitted in word or excel files of each final application must be ***received*** by the Energy Commission's Grants and Loans Office by 4:00 p.m. on the due date in accordance with Table 1. Neither postmark dates of mailing nor electronic transmissions (i.e., facsimile (Fax) or e-mail) are acceptable in whole or in part under any circumstances. The Energy Commission will reject all applications not received by the Grants and Loans Office by the stated due date and time.

Crystal Willis
California Energy Commission
Grants and Loans Office
Attn: American Recovery and Reinvestment Act of 2009 Cost Share
1516 Ninth Street, MS-1
Sacramento, CA 95814
cpresley@energy.state.ca.us

13. Availability of Solicitation Documents and Information:

This solicitation, all supporting documents and forms can be found at www.energy.ca.gov/contracts/index.html under "Current Solicitations." Interested parties may also sign on to the electronic mailing list on this webpage to be notified of any changes to this solicitation.

For those parties without Internet access, copies of this solicitation can be obtained by contacting:

California Energy Commission
Grants and Loans Office
1516 Ninth Street, MS-1
Sacramento, CA 95814
Telephone: 916-654-5067

Interested parties may also request to be added to the mailing notification list to receive changes made to this solicitation.

14. Amendment or Cancellation of this Solicitation:

The Energy Commission reserves the right to do any of the following:

- Cancel this solicitation;
- Amend or revise this solicitation as needed; or
- Reject any or all applications received in response to this solicitation.

15. Workshop:

The Energy Commission will hold a workshop to discuss this solicitation. The workshop may be attended in person, online or by phone. General instructions for attendance are listed below.

Remote Attendance

- **Web Conferencing** - Presentations and audio from the meeting will be broadcast via our WebEx web conferencing system. For details on how to

participate via WebEx, please see the "Participation through WebEx" section at the end of this notice.

- **Conference Call** - To participate in the meeting by phone, please call (866) 469-3239 by 9 a.m. Passcode: please see Table 1. Call Leader: Rizaldo Aldas

Public Participation

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission activities. For information on how to participate in this forum, please contact the Public Adviser's Office at (916) 654-4489 or toll free at (800) 822-6228, by FAX at (916) 654-4493, or by e-mail at [PublicAdviser@energy.state.ca.us].

If you have a disability and require assistance to participate, please contact Lou Quiroz at (916) 654-5146 at least five days in advance.

Please direct all news media inquiries to the Media and Public Communications Office at (916) 654-4989, or by e-mail at [mediaoffice@energy.state.ca.us].

If you have technical questions on the subject matter, please contact Ms. Sandra Fromm of the Energy Generation Research Office at 916-653-9355 or e-mail at Sfromm@energy.state.ca.us.

Participation through WebEx, the Energy Commission's on-line meeting service

Computer Logon with a Direct Phone Number:

- Please go to [https://energy.webex.com] and enter the unique meeting number please see Table 1.
- When prompted, enter your information and the following meeting password please see Table 1.
- After you login, a prompt will appear on-screen for you to provide your phone number. In the Number box, type your area code and phone number and click OK to receive a call back on your phone for the audio of the meeting. International callers can use the "Country/Region" button to help make their connection.

Computer Logon for Callers with an Extension Phone Number, etc.:

- Please go to [https://energy.webex.com] and enter the unique meeting number please see Table 1.
- When prompted, enter your information and the following meeting password please see Table 1.
- After you login, a prompt will ask for your phone number. CLICK CANCEL.

- Instead call (866) 469-3239 (toll-free in the U.S. and Canada). When prompted, enter the meeting number above and your unique Attendee ID number which is listed in the top left area of your screen after you login. International callers can dial in using the "Show all global call-in numbers" link (also in the top left area).

Telephone Only (No Computer Access):

Call (866) 469-3239 (toll-free in the U.S. and Canada) and when prompted enter the unique meeting number above. International callers can select their number from [https://energy.webex.com/energy/globalcallin.php].

If you have difficulty joining the meeting, please call the WebEx Technical Support number at 1-866-229-3239. Please be aware that the meeting's WebEx audio and on screen activity may be recorded.

16. Questions:

For technical questions about this solicitation please refer to the contact information on Table 1. For administrative questions about this solicitation please contact:

Crystal Willis
California Energy Commission
Grants and Loans Office
Attn: American Recovery and Reinvestment Act of 2009 Cost Share
1516 Ninth Street, MS-1
Sacramento, CA 95814
or
Email: cpresley@energy.state.ca.us
(916) 654-5067

Questions received prior to the workshop will be answered at the Workshop and will be posted on the Energy Commission's website. All questions and answers will be posted on the Energy Commission website at [www.energy.ca.gov/contracts] as part of this solicitation package. The person and organization submitting a question will not be identified.

17. Attachments:

A – Cover Page and Summary Form
B – Pre-Application Project Summary
C – Final Application Scoring Criteria
D – Scope of Work Template
E – Instructions for the Scope of Work Template
F – Budget Template and Instructions
G – Schedule of Products and Due Dates Template and Instructions
H – Topic Areas and Examples of Previously Funded Solar Projects
I – Topic Areas and Examples of Previously Funded Geothermal Projects
J – Prevailing Wage Compliance

K – Prevailing Wage Compliance Certification Form
L – Prevailing Wage Compliance Questions and Answers
M – Preference Points for California Based Entities
N – CBE Preference Points Questionnaire
O – California Environmental Quality Act (CEQA) Compliance Forms
P – Permitting Information Form
Q – Sample Resolution
R – Sample Terms and Conditions

ATTACHMENT A

American Recovery and Reinvestment Act of 2009 Cost Share Instructions for Pre-Application Cover Page

Item a (Project Title):
Provide a title for the project that is descriptive of the proposed work. The title must communicate the type of work being proposed. Avoid trademarked names and acronyms that are not well understood by the general public. The title shall not exceed 10 words.

Item b (AARA Funding Opportunity Announcement):
List the American Recovery and Reinvestment Act of 2009 funding opportunity announcement and number identifier to which you will be responding

Item c (ARRA Funding Requested):
Provide the amount of ARRA funds you are requesting from the federal government.

Item d (Energy Commission Funds Requested):
Specify the amount of cost share funds you are requesting from the Energy Commission, and the minimum funding (total from ARRA and Energy Commission and other sources) required to allow the project to proceed.

Item e (Proposed Project Duration):
Specify how many months you need to complete the project. Project duration cannot exceed 48 months.

Item f (Project Category):
Check the box that corresponds to the overall category of the project.

Item g (Principal Investigator/Project Manager):
In most cases the Principal Investigator also serves as the Project Manager. If this is not the case then list the Project Manager in item f.

Item h (PI/PM Certification):
Include the signature of the Principal Investigator/Project Manager. Include a date after the signature.

ATTACHMENT A

APPLICATION COVER PAGE TEMPLATE AND INSTRUCTIONS

[The application cover page template for this solicitation is a separate Microsoft Word document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT B

American Recovery and Reinvestment Act of 2009 Cost Share Pre-Application Project Summary Requirements

The Pre-application project summary must address the requirements specified in the relevant section below. Refer to section I for solar solicitation and section II for geothermal solicitation. **Please limit your response to no more than five pages.** Be as concise as possible.

I. Solar pre-application

1. Describe the proposed project. Identify specific quantified goals, address barriers and their resolution, tasks, products to be delivered and project duration.
2. State the amount of funding needed from the Energy Commission, other match funding partners, and the total project budget. List team members (such as universities, national laboratories and utilities), relevant experience and project site location.
3. Describe the products to be delivered. Discuss anticipated performance improvements (technical and operational) of the proposed development vs. current practices, and broad applicability and adaptability for other similar applications in the State of California.
4. Describe the potential impact of the technology on California industry, market and accelerated deployment of renewable energy. Explain projected cost reduction impact in dollar/watt and levelized cost of electricity.
5. Describe how the proposed project will help meet the goals of California Solar Initiative, California's Renewable Portfolio Standard, and California's Global Warming Solutions Act (AB 32). Quantify results and benefits for above mentioned policy goals.
6. Discuss proposed project system integration with the California utility grid and resulting benefits.

II. Geothermal pre-application

All Applicants:

1. Describe the proposed project. Identify specific quantified goals, address barriers and their resolution, products to be delivered and project duration.
2. List additional funding partners, and the total project budget. List team members (such as universities, national laboratories and utilities) and project site location.
3. Describe the products to be delivered.
4. How will this project support California's economic recovery in the near term and

create or sustain jobs and local income or tax revenue? Quantify your answers to the extent possible, and include time frames.

Please answer the additional questions for each specific FOA for which you are applying:

EGS Component R&D/Analysis DE-FOA-0000075:

a. Have you chosen a site(s) in California to demonstrate or test this technology and at what other sites would you expect this technology to be useable, if successful? Have you discussed the deployment of this technology with companies operating in California? If so describe the results.

EGS Demonstration DE-FOA-0000092:

b. The U.S. Department of Energy envisions a 4-6 year time frame for these projects, but there is a need to increase power production as quickly as possible to facilitate economic recovery. Describe the site-specific factors that would cause the recipient to shorten or lengthen this time frame.

c. Any new power plant built in California will face issues surrounding connection to the transmission grid. Describe as specifically as possible the ability of a power plant at the project demonstration site to connect to the grid in California. Include quantities such as distances to collection lines or substations, feed in capacities, connection voltages, distance, isolation, power quality, voltage and metering.

Geothermal Technologies DE-FOA-0000109:

d. Have you chosen a site(s) in California to demonstrate or test this technology and at what other sites would you expect this technology to be useable, if successful? Have you discussed the deployment of this technology with companies operating in California? If so, describe the results.

ATTACHAMENT C

American Recovery and Reinvestment Act of 2009 Cost Share Final Application Scoring Criteria

The Energy Commission will fully evaluate each proposed project using the scoring criteria and methodology described in the relevant section below. Refer to section I for solar solicitation and section II for geothermal solicitation. Applicants' responses to the scoring criteria must be based on the entire project as proposed to the Federal government in response to an ARRA solicitation, and may not be limited to the portion of the project for which Energy Commission cost share funds are being requested.

Applicants must provide <u>no more than 20 pages</u>, using 12 point font, single space and one inch margin on all sides, of qualitative and quantitative supporting documents for this attachment.

I. Solar application

1. Technical Merit:

Maximum Possible Points: 20

- The current status of the proposed technology as it has been developed by the research and industrial community at large.
- How the proposed project will address current barriers or knowledge gaps to advance the state-of-the-art and market acceptance.
- Past and current work in the subject technology performed by the project team and others, including successes and failures.
- The extent to which the project will address the objectives of the PIER Program in the area of Solar and Energy Storage.
- How the proposed project will help meet the goals of California Solar Initiative, California's Renewable Portfolio Standard, and California's Global Warming Solutions Act (AB 32).

2. Description of Proposed RD&D

Maximum Possible Points: 30

- The technical tasks are clearly and logically presented, with appropriate objectives, logical and discrete tasks, sequence of activities, products produced, deliverables, schedule, and budget.
- The application describes the scientific and technical principles underlying the proposed work, and the manner in which the scientific and engineering principles will be applied.
- The distinctive and innovative features of the approach are discussed.
- The likelihood of success based upon a sound research plan.

3. Identified Targets, Goals, and Market Application

Maximum Possible Points: 25

- The proposed project is cost effective and will significantly help in adding additional solar generation capacity.
- The extent to which the project addresses significant key issues and barriers to the development and market acceptance of solar technology.
- Quantitative or measurable technical and economic performance goals and the methodology used to determine if the goals have been achieved.
- How the project will fulfill market needs. A reasonable path is described for commercialization of the technology if the project is successful.
- Quantified results and benefits for meeting policy goals of CSI, RPS and AB 32.

4. Qualifications of Project Manager and Project Team

Maximum Possible Points: 25

- The Project Manager and team members have the technical capabilities, specific experience and financial capability to successfully complete the project.

- The Project Manager can successfully manage the project, control cost, and maintain the schedule, and report results and accomplishments in an effective manner.
- The application clearly and adequately presents capabilities and experience of the team members to perform the proposed work for different tasks.
- The application presents the team members' collaboration to perform and facilitate transfer of project products to the marketplace. Is electric utility part of the team?
- The project cost is consistent with the work to be performed and is justified.
- The PIER funding request, match funding, and need for PIER funding are appropriate and consistent with the expected level of public benefits if the project is successful

II. Geothermal application

1. Policy Maximum Possible Points: 5

- The degree to which the project addresses key issues or problems facing the geothermal industry in California and/or:
- Is applicable to relevant goals and objectives stated in the Commission's Energy Action Plan (available on the Energy Commission website at www.energy.ca.gov) and/or:
- Accelerates the goals of the California Renewable Portfolio Standard, SB 1078.

2. Increased Geothermal Presence in California Maximum Possible Points: 5

- The degree to which the project can demonstrate the ability to attract and support geothermal development of new or underutilized geothermal resources in California and/or enhance existing resources.

3. Public vs Private Benefits Maximum Possible Points: 5

- The degree to which the project is likely to create or retain jobs, provide local revenue and support California businesses;
- The degree to which the project demonstrates overall benefits to California in addition to private benefits to the applicant, with consideration of the proportion of match provided by the applicant from other than public sources.

4. Innovation Maximum Possible Points: 10

- The degree to which the application demonstrates that the project will increase the reliability of site characterization, and/or:
- Lead to improved well targeting, innovations in tools, models, remote sensing, reservoir management and modeling, or other applications usable in California, above and beyond what is present practice.

5. Technical Merit Maximum Possible Points: 15

- As applicable, the degree to which the application demonstrates the technical merit and feasibility of the proposed work, including but not limited to, understanding of the current state of the art within California;
- Adequacy of the existing site characterization data and/or understanding of the resource quality and potential;
- Adequacy of the plan to validate and test the proposed technology or measure the success of a field stimulation/enhancement activity.

6. Project Implementation Maximum Possible Points: 15

- Clarity of statement of goals and objectives, including specific measures of success;
- Adequacy and clarity of a plan to address potential risks, liabilities, or problems that may arise;
- Adequacy and reasonableness of the budget;
- Appropriateness of proposed decision points and milestones.

7. Life Cycle Costs Maximum Possible Points: 15

- The degree to which the project reduces the life-cycle cost of geothermal electricity generation in California by, including but not limited to, improving the efficiency and reducing the cost of resource exploration and assessment, permeability detection, mapping, well siting, drilling and well completion, power plant design and construction, reservoir monitoring and management, or power plant surface facilities.

8. Efficiency and Capacity Maximum Possible Points: 15

- The degree to which the project increases the capacity, efficiency and/or sustainability of existing California geothermal facilities and/or:
- Adds new geothermal generation capacity in California, creates value-added products and income streams from existing plants and/or:
- Reduces operation and maintenance costs of wells and plants.

9. Likelihood of Success Maximum Possible Points: 5

- The degree to which the applicant demonstrates the ability to implement and complete the project, including but not limited to, the qualifications and

experience of the team; feasibility of the project at the proposed site; cost-effectiveness; clarity, conciseness and quality of the research and implementation plan; and the degree of commitment from other partners.

10. Tech transfer Maximum Possible Points: 5

- If applicable, the degree to which the technology, methods or products are transferable to other geothermal fields within California, and the adequacy of the technology transfer or information dissemination plan.

11. Potential major hurdles and other considerations
Maximum Possible Points: 5

- As applicable, the extent of the characterization, planning and regulatory and environmental permitting and status of CEQA compliance, and/or:
- The demonstrated availability and sustainability of sufficient water or other means for a stimulation or enhancement project; and/ or:
- Adequacy of transmission availability to support the proposed project in a timely fashion; and/or:
- Extent to which the project may contribute to or fit in with a local distributed generation system or integrate with other renewables.

ATTACHMENT D

SCOPE OF WORK TEMPLATE

[The scope of work template for this solicitation is a separate Microsoft Word document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT E

INSTRUCTIONS FOR THE SCOPE OF WORK TEMPLATE

The Scope of Work Template contains the framework to use to complete the Scope of Work. The template has instructions in blue type within < > that are to be deleted as it is filled out. The following are additional instructions for the items in the Scope of Work. At the end of these instructions, there are examples of Technical Tasks to provide guidance in drafting your own.

I. Technical Task List

Insert the Task numbers and Task names for the project. Put an "X" in the CPR column next to the Tasks that contain a Critical Project Review. Add additional rows as necessary.

II. Key Name List

List key parties within the agreement as described below. See Terms and Conditions for more information regarding key parties within the agreement.

Key Personnel are employees or consultants who are critical to the outcome of the project and are being paid with PIER funds. Key Personnel have expertise in the project field or experience that is not available from another source. Replacing these individuals may be difficult due to their expertise and may affect the outcome of the project. Since key personnel can come from various organizations working on the agreement, they should be written as follows to avoid confusion: “John Smith – Acme Company”

Key Subcontractors are contractors, subcontractors, or vendors who are critical to the outcome of the project and are being paid with PIER funds. Key Subcontractors have expertise in the project field or experience that is not available from another source. Replacing these individuals may be difficult due to their expertise and may affect the outcome of the project.

Key Partners are participants in the Project who are not receiving PIER funds and are not providing Match Funds but are integral to the outcome of the Project. Key Partners may be providing space, testing facilities, demonstration sites or may be a manufacturer or other implementer of the Project results. Individual key employees from the Key Partner organizations are listed under “Key Personnel.” “Key Partners” are company names.

III. Glossary

Spell out each acronym used in the Scope of Work. Also include definitions of odd or unusual terms. Think about the document from the perspective of someone who does not work in the particular industry or discipline.

IV. Problem Statement

Describe the problem that this research will address in one to two paragraphs maximum.

Describe the scientific and technological baseline that is the current state-of-the-art or the developmental status of the subject technology to be advanced.

Identify entities engaged in development of the subject technology. Identify whether or not the proposed project duplicates or overlaps with other ongoing RD&D. Emphasize past advances that you have made in areas relevant to the proposed work.

Describe the deficiencies that exist for the subject technology. The deficiencies should illuminate the question of *why* the proposed project should be done.

Identify and discuss the principal barriers, key unresolved issues, and knowledge gaps that hinder the development and widespread use of the resource or the products of the proposed research in California. Barriers may be grouped under the following categories, or other categories that the Applicant deems appropriate:

- Scientific and technological – such as insufficient scientific understanding of relevant phenomena and processes, inadequate data acquisition technologies, low reliability, low power density, low energy density, lack of detailed engineering designs and design trade-off analyses, inadequate component development, high cost of fabrication techniques, insufficient field testing, or insufficient field demonstrations.

- Market – such as inadequate consumer knowledge or limited system supply and maintenance infrastructure.

- Institutional – such as regulatory hurdles (e.g., atmospheric emission limitations) or lack of adopted standards.

- Environmental – such as H_2S emissions, excessive noise, or ground water contamination.

Explain why these barriers have not been addressed by the marketplace or by other institutions.

Explain why the barriers should be addressed at this time. For example, place the proposed work into the context of the spectrum of barriers to widespread deployment and adoption.

V. Goal of the Agreement

At the beginning of this section, complete the following sentence. Please be succinct.

The goal of this project is to … *<Complete the sentence with a brief description of the goal(s) and how the goal(s) will be met. Goals can be technical, economic or social. Please be brief, two to three sentences maximum.>*

VI. Objectives of the Agreement

The objectives of this project are to … *<Complete this sentence with the objectives, which are things that will be measurable or knowable at the end of **this** project.>*

If the improvements that your project will make are not amenable to measurement, surrogate performance metrics that can be measured must be given. Describe the methodology or procedure that will be used at the completion of the project to determine if the performance metrics have been achieved.

List and describe technical or economic objectives, or desired conditions outside the project itself that will result from the success of the project.

VII. Task 1.0 Administration

The administrative tasks must be included in every agreement and the language does not change except for the following:

- **Applicants can propose to change Task 1.4 from monthly to quarterly progress reports.**
- **Applicants can propose to delete or modify Task 1.8, Establish the PAC, and Task 1.9, Conduct PAC Meetings.**

Otherwise, do NOT change anything in the administrative tasks.

VIII. Technical Tasks (Tasks 2 through n)

This is the area in the Scope of Work where the technical work to be performed under this Agreement is set forth. The work effort should be divided into a series of logical, discrete and sequential tasks. Each task has the following components:

- **Task Name**
- **The goal of this task is to ...**
- **The Recipient shall:**
- **Products**

A. The Goal

The goal of this task is to ... *<Complete the sentence with a brief description of the goal(s). Please be brief, two to three sentences maximum.>*

B. The Recipient shall …

List each individual **activity** with a separate bullet if there are more than two individual activities and begin each bullet with a verb to complete the sentence beginning with "The Recipient shall." Organize activities in the order in which they will occur. Use this section to describe the essential elements of the process you will use to complete the project. The contents of each product shall also be described in this section.

For Example:

The Recipient shall:

- Prepare the X Test Plan. This plan shall include, but is not limited to ...
- Conduct research in accordance with the X Test Plan.
- Prepare the X Test Results Report. This report shall include, but is not limited to, the following ...

Please note that if a project is for demonstration, or if a project involves testing, one of the tasks should be Test Plan preparation. The Test Plan should include considerations such as the number of hours of operation, the type of monitoring to be preformed, the manner in which data will be validated, analyzed, and reported.

C. Products:

Product(s):

- *<Insert 1st product (name only)>*
- *<Insert 2nd product (name only)>*

Only the names of each product shall appear in the “Products” section. Use exactly the same name to identify a product (report, data set, project plan, etc.) in the activity and in the list of products.

Products incorporate the knowledge and understanding gained by performing the activities, and are submitted to the Energy Commission for review, comment and approval. Products include, but are not limited to, written reports that describe methods, test plans, results of testing, analysis of data, conclusions, and recommendations for future study, workshop agendas and summaries, description and photographs of equipment/product developed, summaries of advisory group meetings, computer software with written instructions for data input and use of the software, if intended for public or Energy Commission use, and production prototypes. The summaries of the Products should be sufficiently detailed to be of use to stakeholders and other researchers. The level of detail should be sufficient for an observer to assess whether the project objectives and goals have been successfully met.

D. Task n-1 Technology Transfer Activities
Change the language as appropriate for your project.

E. Task n Production Readiness Plan
Change the language as appropriate for your project

IX. Examples of Different Types of Technical Products ***(These are examples, which you may modify for use in your project. You may create other products as needed, but please adhere to the patterns shown.)***

1. Written Notification

- Provide a Written Notification regarding _____, to the Commission Project Manager. *(Give it a unique name based on the content and the project.)* The letter shall include but is not limited to written documentation that the _____ is ready for *(testing, viewing, submission for certification, etc.*) and the date such (*testing, viewing, submission for certification, etc.)* shall begin, and shall include photographs.

Product: Written Notification regarding _____

2. Test Plans

- Prepare the _____Test Plan. *(Give it a unique name, such as the Site A Test Plan. Test plans and testing procedures should be described in detail including factors such as instrumentation, data collection, data analysis, statistical analyses, and performance curves. Test results shall include relationships among performance, efficiency, emissions, temperature, pressure and all other parameters that qualify and quantify the subject technology.)* The Test Plan shall include, but is not limited to:

  - a description of the process to be tested;
  - the rationale for why the tests are required;
  - predicted performance based on calculations or other analyses;
  - test objectives and technical approach;
  - a test matrix showing the number of test conditions and replicated runs;
  - a description of the facilities, equipment, instrumentation required to conduct the tests;
  - a description of test procedures, including parameters to be controlled and how they will be controlled; parameters to be measured and instrumentation to measure them; calibration

procedures to be used; recommended calibration interval; and maintenance of the test log;
- a description of the data analysis procedures;
- a description of quality assurance procedures;
- contingency measures to be considered if the test objectives are not met;
- *<add additional bullets specific to the project as needed>*.

Product(s):
- Draft _____ Test Plan
- Final _____ Test Plan

3. **Interim Reports** (*This applies to all product reports. Examples include task and subtask reports, test reports, data sets, databases and computer model development or application. Monthly reports and the final report are treated separately as shown in the Scope of Work.)*

- Prepare the_____ Report *(Give it a unique name, such as the ABC Test Report or 123 Database. If an interim report is based on earlier work in this project, then the titles should relate to each other. After the title insert a description of the product.)* This report shall include, but is not limited to, the following*: (List the elements of the report in separate bullets.)*

For example, if the Interim Report is a Test Report, use the following description:

The Test Report shall include, but is not limited to, the following:
- the Test Plan;
- test results;
- analysis;
- conclusions;
- recommendations;
- photographs as appropriate;
- *<add additional bullets specific to the project as needed>*.

For example, if the Interim Report is a Task or Subtask Report, use the following description:

The Task or Subtask Report shall include, but is not limited to, the following:
- the goal of the task or subtask;
- the description of the approach used;
- list of activities performed;
- description of the results and to what degree the goal was achieved;

- significant issues encountered and how they were addressed;
- a discussion of the implications regarding the success or failure of the results, and the effect on the budget and the overall objectives of the project;
- photographs as appropriate;
- *<add additional bullets specific to the project as needed>*.

Product(s):

- **Draft _____ Test (Task, Database, etc.) Report**
- Final _____ Test (Task, Database, etc.) Report

4. Bills of Materials or Equipment Lists

- Prepare a Bill of Materials (or Equipment List) for _____. *(Give it a unique name.).* This document shall include but is not limited to:
  - a description of each item;
  - test protocols and codes applicable to each item;
  - cost estimates or bids for each item.

Product: Bill of Materials (or Equipment List) for_____

5. Site Selection (optionally, this can be incorporated into a Test Plan)

- Determine Site Selection Details for the field test site, including but not limited to the following, and obtain Commission Project Manager approval:
- Type of site, i.e., <Sites for Wind Energy Storage Projects>
  - Residential
    - Specify type of dwelling: single family, multiple family including number of units, apartment, townhouse, etc.
    - Specify age of dwelling: new home construction, model home, existing home (indicate approximate age)
  - Commercial (specify warehouse, retail, office, etc.) <Sites for Wind Energy Storage Projects>
- Number of sites
- Location, i.e., climate zone, area, or city
- Timing of testing (i.e., season or month), length and frequency of testing
- Agreement with site owner, to address issues such as:
  - Details of test, including dates, length of test
  - Site owner input and feedback on test conditions
  - Access to site

- Insurance and indemnity
- Contingency if damages are caused by test
- Equipment installation and removal

Once the site is selected, Recipient shall enter into an agreement with the site owner and make a copy of the agreement available to the Commission Project Manager upon request.

Product: Written Notification of Site Selection

ATTACHMENT F

Budget Template and Instructions

[The budget template and instructions for this solicitation is a separate Microsoft Excel document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT G

SCHEDULE OF PRODUCTS AND DUE DATES TEMPLATE AND INSTRUCTIONS

[The schedule of products and due dates template and instructions for this solicitation is a separate Microsoft Excel document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT H

American Recovery and Reinvestment Act of 2009 Cost Share Topic areas and Examples of Previously Funded Solar Projects

Funding for the solar component of this solicitation may include, but not be limited to, the following topic areas:

- Development of modeling tools and database on the dynamics and scenarios of photovoltaics (PV) and distribution system.
- Demonstration and integration of PV and energy storage technologies for smart grid applications.
- Technological development and strategies for cost reduction of installed systems by developing value-added components, sub-systems or packaged systems, standardization and/or simplification of design installation.
- Development, analysis, validation and piloting of innovative business models and financing mechanisms for PV systems to accelerate market penetration, end user adoption, and sustainable PV market growth in California.
- Evaluation of alternatives to current grid integration standards and procedures such as benefits and costs of innovative PV-specific tariffs and/or net metering arrangements or alternative mechanisms for monetization of carbon off-sets and other environmental benefits of PV.
- Innovations in solar-enhanced energy security such as integration of grid-tied PV arrays with conventional back-up power systems.
- Integration of PV modules with micro-inverters to achieve optimum performance.
- Development and implementation of advanced inverter technologies.

Examples of current and recently completed projects include the following:

- Design & development of low-cost high-temperature solar collectors for mass production
- Reduce Natural Gas Use for Industrial Process Heat using High-Temperature Parabolic Trough Solar Collectors
- Solar Combined Heat and Power System
- Advanced Community Scale Solar Home Design Tools
- Demonstration of a Novel, Low-Cost Two Axis Solar Tracking System
- Design & Optimization of a Solar Fired 2E Absorption Chiller
- Residential Electric Power Security
- Hybrid Solar-Fossil Thermophotovoltaics

- Catalytic Combustor - Fired Industrial Gas Turbine for Distributed Power & Cogeneration Applications
- Reduce Natural Gas Use for Industrial Process Heat using High-Temperature Parabolic Trough Solar Collectors

ATTACHMENT I

American Recovery and Reinvestment Act of 2009 Cost Share Topics Areas and Examples of Previously Funded Geothermal Projects

Funding for the geothermal component of this solicitation may include, but not be limited to, projects that address the following:

- Demonstrate and validate reservoir stimulation technologies.
- Reduce the risk and costs of geothermal site selection, exploration and characterization.
- Increase effectiveness and efficiency of reservoir management and sustainability.
- Reduce the life-cycle cost of geothermal electricity generation and improve power plant efficiency.
- Research, development and demonstration projects that reduce the uncertainty and cost of enhancing geothermal reservoir systems.
- Demonstrate and validate the feasibility of energy production from nonconventional geothermal resources such as low-temperature fluids, co-produced oil and gas brines or geopressured resources.

Examples of current and recently completed projects include the following:

- Application of InSAR to the Monitoring and Mitigation of Surface Substance from Increased Geothermal Development in the Imperial Valley, CA
- Structuring A Geothermal Heating District for Mammoth Lakes
- Integrated Geothermal Systems Simulator to Enhance Power Generation at the Geysers
- Pilot-Scale Geothermal Silica Recovery at Mammoth Lakes
- Structure of Salton Sea Geothermal Field from Passive Seismic Measurements
- Geothermal Exploration in Eastern California Using ASTER TIR Data
- Development of an Extended Logging Tool for Geothermal Exploration and Field Development
- Rhyolite Plateau Geothermal Exploration
- Drill And Complete Gmf 88-28 To Confirm The Existence Of A Commercial Geothermal Resource
- Dual Horizontally Completed Injection Well To Enhance Geothermal Production At The Geysers
- Fluid Inclusion Stratigraphy: A New Inexpensive Method For Geothermal Reservoir Assessment
- Geothermal Exploration Under The Salton Sea Using Marine Magnetotellurics

- Geothermal HVAC Conversion
- Drilling & Testing Of An Exploratory Well Truckhaven Geothermal Area, Imperial County, CA
- Geothermal Exploration Drilling, Assessment, & Demonstration In Indian Country
- Geothermal Reservoir Exploration By Fault Zone Guided Wave & Shear Wave Splitting Tomography
- Mineral Recovery From Geothermal Brine
- Fracture Permeability Mapping & Fluid Flow monitoring At The Geysers Geothermal Area
- Optimization Of Steam Field Management At The Aidlin Geothermal Project
- Evaporative Cooling Of Geothermal Power Plants With Recycled Water
- Co-Production Of Silica From Geothermal Fluids
- Improving Energy Recovery at the Geysers Geothermal Field by Delineation of In-Situ Saturation

ATTACHMENT J

PREVAILING WAGE SPECIAL CONDITION TEMPLATE

PUBLIC WORKS AND PAYMENT OF PREVAILING WAGE

A. Recipient/General Requirements

1. Recipient shall comply with state prevailing wage law, Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720 and Title 8, California Code of Regulations, Chapter 8, Subchapter 3, commencing with Section 16000, for any "public works" (as that term is defined in the statutes) performed on the Project funded by this Agreement. For purpose of compliance with prevailing wage law, the Recipient shall comply with provisions applicable to an awarding body. Compliance with state prevailing wage law includes without limitation: payment of at least prevailing wage as applicable; overtime and working hour requirements; apprenticeship obligations; payroll recordkeeping requirements; and other obligations as required by law.
2. Recipient shall certify to the Energy Commission on each Payment Request Form, that prevailing wages were paid to eligible workers who provided labor for work covered by the payment request and that the Recipient and all contractors complied with prevailing wage laws.
3. Prior to the release of any retained funds under this Agreement, the Recipient shall submit to the Energy Commission a certificate signed by the Recipient and all contractors performing public works activities stating that prevailing wages were paid as required by law. The required certificate follows these special conditions.

B. Flowdown Requirements

Recipient shall ensure that all agreements with its contractors to perform work related to this Project contain the following provisions:

1. Contractor shall comply with state prevailing wage law, Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720; and Title 8, California Code of Regulations, Chapter 8, Subchapter 3, commencing with Section 16000, for all construction, alteration, demolition, installation, repair or maintenance work over $1,000 performed under the contract. Contractor's obligations under prevailing wage laws include without limitation: pay at least the applicable prevailing wage for public works activities performed on the Project; comply with overtime and working hour requirements; comply with apprenticeship obligations; comply with payroll recordkeeping requirements; and comply with other obligations as required by law.

2. Contractor shall ensure that the above requirements are included in all its contracts and any layer of subcontracts for activities for the Project.

ATTACHMENT K

PREVAILING WAGE COMPLIANCE CERTIFICATE

After the public works[5] activities funded by this Agreement are complete, Recipient must fill out and sign this certificate and obtain the signatures from all of its contractors and any layer of subcontractors involved in public works funded by this Agreement.

This certificate must be completed and submitted to the Energy Commission Project Manager prior to the release of the retained funds under this Agreement.

Recipient:

Energy Commission Agreement Number:

Date Public Works Completed:

Recipient hereby certifies as follows:

1. State prevailing wage law, Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720 and Title 8, California Code of Regulations, Chapter 8, Subchapter 3, commencing with Section 16000, has been complied with for the "public works" (as that term is defined in the statutes) funded by this Agreement, including payment of at least prevailing wage as applicable; overtime and working hour requirements; apprenticeship obligations; payroll recordkeeping requirements; and other obligations as required by law.
2. All contracts and every layer of subcontracts involving public works funded by the above-referenced Agreement contained requirements that the contractor or subcontractor comply with prevailing wage law and pay prevailing wages in accordance with the requirements of the Labor Code.
3. The contractors and subcontractors have maintained labor records as required by the Labor Code and such records shall be made available upon request.
4. The undersigned Recipient acknowledges that disbursement of the retention by the California Energy Commission is expressly made in reliance upon the representations made in this certification.

[5] Public works is defined in Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720.

Recipient:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Each contractor and subcontractor performing public works (e.g., construction, alteration, demolition, installation, repair or maintenance work) for the Project must sign below. Include additional pages if necessary.

Contractors and subcontractors hereby certify as follows:

1. The contract with the Recipient or the Recipient's contractor to perform work funded by the above-referenced Agreement contained requirements that the contractor and all its subcontractors comply with prevailing wage law and pay prevailing wages in accordance with the requirements of the Labor Code.
2. Prevailing wages have been paid as required by law.
3. Contractor and all its subcontractors have maintained labor records as required by the Labor Code and such records shall be made available upon request.
4. The undersigned acknowledges that disbursement of the retention by the California Energy Commission to the Recipient is expressly made in reliance upon the representations made in this certification.

Construction Contractor #1

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Construction Contractor #2

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Construction Contractor #3

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Construction Contractor #4

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Construction Contractor #5

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

Construction Contractor #6

Company Name:

Signature of Authorized Representative:_____

Printed/Typed Name:

Title:

Date:

ATTACHMENT L

PREVAILING WAGE COMPLIANCE QUESTIONS AND ANSWERS

1. Is Payment of Prevailing Wage Required?

Yes. Any Recipient whose project involves "public works" as the term is defined in defined in Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720, must pay prevailing wages in accordance with the law.

2. Does prevailing wage apply to private entities?

Yes. A private entity must pay prevailing wage under California law if the project involves public works.

3. How do I know if my project involves public works?

The California Labor Code beginning at section 1720 deals with this issue. Labor Code sections 1720 and 1771 define public works as:

- Construction (includes work performed during the design and preconstruction phases of construction including but not limited to, inspection and land surveying work).
- Alteration
- Demolition.
- Installation.
- Repair work.
- Maintenance work.

These Labor Code sections can be found online at http://www.leginfo.ca.gov/calaw.html.

Below are some examples (this list is not exhaustive) of the types of activities that typically lead to finding that a project is a public work:

- Cement work such as pouring a cement pad.
- Site preparation such as grading.
- Surveying.
- Electrical work such as wiring.
- Carpentry work.
- Limited inspection activities.

4. What kind of trades or workers must be paid prevailing wage?

The California Department of Industrial Relations (DIR) Division of Labor Statistics and Research (DLSR) makes the final determination on which trades and/or workers are covered by prevailing wage laws. DLSR maintains a list of the covered trades/workers that are entitled to prevailing wage for public works commercial construction projects. See www.dir.ca.gov/dlsr/statistics_research.html or call the DLSR Prevailing Wage Hotline (415) 703-4774 for more information about these trades.

Generally, workers such as the following would be covered trades:

- Operating engineer (heavy equipment operator)
- Surveyor
- Carpenter
- Cement Mason
- Electrician
- Laborer

The following types of workers usually would NOT be covered trades entitled to prevailing wage:

- Engineer
- Project superintendent / construction manager / project manager
- Architect
- Planner
- Computer programmer

The above examples are for general information only. If you have questions about whether a worker is in a covered trade requiring payment of prevailing wages, you should check directly with DIR.

5. What if I am unsure whether my project involves public works and prevailing wage must be paid? How Should I Budget if I am Unsure About Prevailing Wage?

You are encouraged to determine if your project involves public works as soon as possible. In order to determine if your project is a public work, you will need to contact the California Department of Industrial Relations (DIR). They can be reached at (415) 703-4774. If you do not know whether your project is a public work and you have not obtained a determination from DIR that the project is not a public work, you must budget with the assumption that the project is a public work and comply with the prevailing wage laws, including but not limited to the payment of prevailing wages.

On the budget, please indicate whether your budget includes amounts for the payment of prevailing wage. You must indicate "yes" unless you have received a determination from DIR that the project is not a public work.

If you do not budget for prevailing wage, and it is later determined that the project involves public works and prevailing wage must be paid, you may be liable for damages and penalties. You also cannot later increase your grant award if it is determined that prevailing wages apply and increase project costs higher than budgeted. The amount requested in your application is the maximum that will be paid. Any increased costs for payment of prevailing wage must be paid with match funds. The Energy Commission's grant award amount does not change or increase if the applicant's costs increase for any reason.

6. How do I get assistance in determining whether the project involves public works?

First, call the DLSR Prevailing Wage Hotline, (415) 703-4774. The Prevailing Wage Hotline can frequently give advice quickly on routine questions. If the Prevailing Wage Hotline is unable to answer your question, you will need to write to the Director of DIR for a coverage determination on whether your project involves public works. You would include all the relevant facts and documents related to the project. DIR regulations, Title 8 California Code of Regulations, section 16001(a)(1), provides that any interested party may file a request with the Director of DIR to determine coverage under the prevailing wage laws. The request can be either for a specific project or type of work to be performed that the interested party believes may be subject to or excluded from coverage as public works under the Labor Code. The full text of DIR's regulations can be found at: http://ccr.oal.ca.gov, (Title 8, Division 1, Chapter 8, Subchapter 3, Article 2). Send requests for a coverage determination to:

Department of Industrial Relations
Office of the Director
455 Golden Gate Avenue
San Francisco CA 94102

7. How long will it take to get an answer?

We do not know, but hope that the question can be asked and answered informally and quickly through the Prevailing Wage Hotline. If you need to submit a request to the Director of DIR, it will take longer to get a coverage determination.

8. What happens if I make a request to DIR but do not have a decision, or am still unsure whether prevailing wage must be paid, by the time the Energy Commission makes an award at a business meeting, or by the time I execute the grant agreement?

In this case, the Energy Commission would execute a grant agreement with a budget that assumes prevailing wage is required. If the Recipient, prior to performing the activities in question, then receives a determination from DIR that the project is not a public work, then the Energy Commission can execute an amendment with the Recipient to decrease the budget accordingly. The prevailing wage terms and conditions can also be removed.

9. What if I submit a application to the Energy Commission with a project that I say is not a public work, and the Energy Commission believes that it might be a public work? How would we resolve our differences?

We would request that you first call the Prevailing Wage Hotline. If you do not receive an answer, we would request that you write a letter to DIR and ask DIR to make the decision. If DIR says the project is a public work, then you will need to pay prevailing wages. If you do not obtain a DIR determination that the project is not a public work requiring the payment of prevailing wage, then you must assume that the project is a public work and comply with the prevailing wage laws, including paying prevailing wages.

10. If my project is a public work, how do I know what prevailing wages are required in order to prepare a budget?

If your project is a public work, please submit your budget with the applicable prevailing wage for each trade entitled to prevailing wage as determined by DLSR. For prevailing wage rate information for commercial projects, see www.dir.ca.gov/dlsr/statistics_research.html or call the Prevailing Wage Hotline (415) 703-4774. If your project involves residential construction, the rates are not listed on DIR's website, and you must call the DLSR Prevailing Wage Hotline.

11. What do I do if workers will be used who do not fit neatly into one of the categories on the DIR website?

Contact DLSR and describe the type of trade you anticipate will be required in your project and ask whether there is an existing prevailing wage already set by DLSR.

12. Does prevailing wage apply to a public entity that performs project work with its own employees?

No.

13. If my project is considered a public work, then are there any special requirements?

Yes. For example, the grantee must make sure that covered workers are paid prevailing wage. There are other requirements, such as keeping payroll records, complying with working hour requirements, and apprenticeship obligations. See the Labor Code and the sample terms and conditions, Special Condition regarding Prevailing Wage.

ATTACHMENT M

PREFERENCE POINTS FOR CALIFORNIA-BASED ENTITIES

Pursuant to AB 2267 (Fuentes, 2008), the California Energy Commission's Public Interest Energy Research (PIER) Program must give a priority to "California-based entities" (CBEs) when making awards. To implement this law, the Energy Commission will award preference points if the application meets the criteria for a CBE as described below.

An Applicant must meet all of the following to receive CBE preference points:

1. The application must include a CBE as either the recipient or a subcontractor. A CBE is a corporation or other business form organized for the transaction of business that:

    - Either has its headquarters or an office in California AND
    - Substantially manufactures the product or substantially performs the research within California that is the subject of the award.

2. The budget must show that the CBE(s) will receive 50% or more of the PIER funds awarded.

    - If the CBE is the prime recipient, then this means that no more than 50% of the awarded PIER funds can be subcontracted to non-CBEs.
    - The 50% applies to the PIER funds and does not include the match funding. For example, if a application has a PIER budget of $100,000, then regardless of how much match funding is pledged, the budget must show $50,000 or more in PIER funds going to CBEs.
    - The 50% requirement can be made up of multiple CBEs. For example, a application in which a prime recipient CBE will receive 25% of PIER funds and a subcontractor CBE will receive 25% of PIER funds, meets this 50%
    - requirement.

3. The application must receive a passing score prior to any preference points being added.

The preference points will be awarded as follows:

Technical Score (prior to preference points being added)	***Additional Points***
70-75	1
76-81	2
82-87	3
88-93	4
94-100	5

The total possible points, not counting any preference points, for this solicitation is 100. The minimum passing score is 70 points. Each application that has a score of 70 points or more and qualifies for this preference will receive additional points based on the table above.

Applicants wanting to qualify for these preference points must fill out the attached form. Otherwise eligible Applicants who do NOT submit the attached form with the application shall NOT be eligible for the CBE preference points.

ATTACHMENT N

CBE PREFERENCE POINTS QUESTIONNAIRE

[The CBE preference points questionnaire is a separate Microsoft Word document that can be accessed at www.energy.ca.gov/contracts as part of this solicitation package. Eligible Applicants must request these preference points by completing and submitting this questionnaire for each CBE contained in the application.]

ATTACHMENT O

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) COMPLIANCE FORMS

[The CEQA compliance forms for this solicitation is a separate Microsoft Word document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT P

PERMITTING INFORMATION FORM

[The permitting information form for this solicitation is a separate Microsoft Word document. The template can be accessed at www.energy.ca.gov/contracts as part of this solicitation package.]

ATTACHMENT Q

RESOLUTION

Applicants are required to complete Attachment Q Resolution for the final application only, if a Resolution is required. Below are 3 examples of resolutions; use the one appropriate for your situation.

Example 1: Resolution by a Local Governmental Jurisdiction Applying for its Own Project

RESOLUTION

WHEREAS, the **(name of local governmental jurisdiction here)** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy is indigenous to **(name local geographic area)**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, GRDA funds are available through the California Energy Commission for grants and loans to local governments for geothermal-related activities;
NOW, therefore, be it resolved that the **(name governing body of the local governmental jurisdiction)** authorizes the submittal of the application to the California Energy Commission for funds to execute the **(name project)**.
Be it also resolved, if recommended for funding by the Commission, the State Legislature, and the Department of Finance, the **(name of governing body of the local governmental jurisdiction)** authorizes **(name of local governmental jurisdiction)** to accept a loan or grant award up to the amount of this application for $ **(name requested amount)**, and, that **(name job title of designated project manager)** acting for the **(name local governmental jurisdiction)** is hereby authorized and empowered to execute in the name of **(name local governmental jurisdiction),** all necessary contracts and agreements, and amendments hereto, to implement and carry out the purposes specified in the application.
The foregoing resolution was passed by the **(name governing body of the local governmental jurisdiction)** this _____ day of _____, _____.
Effective _____, _____
ATTEST:
Signed: _____ Date: _____
Title: _____

Example 2: Resolution by a Local Governmental Jurisdiction Approving a Project Initiated by a Private Entity in the Local Jurisdiction

RESOLUTION

NOTE: If the local jurisdiction has issued a permit(s) for your project (e.g. land use, building permits etc.), such permit(s) may substitute for the following formal resolution by the local jurisdiction to meet Energy Commission requirements. If there is no permit(s), the following formal resolution is required:

WHEREAS, the **(name local governmental jurisdiction here)** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy resources are found in **(name local geographic area)**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, **(name private party developing project)** has proposed a project with potential significance to both the local community and the geothermal industry; and,

WHEREAS, the **(name governing body of the local governmental jurisdiction)** has authority to approve geothermal-related projects in its jurisdiction; and,

WHEREAS, **(name private party developing project)** has requested approval for **(name project)** from **(name governing body of the local governmental jurisdiction)**;
Now, therefore, be it resolved that the **(name governing body of the local governmental jurisdiction)** hereby approves **(name project)**.
The foregoing resolution was passed by the **(name governing body of the local governmental jurisdiction)** this _____ day of _____, _____.
Effective: _____, _____

ATTEST:

Signed: _____ Date: _____
Title: _____

Example 2: If neither of the above examples apply, use the following, if a Resolution is required:

RESOLUTION

At a minimum, we need the following in the authorizing *Resolution*:

- Brief description of the project.
- Acceptance of award up to $ (specific dollar amount).
- Authorization of a person, by title, or authorized designee, empowered to execute agreement and all future documents related to this award.
- Resolution approved by your Governing Authority with a signature.

ATTACHMENT R

[The sample PIER grant terms and conditions for this solicitation is a separate portable document file (.pdf). The document can be accessed at www.energy.ca.gov/contracts as part of this solicitation package. Please note that the California Energy Commission reserves the right to modify these terms and conditions prior to issuing funding awards.]

San Jose/Santa Clara Water Pollution Control Plant FOG Program Evaluation and Enhancement Study

Appendix I
Waste Hauler Contact Information

Table San Jose PSA FOG Waste Hauler Address and Contact Information

FOG Waste Hauler	Address	Contact Name #	Contact Phone
A-1 Septic Tank Services	1111 Industrial Parkway W. Heyward, CA 94544	Sarah Cortez	510 886-4455
Able Septic	1020 Ruff Dr San Jose, Ca 95110	Glen	408-377-9990
Ameriguard Maintenance Services	186 San Jose Ave. San Jose, CA 95125	Maria Banda	800 347 7876
Burr Plumbing and Pumping	1645 Almaden Rd San Jose, CA	Mark Burr	408 287-2877
Pioneer Liquid Transport	251 E Empire St San Jose, Ca 95112	Mitch Cohen	800 366-6808
R&D Grease Trap Cleaning	P.O Box 2085 Guerneville, CA, 95446	Ron	707 632-5827
Trap Recyclers	Unknown	Randy Strand	800 994-7867
Liquid Environmental Solutions	Unknown	Paul Worlie	858-481-8106
Darling International	429 Amador St., Pier 92 San Francisco, CA 9412	Ron Palla	415 647-4890

ENVIRONMENTAL
ENGINEERING & CONTRACTING, INC.