



**RCAC**

---

Funded by: EPA Region 9



*RCAC is a subcontractor to the Horsley Witten Group, Inc.*

# What is F.O.G?

**Fats**  
**Oils**  
**Grease**

About 30% of foods we eat contain F.O.G.

These include:

- meats
- sauces & gravies
- deep-fried dishes
- salad dressings
- mayonnaise
- cookies & pastries
- cheese
- butter
- and many other foods





Restaurants

Saturday morning at the Figueroa residence



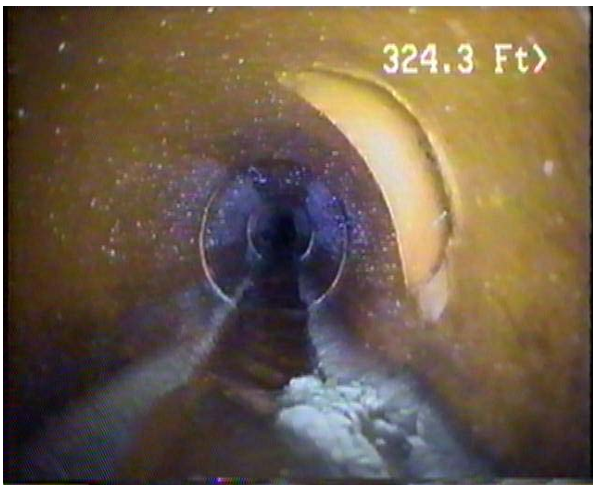
# Impact on Wastewater Treatment

---

- Physical impacts
- Biological impacts

# Physical Blockages in collections piping

Light Grease Buildup



Medium Grease Buildup

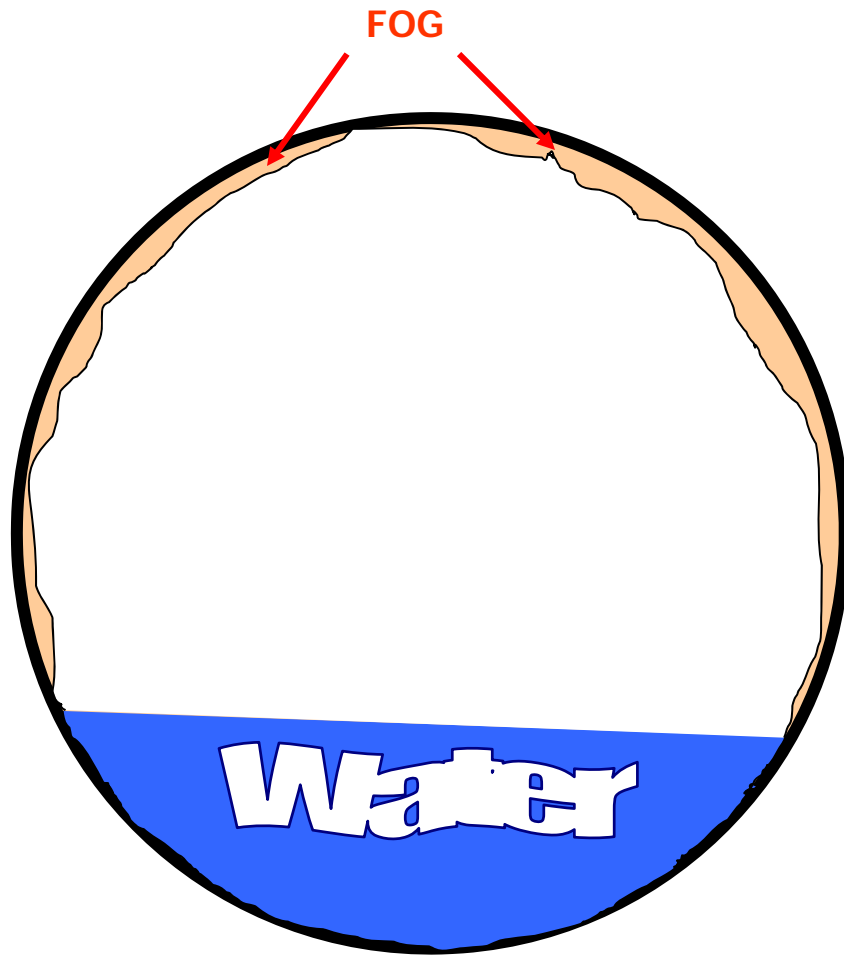


Heavy Grease Buildup



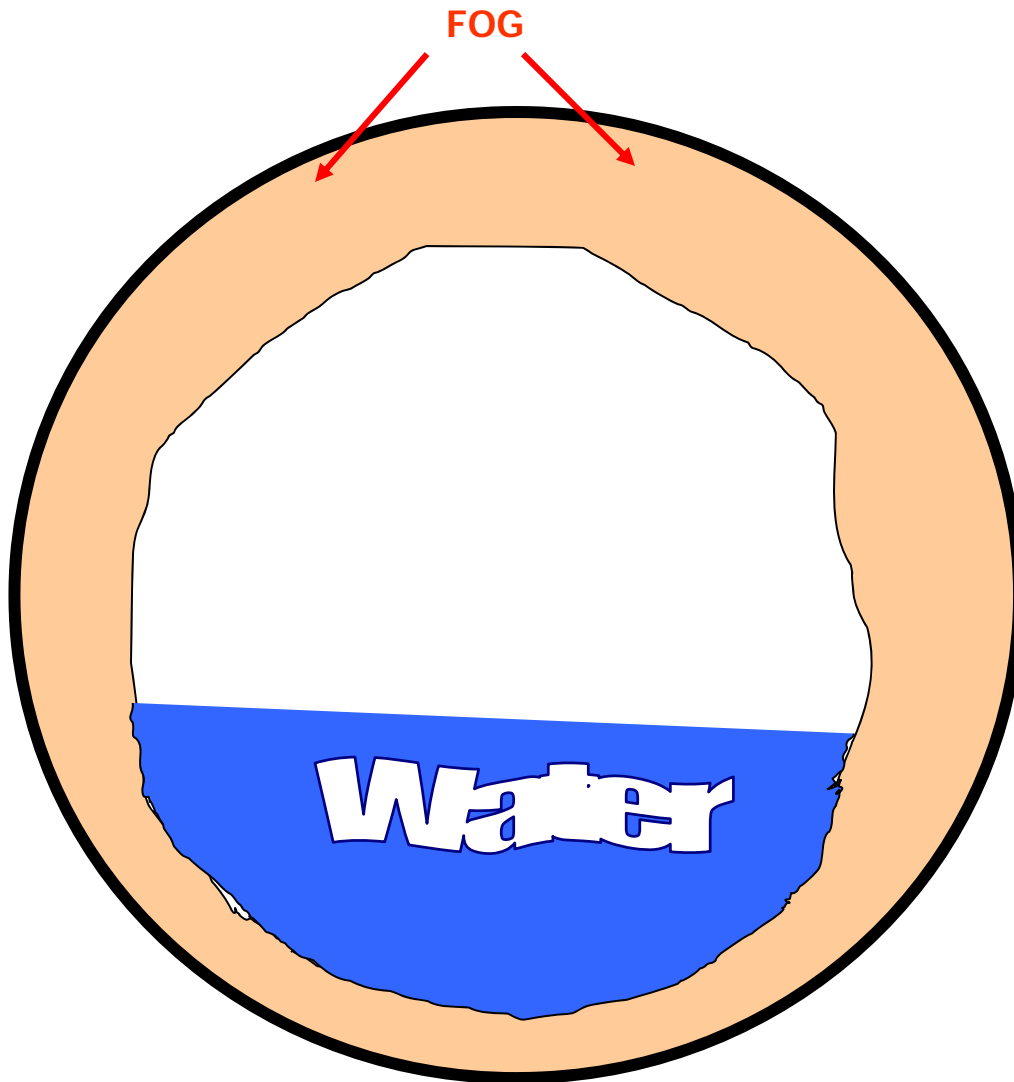
# Physical Blockages in collections piping

- Pipe volume decreases
- Lift station float controls
- Sanitary sewer overflows (SSO's)

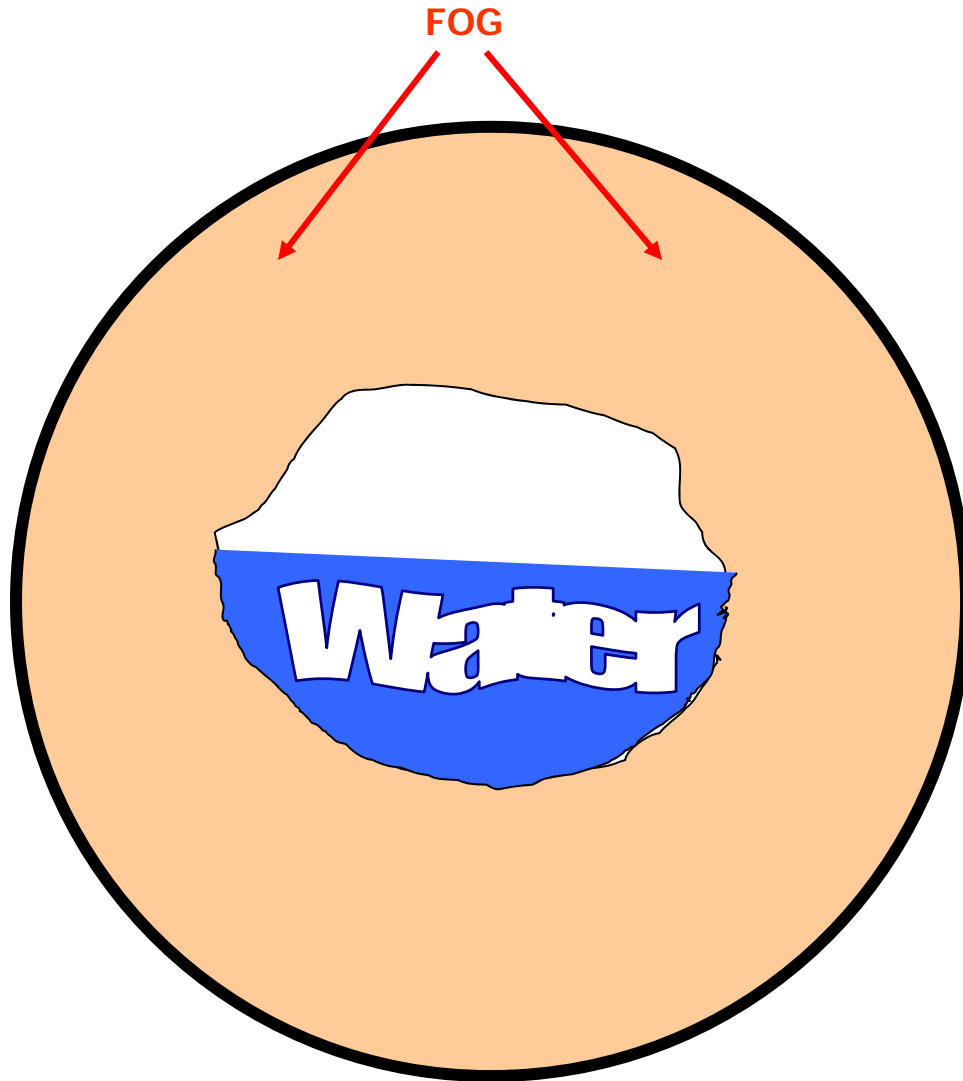


The start of a blocked pipe begins when grease and solids collect on the top and sides of the interior of the pipe.





The buildup increases over time when grease and other debris are washed down the drain.



Eventually the flow is restricted so much that a sewer overflow could result.

If the blockage originated in your business, your business is likely to be the first affected.

# FOG Impact on Lift stations

---



---

# Sewer Spills

---

Raw sewage can spill into the restaurant, other businesses, homes, parks, beaches, and lakes.



## Who pays for a sewer spill?

- The Utility;
- The business or property OWNER;
- The EMPLOYEES (loss of work);
- EVERYONE  
(increase in sewer bills)

# FOG and Biological Treatment

---

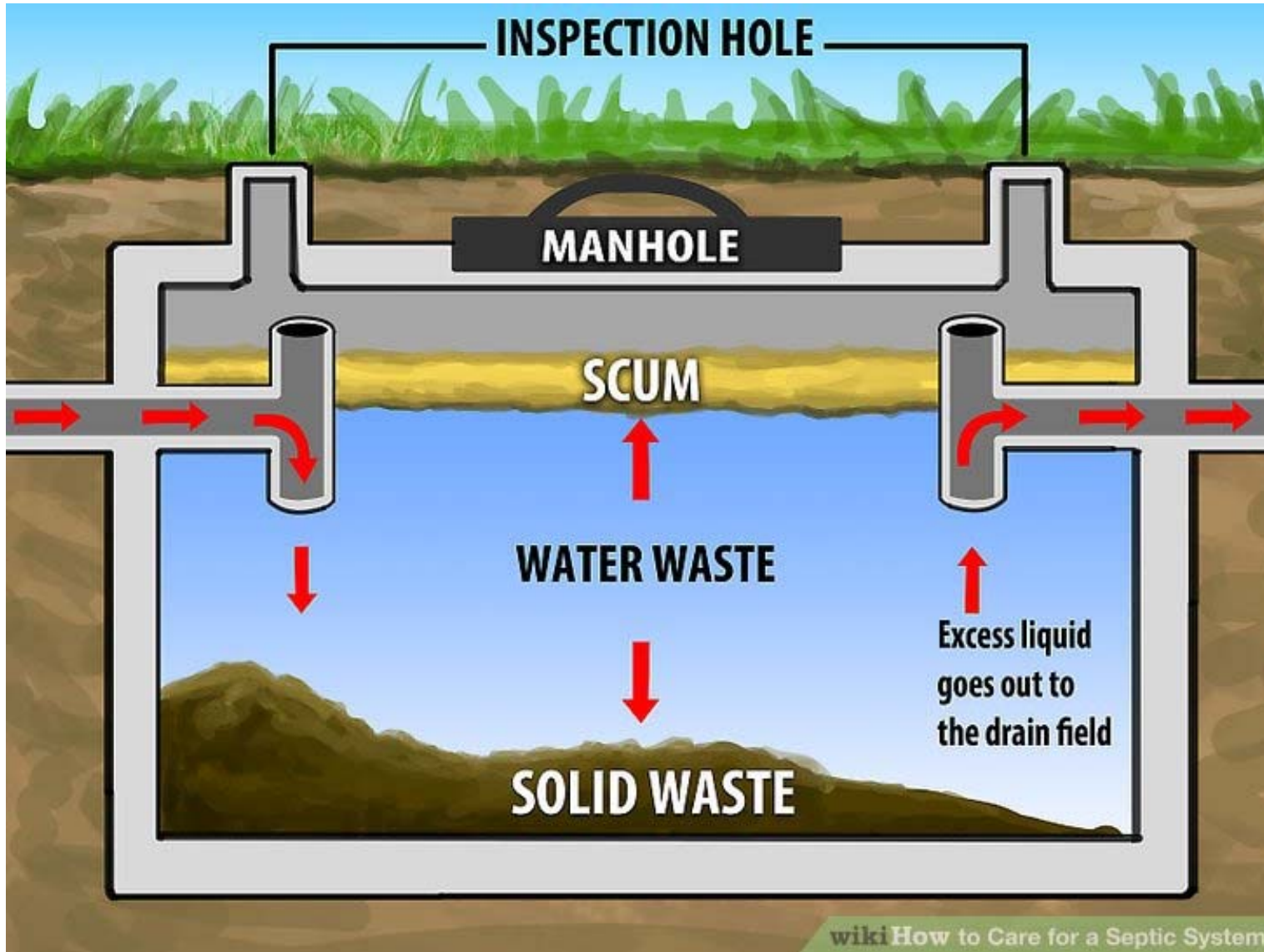
- Onsite
- Centralized
  - Lagoon
  - Activated Sludge

# FOG Impact on Septic Systems

---

- Takes up volume
- More frequent pumping
- Possible leach field clogs





wikiHow to Care for a Septic System



(C) 2006-1991 Daniel Friedman



# FOG Impacts on Activated Sludge

- Nocardia
  - Foam
  - Filamentous



# Activated Sludge

---

- Foam is safety concern for wastewater plant walkway- slips and falls
- Filament impact solid settling- high solid in effluent

# Typical Aeration Basin

---



# Mixed Liquor Suspended Solids

- MLSS



# Foam





# Can spread.....

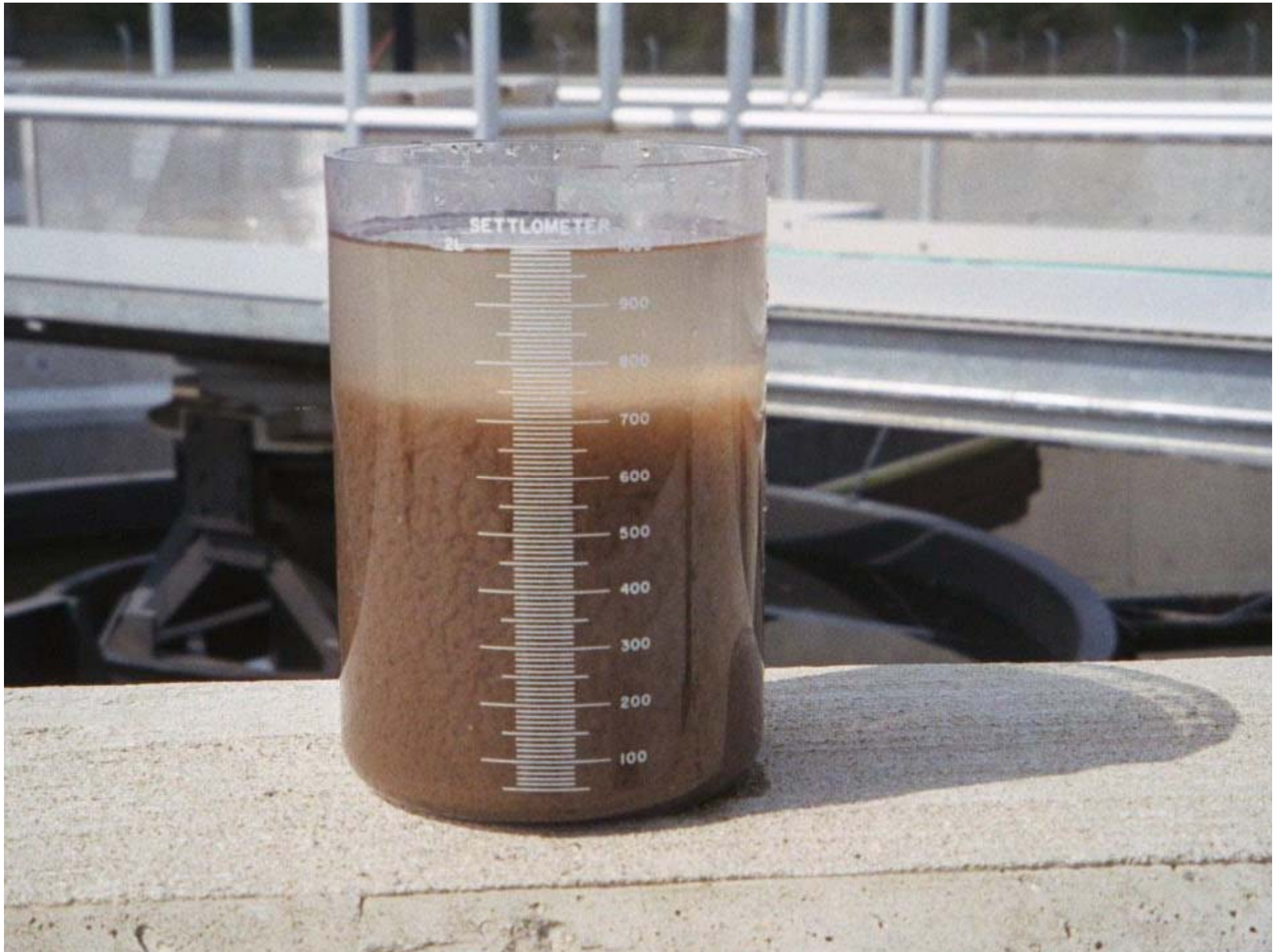


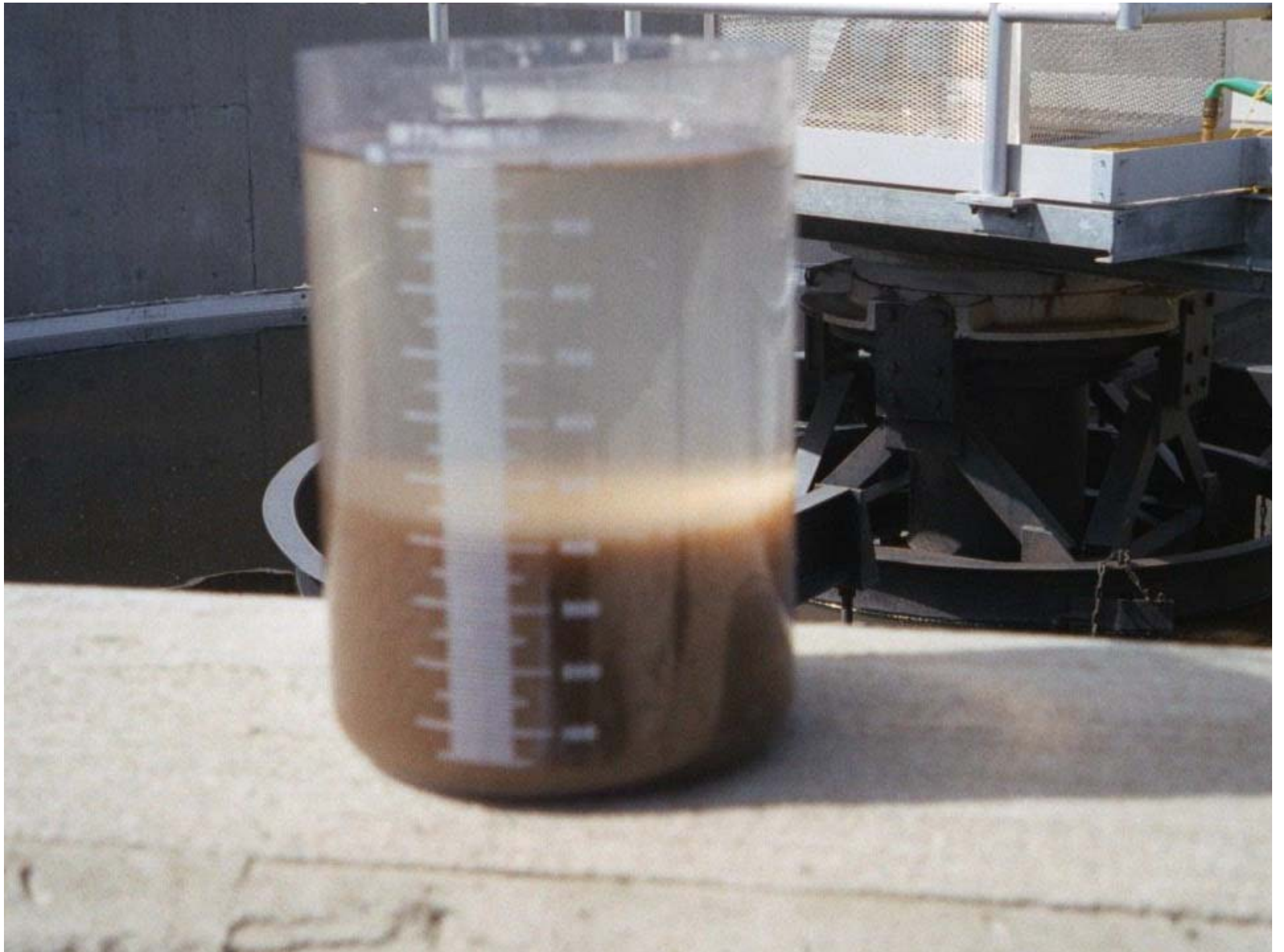
# Nocardia

---

- Hard to remove due to in plant recycle streams – Return activated sludge
- Slows down settling in secondary clarifiers







# Secondary Clarifier Performance



# FOG Impact on Lagoons

---

- Scum build up prevents sun light necessary for photosynthetic algae



---

# How does FOG enter the sewer?



---

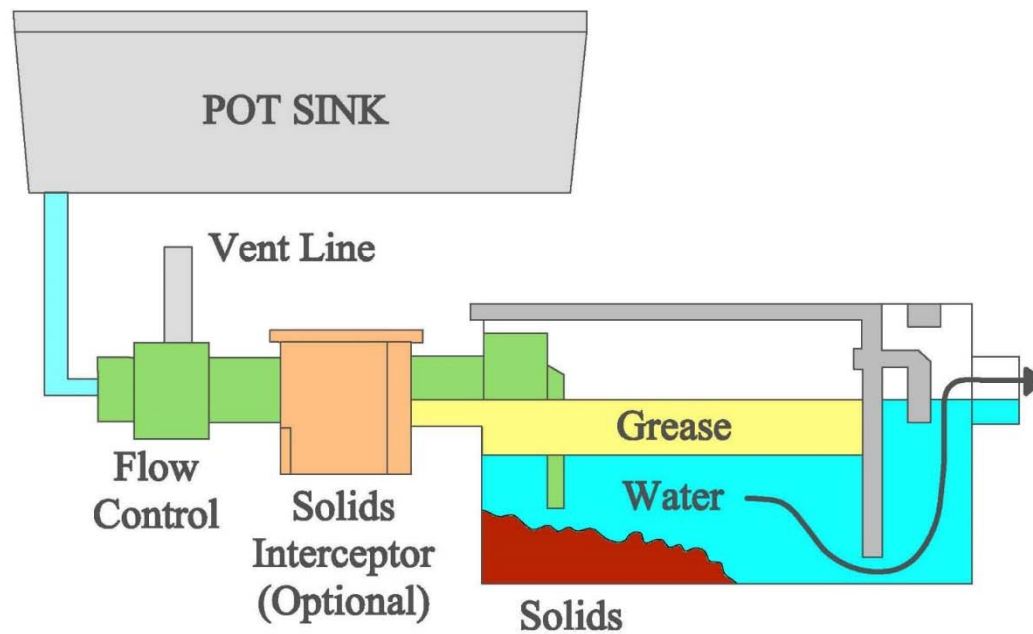
The most common way FOG enters our sewer system is through kitchen sinks and floor drains due to improper cleaning and rinsing of dishes and pans.

Once in the sewer pipes, FOG builds up and can eventually cause blockage which can lead to raw sewage spills.

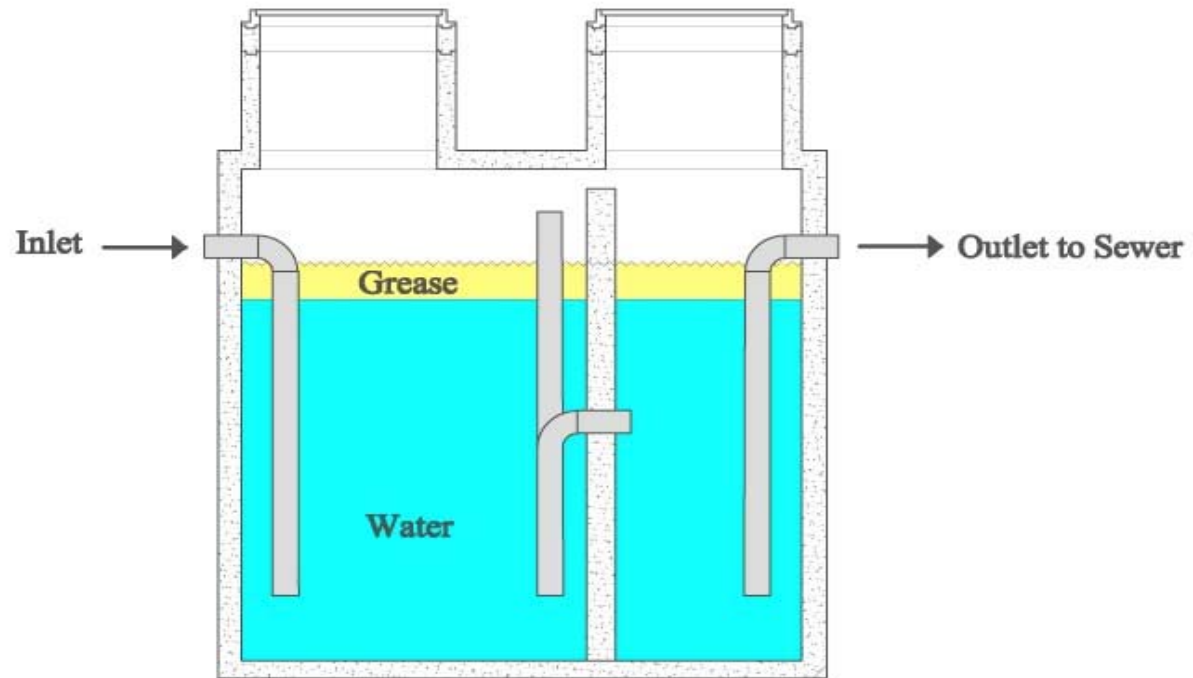
F.O.G. refers to Fats, Oil, and Grease found in most kitchens and Food Service Establishments.



# Grease Traps



# Grease Interceptors



# Without a Fats, Oils and Grease Program

---

- Septic tanks require more frequent and emergency pumping
- Grease passed through a septic tank can clog the leach field
- Collection lines require more frequent cleaning especially downstream of the restaurants
- Pipe sags and offset joints promote faster grease accumulation in the sewer pipes requiring the need to repair defective pipes

# Fats, Oils and Grease Key Program Elements

---

**Purpose:** Prevent Sanitary Sewer Overflows (SSOs), control maintenance costs and extend the sewer system's life span

**Elements:**

- Sewer pipeline cleaning
- Sewer pipeline repairs
- Source control program
- Regulatory program

# One System's FOG Education Program

---

- The following presentation was developed by the North Tahoe Public Utility District for training restaurants in their service area on the effects and prevention techniques for Fats, Oils and Grease discharges from their operation.
- This is presented as a sample of one system's response to a growing wastewater problem.

# Employee Prevention

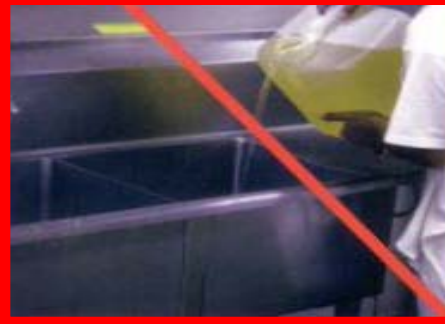
*Do not pour cooking residue directly into drain.*



*Do not dispose food waste directly into drain.*



*Do not pour waste oil directly into the drain.*



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



**NO!**



# Employee Prevention

*Wipe pots, pans, and work areas with disposable towels prior to washing.*



*Dispose of food waste directly into trash.*



*Collect waste oil and store for recycling.*



*Clean mats inside over a utility sink.*



**YES**

# Pretreatment Program

---

- Program were FOG generators are monitored to ensure adequate great trap/interceptor pumping is occurring.



# Interceptor inspections - Dip Stick Pro



# Televising sewer lines

---



F.O.G. refers to Fats, Oil, and Grease found in most kitchens and Food Service Establishments.

---

About 30% of foods we eat contain F.O.G.

---

FOG enters our sewer system through kitchen sinks and floor drains

Grease buildup in pipes restrict the flow and can cause a sewer spill.

*El bloqueo de grasa en tubos se limite el flujo y puede causar derrames de agua sucia.*

---

Spill clean ups are very expensive

*Limpiar derrames de agua sucia es muy caro.*

---

With everyone's help, spills can be prevented.

*Con la ayuda de todos, derrames pueden ser evitados.*







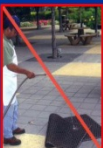
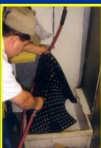


Any Questions?

---

# This System's Program included posters

## Managing **FATS, OIL and GREASE** "It's Easier than YOU Think!"

THE <b>WRONG WAY</b> La Forma Incorrecta	THE <b>RIGHT WAY</b> La Forma Correcta
<p><b>1</b></p>  <p>Do not pour cooking residue directly into the drain.</p> <p>No vierta residuos de cocinar directamente en el desagüe.</p>	<p><b>1</b></p>  <p>Wipe pots, pans, and work areas prior to washing.</p> <p>Limpie con una toalla los sartenes, y areas de trabajo antes de lavarlos.</p>
<p><b>2</b></p>  <p>Do not dispose food waste into the garbage disposal.</p> <p>No ponga desperdicios de comida en el triturador de comida.</p>	<p><b>2</b></p>  <p>Dispose of food waste directly into trash.</p> <p>Deseche los desperdicios de comida en el bote de basura.</p>
<p><b>3</b></p>  <p>Do not pour waste oil directly into the drain.</p> <p>No ponga aceite usado directamente en el desagüe.</p>	<p><b>3</b></p>  <p>Collect waste oil and store for recycling.</p> <p>Junte el aceite usado y guárdelo para que sea reciclado.</p>
<p><b>4</b></p>  <p>Do not wash floor mats where water will run off directly into the storm drain.</p> <p>No lava los tapetes de piso en un lugar donde el agua corra hacia el desagüe.</p>	<p><b>4</b></p>  <p>Clean mats inside over a utility sink.</p> <p>Limpie los tapetes de piso dentro de una tina o fregador.</p>

Provided by the North Tahoe Public Utility District. For more information (para mas información llame) (530) 546-4212 or visit [www.ntpud.org](http://www.ntpud.org)



## Managing **FATS, OIL and GREASE** "It's Easier than YOU Think!"

<p><b>Do not pour cooking residue directly into drain.</b></p> <p>No vierta residuos de cocinar directamente en el desagüe.</p> 	<p><b>Do not dispose food waste directly into drain.</b></p> <p>No ponga desperdicios de comida en el triturador de comida.</p> 	<p><b>Wipe pots, pans, and work areas with disposable towels prior to washing.</b></p> <p>Limpie con una toalla los sartenes, y areas de trabajo antes de lavarlos.</p> 	<p><b>Dispose of food waste directly into trash.</b></p> <p>Deseche los desperdicios de comida en el bote de basura.</p> 
NO!		YES!	
<p><b>Do not pour waste oil directly into the drain.</b></p> <p>No ponga aceite usado directamente en el desagüe.</p> 	<p><b>Do not wash floor mats where water will run off directly into the storm drain.</b></p> <p>No lave los tapetes de piso en un lugar donde el agua corra hacia el desagüe.</p> 	<p><b>Collect waste oil and store for recycling.</b></p> <p>Junte el aceite usado y guardelo para que sea reciclado.</p> 	<p><b>Clean mats inside over a utility sink.</b></p> <p>Limpie los tapetes de piso dentro de una tina o fregador.</p> 


 Provided by North Tahoe Public Utility District. For more information contact us at (530) 546-4212.





# And a tri-fold flyer for residents

## What is F.O.G. ?

Fats, oils and grease (FOG) are natural by-products of the cooking and food preparation process. FOG materials do not mix with water (they are insoluble) and have a tendency to separate from a liquid solution.

Common sources of FOG include:

food scraps	meat fats
cooking oils	lard
baked goods	salad dressings
sauces	marinades
dairy products	shortening
butter	margarine
peanut butter	

Fats, oil and grease build up in sewer pipes over time and create blockages.

UGLVII

### The Fats, Oils and Grease (FOG) Program is designed to reduce the number of sewer pipe blockages and related overflows by educating commercial and residential customers about the proper disposal of fats, oils and grease.

### Why is it important to me?

Grease in warm wastewater may not appear harmful, but as the liquid cools, the grease congeals and causes buildup in the interior of the pipes, accumulating into a hardened mass.

Over time, layers of grease accumulate and restrict the wastewater flow that may cause a sewer to back up into the environment.

Raw sewage overflowing into parks and streets, and even into homes and yards, requires an extensive, expensive and unpleasant cleanup.

If you see a sewer overflow call the North Tahoe Public Utility District IMMEDIATELY!

**530-546-4212**  
24-hours a day

### Why is it important to our environment?

Sewer overflows can threaten the environment, cause damage to home interiors and may cause health hazards through potential contact with disease-causing organisms.

### Why is it important to my pocketbook?

The buildup of grease requires pipes to be cleaned more frequently which may require the replacement of pipes sooner than expected.

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.

### Do garbage disposals help?

NO!! Garbage disposals do not simply take the problem away. They only shred solid material into smaller pieces and do not prevent grease from going down the drain.

In fact, District ordinances prohibit the use of garbage disposals or grinders in food service facilities.

### Do Your Part to Keep Out the Clog!

All households play an important role in preventing neighborhood sewer system blockages. Here's how you can help prevent sewer blockages and overflows.

Five easy steps to fat-free sewer lines:

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. Products such as detergents that claim to dissolve grease may pass the grease and cause problems elsewhere.

Wipe and dry-wipe pots, pans and dishes and dispose of materials in the trash.

Scrape grease after it has cooled into a shallow empty jar or coffee can. Once the grease is solidified, and the container is full, secure the lid and dispose in the trash.

Wash and catch food items, then empty the trash.

Talk to your neighbors and friends about sewer service in the sewer system and how to keep neighborhood residents know the risks of FOG down sink drains and what they should do.

For more information or if you have any questions, contact the District's FOG Coordinator at 530-546-4212

### What is the District doing to reduce fats, oils and grease throughout the system?

In January 2005, the North Tahoe Public Utility District's Board of Directors adopted Ordinance #343 to establish uniform maintenance and monitoring requirements for controlling the discharge of grease from food service facilities.

In 2006 the District began a bi-annual inspection program of all food service facilities coupled with an outreach program for both commercial and residential customers.

### Do Your Part...

North Tahoe Public Utility District  
875 National Avenue  
P.O. Box 139  
Tahoe Vista, CA 96148  
Phone: 530-546-4212  
Fax: 530-546-2652  
Email: ntpud@ntpud.org  
Website: www.ntpud.org

### Do Your Part...

### Avoid the F.O.G.

### Keep Out the Clog!

Phone 530-546-4212  
or visit our website at  
[www.ntpud.org](http://www.ntpud.org)

RCAC  
[www.rcac.org](http://www.rcac.org)

# Remember the Fats, Oils and Grease

## Program Key Elements

---

**Purpose:** Prevent Sanitary Sewer Overflows (SSOs), control maintenance costs and extend the sewer system's life span

### **Elements:**

- Sewer pipeline cleaning
- Sewer pipeline repairs
- Source control program
- Regulatory program