

Fats, Oils and Grease (FOG) Program Inspections

California Regional Water Quality Board

Colorado River Basin

April 2010



Communication



- Industrial Pretreatment Coordinator must have good communication with the Sewer System Maintenance Team.
 - Identification of FOG hotspot areas
 - Identification of specific cause of the blockage or sanitary sewer overflow (SSO) event
 - Corrective Action or Enforcement Action must be communicated to Food Service Establishment and make sewer maintenance team aware.
 - Good communication results in decreased sewer line cleaning of FOG hotspot areas, reduced blockages and SSOs, and overall reduced costs to the City.

SSO and Sewer Blockage Recordkeeping and Reporting

- Primary Cause vs Secondary Cause
 - FOG
 - Roots
 - Gravel
 - Debris-other (i.e. vegetables)
 - Infiltration/inflow



- Documentation: Date, Time (when identified, when corrected), Volume of SSO, Did SSO reach receiving stream?, Location, Sewer Line Segment, Corrective Action Taken, Enforcement Action Taken, Prevention of future SSOs or blockages.

Some Cities that have been inspected are not properly identifying and documenting blockages and SSOs

California Water Board- Statewide Sanitary Sewer Overflow (SSO) Reduction Program

- SSO Main Website:
http://www.waterboards.ca.gov/water_issues/programs/sso/index.shtml
- List Serve Sign Up:
http://waterboards.ca.gov/resources/email_subscriptions/swrbc_subscribe.shtml
- Contacts:
 - Jim Fischer, P.E.: jfisher@waterboards.ca.gov
 - Russell Norman, P.E.: rnorman@waterboards.ca.gov

Key Elements of FOG Program

- EPA CMOM Policy Document
 - **Legal Authority**
 - Plan Review & Design Standards
 - **Inspections**
 - Permitting / Control Mechanisms
 - Enforcement
 - Communication
 - Performance Measures
 - Public Education
 - Information Mgt. System

Legal Authority

- Sewer Use Ordinance
 - General and Specific Prohibitions
 - Prevent obstruction to the sewer system / POTW
 - Refer to FOG Ordinance or FOG Management Policy
- FOG Ordinance or Department FOG Management Policy
- Approved by City Attorney
- Example FOG Management Policy can be viewed at:

www.nashville.gov/water/environmental_compliance.htm

(Section II: Grease Mgt.)

INSPECTIONS: SAFETY

- Vehicles/Traffic
 - Safety Vest, Vehicle equipped with flashing lights, orange road cones or barricades
- Dangerous Gases, Confined Space
 - Hydrogen sulfide, methane
- Proper Safety Equipment
 - Steel Toed Boots or Shoes are a must
 - Gloves, safety glasses, flashlight, first aid kit
 - Careful when opening manholes

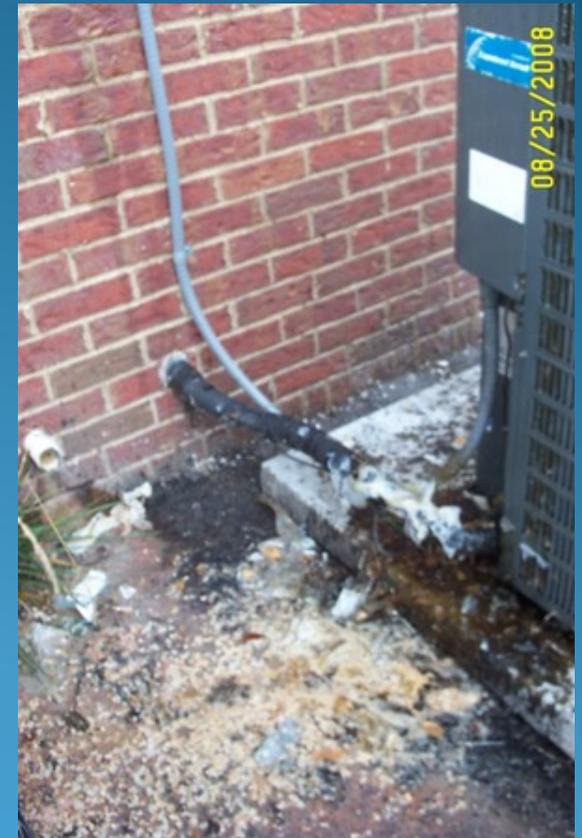
A copy of the MMS FOG Inspection Manual is included on the CD you received.



EQUIPMENT

- Safety Equipment
- Digital Camera
- Sewer Plat or GIS access (specific documentation of problem area)
- Manhole cover “pullers”, pry bars, etc...
- Long blade shovel
- Hammer and Wrench
- Flashlight
- Litmus paper or pH strips
- Forms, clipboard, laptop

Reconnaissance of Food Service Establishment (FSE) Area



Visual Observations

- Check for location of sewer clean out covers, construction activities/pavement repair.
 - This gives you indication of the location of the FSE sewer line and if they have had recent sewer problems.



FSE with no Recycle Container...

Just take out back and dump in storm sewer



150 yds downstream the grease is seen
in the small tributary

Vent Hood FOG impacts





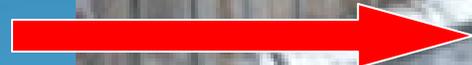
Automated grease recycle container overflow due to faulty level indicators

FOG dumping & spills

Notice black area at the top of the wood fence



Notice black area along the guard rail



Black area on concrete pad and behind concrete pad



FOG dumping & spills



FOG dumped over fence and over 1 ft deep, going down hill to tributary

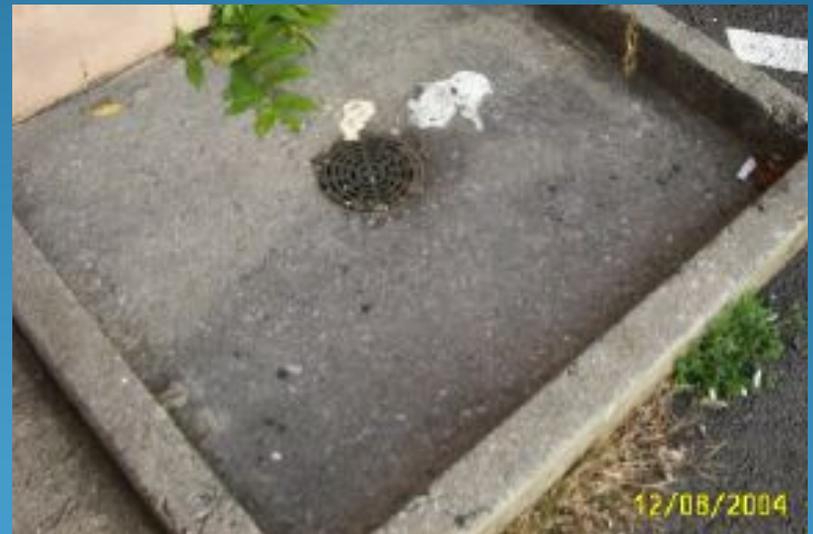
Outdoor Mop Sinks



Gutter discharging
to mop sink:
Inflow &
Infiltration



Uncovered Mop Sinks cause I/I to sewer system and many times the mop sinks are upstream of the grease interceptor. Outdoor mop sinks should be covered.



Recon – things to look for before you talk to the FSE owner/manager



INSPECTION Checklist

- Facility Information
- Education of FSE
- Grease Control Equipment Information
- Downstream Manhole Inspection
- Comments
 - Education emphasis
 - Corrective Action
 - Warning
 - Noncompliance Notification

INSPECTIONS - Materials

- Brochure or information sheet or letter is critical
 - Will save time on explanation if you have picture of interceptor and trap, BMPs, contact information and other info
 - Allows the FSE something to refer to after you leave.
- Inspection Sheet
 - Leave copy of inspection sheet with FSE

Review of example brochures and handouts

Food Service Establishment's fats, oils & grease - 2 Types...

- **“Yellow” grease:** inedible and unadulterated spent FOG removed from FSE. Major source of yellow grease is deep frying. Put this type grease in the grease recycle bins, normally at the back of the FSE.
- **“Brown” grease:** floatable FOG, settled solids and associated wastewater retained by grease interceptors and grease traps.



CHECK THE GREASE CONTROL EQUIPMENT

Identification of two basic types

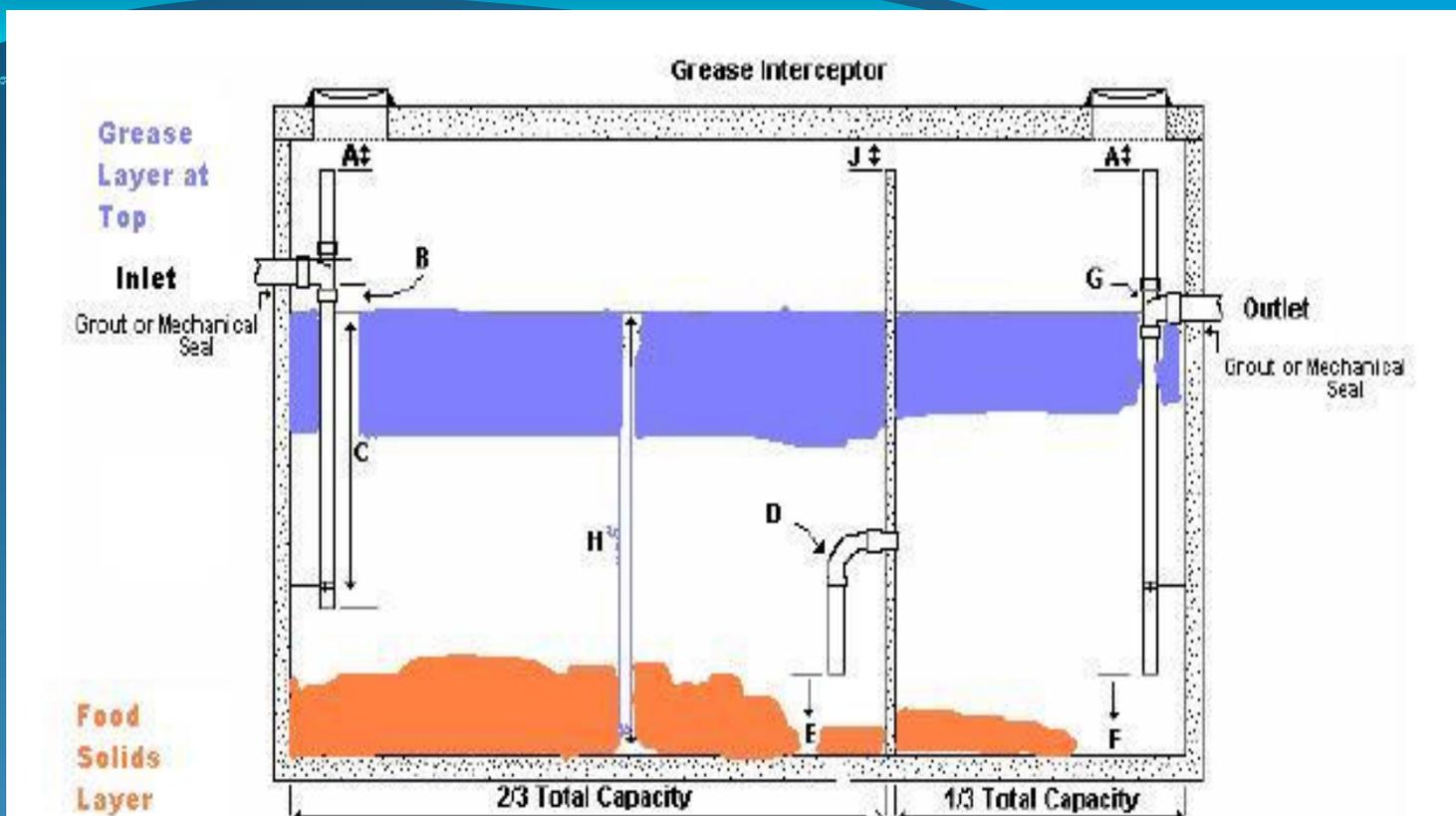
Grease Interceptor
or “**Outside, underground tank**”



Grease Trap
or “**Inside, under-the-sink units**”, “**floor traps**”, and “**outdoor floor traps**”



GREASE INTERCEPTORS



Main components: Inlet T, Midwall Baffle, Outlet T

The top layer is the FOG layer, bottom layer is food solids layer

Normally, the food solids layer will be 1x to 2x the FOG layer, unless the FSE cooks/prepares chicken, fish, or rice, then the food layer may be 3x to 4x the FOG layer. Thus, some FSEs may need to pump more often than others.

*The 25% rule should be observed: When the FOG layer and Food Solids layer are 25% or greater than the depth of the tank then it needs to be pumped. Why? Reduced removal efficiency, and shortcircuiting.

Proper Interceptor access



NOTE: Some 2 or even 3 MH accesses still are not over outlet T

Outlet T of Interceptor

Two outlet Ts on left have FOG residual in them. Outlet T below is clear. Some FOG residual can be in outlet T but it should not be a lot. If FOG in outlet T, then need to verify outlet T length, also check downstream manhole because likely will have moderate FOG impact.



Most important part of interceptor!

Outlet Ts – NOT CORRECT



Outlet Ts can be too short, allowing shortcircuiting. Some rely on baffle in front of outlet pipe but this is not efficient for FOG control



Flexible outlet Ts attached to wall: NOT ACCEPTABLE



Flexible material (SD-35 plastic) attached to wall in
interceptor will eventually be floating in interceptor



Best policy is for no outlet T to be attached to the wall of the interceptor

Inlet T



No inlet T (picture at left), allowing FOG buildup in front of discharge pipe.

NOTE: Remind FSE mgrs to notify employees not to wash or sweep straws, stirrers, plastic bags into drains. Many times employees will remove floor drain covers during washdown.



Proper schedule 40 PVC Inlet T $\frac{1}{2}$ to $\frac{2}{3}$ the depth of the tank (picture at right) prevents back-ups into FSE, and does not allow the influent wastewater to push the FOG layer down and allow shortcircuiting.



Midwall (or 2/3 wall) baffle with different designs



Single hole opening with 90 degree schedule 40 PVC sweep or PVC T is preferred.

Some interceptors have been installed backwards...one third compartment first, then two-thirds compartment.



Mid-wall Baffle (or 2/3 baffle wall)- deterioration. Will probably need interceptor certification to confirm deterioration or leaks (gravel in bottom of tank in many cases is indicator)



Baffle irregular, deteriorating

Prior to going inside the FSE...Check for Downstream sewer line impact...Slight, Moderate, or Heavy FOG



Identify FOG impact in sewer line. Note: Major impact may be 2 or 3 manholes downstream of FSE due to cooling of FOG

Communicate with Sewer System Cleaning and CCTV personnel

Consider slope of sewer pipe.

**Example of FSE discharging to Residential area*



Identify FOG impact. If moderate to heavy FOG then enforcement actions should be taken. Tracking of information should be in a database, and the sewer maintenance personnel should keep records of cleaning frequency.



Inside the FSE

Kitchen Equipment & Menu

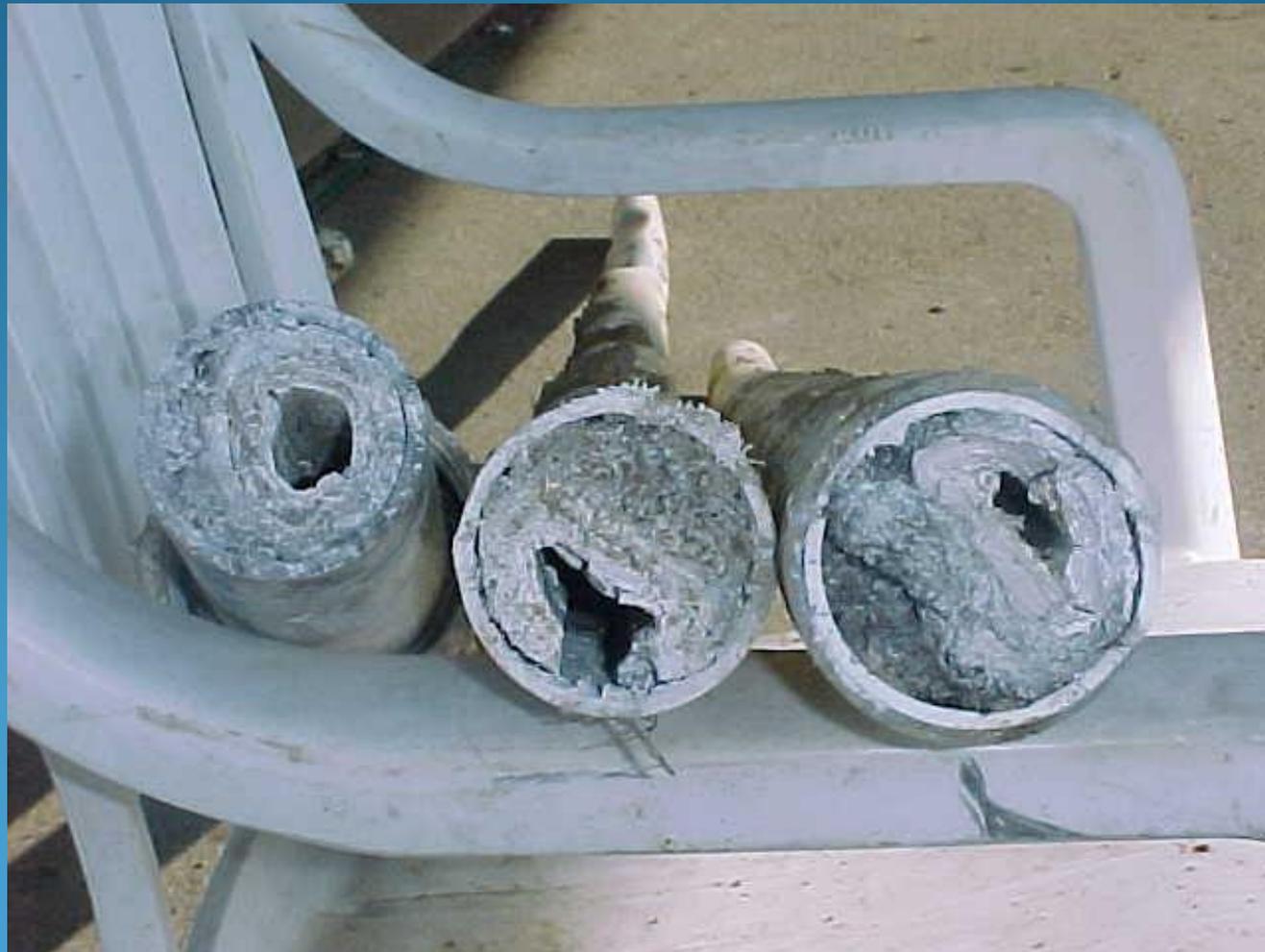
- Deep Fryers, Wok, grill, numerous pots for cooking, etc... indicate FOG potential vs a facility with just a hot dog roller or steamer for deli sandwiches
- What is on their menu?
- Most FSE managers will automatically say “We don’t have any grease”

Do not schedule inside interview portion of inspections between 11am to 1pm if possible. Outside FSE work can be done anytime.

“Type” of FSE: Practices dictate FOG discharge

- Pizza Hut produces heavy FOG
- Papa Johns produces minimal

Review Menu
Items at FSE



Major FOG sources:

90% of FOG discharged to the sewer system is from:

- *3 Compartment Pot wash sink
- *Floors
- *Pre-rinse sink to dishwasher

If the FSE has a pre-rinse sink to the dishwasher, then there will only be 1% to 2% of the total FOG discharged to the sewer coming from the dishwasher. Many cities have in their FOG Mgt. Policy to not have the dishwasher connected to the grease interceptor. This is due to high temperatures (130 to 180°F), soaps and surfactants that can allow FOG to pass through the interceptor.

GREASE TRAPS



Undersink Trap

Traps should only be allowed for small FSEs that serve deli foods or do not conduct any cooking.



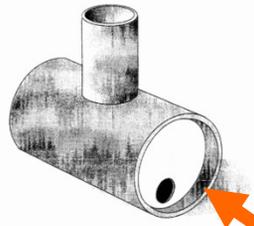
Floor Trap



Outdoor “floor” Traps



Trap installation problems

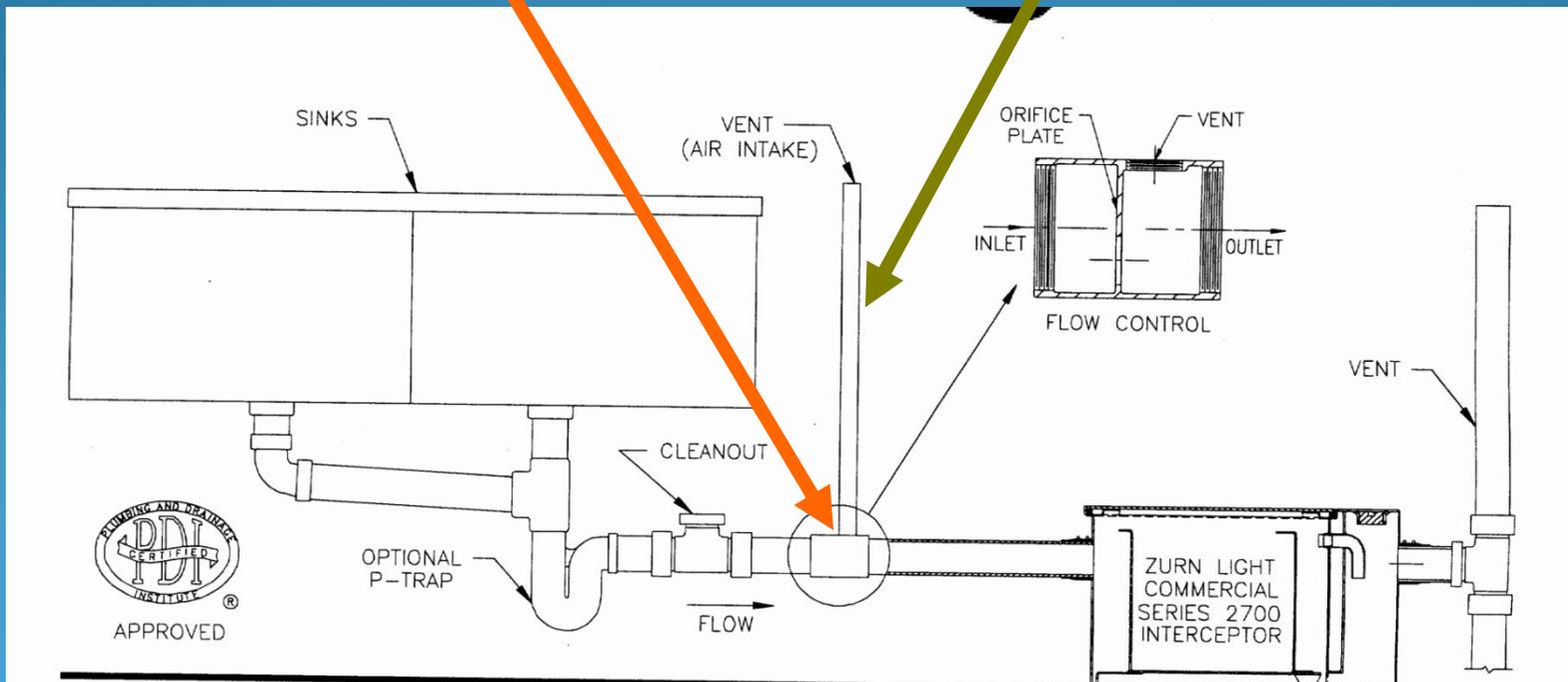


FLC SERIES

Inspections indicate that only 33% of traps are installed correctly with flow restrictor and vent pipe. Both of these components are critical for the proper operation of the trap.

Flow restrictor

Vent



Grease Trap: Regular Sizes

- 5 gpm / 10 pound
- 7 gpm / 14 pound
- 10 gpm / 20 pound
- 15 gpm / 30 pound
- 20 gpm / 40 pound (recommended minimum size)
- 25 gpm / 50 pound
- 35 gpm / 70 pound
- 50 gpm / 100 pound
- 75 gpm / 150 pound
- 100 gpm / 200 pound

Check on side of trap or inside the lid for the size information

What Kitchen Fixtures are Connected to the Grease Trap

- Grease Traps were intended for one kitchen fixture
- Multiple Grease Traps should be used if you have several kitchen fixtures
 - 3 compartment sink
 - 2 compartment sink
 - Mop sink
 - Pre-rinse sink
 - Hand Sink
- Dishwashers should not be connected to the Grease Trap (high temperatures, high batch flows)

Traps ... limited effectiveness



Trap in basement with additives (enzymes) added before trap. Heavy FOG in downstream sewer line.

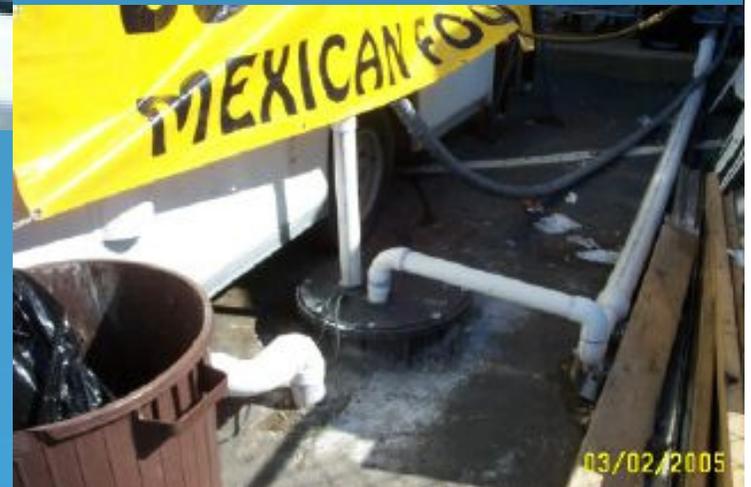


Outlet pipe of trap with no flow restrictor



Floor trap that has rusted. Many traps that have been installed in floors were never designed for below floor installation

Mobile Food Units



Records review

- Request to see the latest grease waste hauler pump manifest, or records for last year
 - If the FSE is not aware of requirement to keep records, many will have records at their “home office”
- The pump manifest should have:
 - FSE name and address
 - Date pumped
 - Time pumped
 - Volume pumped
 - Hauler name, address

Closing Interview with Manager or FSE Owner

- Make sure inspection form data is correct
- Review Best Management Practices
- Provide literature, handouts
- Review Findings, Recommendations and Requirements
- If applicable, issue noncompliance notification or make aware that NOV will be issued, or other enforcement action