

FOG Ordinance

Fats, Oils and Grease



FOG

- “FOG – FATS, OILS AND GREASE” Any fats, oils and grease generated from the food preparation process as identified per the most current EPA method as listed in 40 CFR 136.3., as may be amended from time to time.

Why is there a need to have a Fats, Oils and Grease (FOG) Ordinance and Program

PROTECTION OF OUR:

- ❑ Wastewater Treatment Plant
- ❑ Pump Stations
- ❑ Collection Lines
- ❑ Restaurants

FOG Program

One of the first steps to a successful FOG program is education.

- ❑ Educate public officials on the benefits from a FOG program – budget and reports.
- ❑ Educate restaurants and other permitted industries. Inform restaurants how they can reduce plumbing cost and being part of a more effective and efficient collection system.



Program in Place

With a FOG program in place and Ordinance enforced:

- ❑ Wastewater treatment plant works more efficiently.
- ❑ Pump stations work more effectively with less cleaning needed.
- ❑ Collection lines require less maintenance and replacement.
- ❑ Restaurants need not worry about sewer backing up inside the kitchen of the facility



PROBLEMS THAT EXIST DUE TO FOG IN THE COLLECTION SYSTEM



Wastewater Treatment Plant

FOG can contribute to the interference of the equipment at the plant.

The grease congeals and creates thick grease mats on the surface of settling tanks, digesters, and other treatment structure.

FOG problems at the plants decrease treatment efficiency , increase operating costs, and can potentially cause interference and pass-through events.

Pump Stations

- ❑ Large amounts of FOG in pump stations where the controls can become fouled and prevent the pumps from operating properly.
- ❑ As the pumps become clogged with grease, the utility must have the pump stations cleaned more frequently; costing the utility more to maintain the collection system.



Collection Lines

Large amount of FOG in wastewater can cause trouble in the pipes. It decreases pipe capacity therefore requiring that piping systems be cleaned more often and replaced sooner than otherwise expected.

Clogged collection lines can also result in overflowing manholes.

Restaurants

FOG can be a problems not only for the collection system, treatment plants and pump stations but for restaurants and other businesses as well. As fats, oils and grease accumulate in the sewer lines, it will build up to a point where the sewer is choked by a grease log. If the grease log is so thick and does not allow the proper flow of wastewater, the waste will take the path of least resistance and sometimes that could be the floor sink of the restaurant or the toilet of a business. Resulting in unsanitary conditions in the facility, contaminating equipment, employees and food items. Should the restaurant have to close because of the sewer back up, loss of revenue could occur.



Who would benefit from the program and who would need to be involved?

The Tribal Utility

Man hours and \$

The Tribal Authority

Less complaints from customers and visitors

Those business who are serviced by the collection lines

Reduce the disruption in business operations due to
frequency line cleaning, have fewer overflows and
less odors.



Ordinances

Invoking a FOG ordinance, provides the Utility Authority to require all existing and all new food service establishments to have a grease interceptor installed and a maintenance schedule in place to ensure that all precautions are taken to ensure that the system is well protected from any unnecessary disruption in operation and service.



What is a Grease trap

A grease trap is a receptacle located between the restaurant drain lines and the sanitary sewer that allows the separation and collection of fats, oils and greases.



Why – A Grease Trap

FOG wreaks havoc on our collection systems and wastewater treatment facility.

Most utilities will have a minimum amount of FOG that is acceptable in the water leaving an establishment.



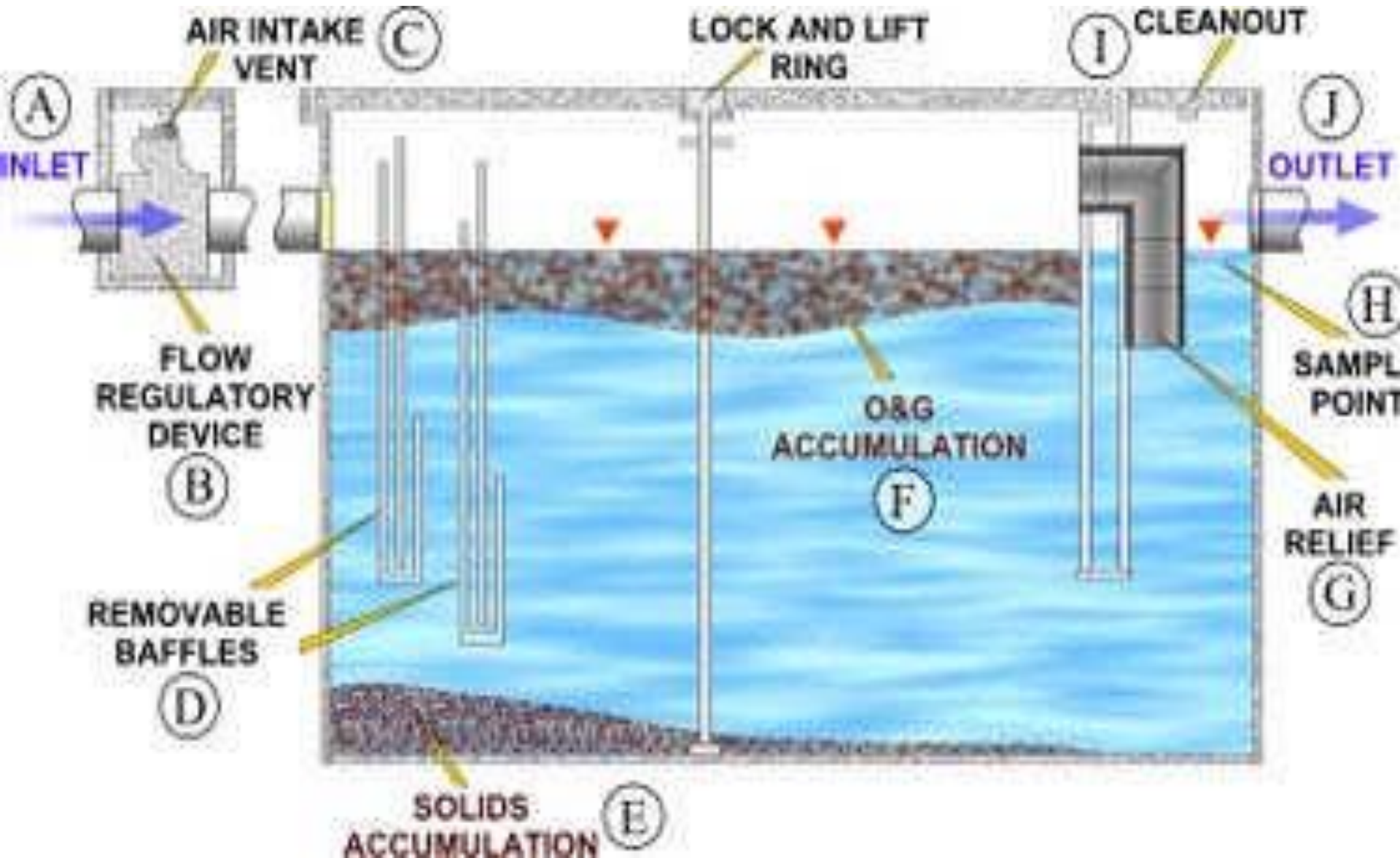
How does a Grease Trap work?

Grease traps slow down the flow of water coming from drains allowing the grease to cool.

This cooling allows the grease to coagulate and float to the top while other solids settle to the bottom.

The remaining water exits to the sewer lines

Grease Interceptor





Grease Interceptors

An interceptor is a tank with a minimum capacity of 750 gallons, located just outside the food service facility. The capacity of the interceptor provides adequate hydraulic retention time so that suspended FOG has time to congeal and rise to the surface not flow out into the sewer line. Periodic pumping maintains removal efficiency and prevent FOG from reaching the sewer.



FOG

Steps For resolving the grease problem

Analyze the influent grease

- Tracer dye at each entry point
- Locate tie-ins with rodder and locator
- Map existing lines for potential intrusion
- Calculate the amount of sewer waste
- Calculate the amount of kitchen usage
- Calculate the size of grease trap needed



TRACER DYE

Add a dye to each entry point to examine the flow and it's route.

Qualitative- the presence of particular flow and its estimate

Quantitative- when the amount of the traced dye is measured by special instruments.

Document the travel and time of entry.



Locate the Tie-Ins

Rodder and a locating device will be used to detect the line positions.

Enter at the clean-outs and sinks for line locations



Mapping Lines

Produce a map of possible intrusions and interceptions.

- ❑ Information from as-builds
- ❑ Recorded findings
- ❑ Detailed results



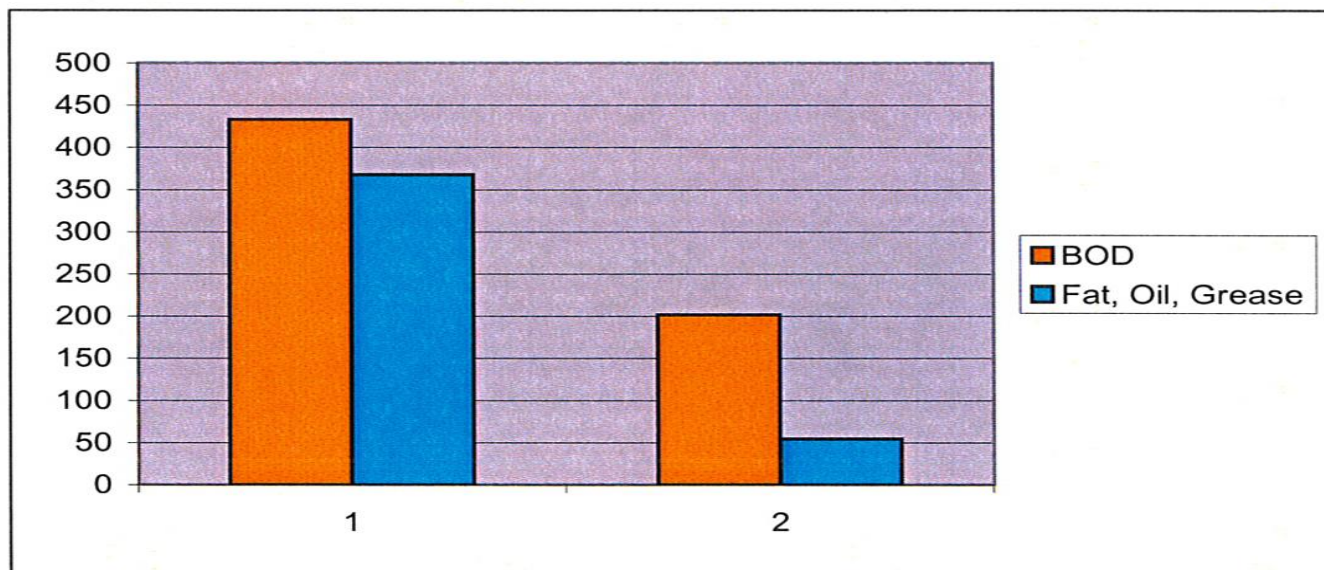
Solutions

The information and data collection produce a possible work plan.

- ❑ Re-route lines
- ❑ Under counter grease traps
- ❑ Larger outdoor grease trap
- ❑ Increased pumping
- ❑ Dish washing methods

| month/yr | AAA pumping once Sludge Volume Index | a month Tss Influent | BOD | Fat,Oil,Grease | Average Daily Flow |
|----------------------|---|-------------------------|---------------|--------------------|--------------------|
| 2008 Feb | 160 | 137 | 770 | | 69207 |
| 2008 Aug | 117 | 96 | 280 | 228 | 168000 |
| 2008 Aug | 117 | 96 | 280 | 82 | 168000 |
| 2008 Sept | 196 | 159 | 403 | 295 | 236570 |
| Total Average | 147.5 | 122 | 433.25 | 201.6666667 | 160444.25 |

| | AAA pumping twice | a month | | | |
|----------------------|-------------------|------------|---------------|---------------|------------------|
| 2009 Nov | 180 | 74 | 220 | 3.3 | 154884 |
| 2008 Dec | 198 | 127 | 440 | 96 | 153484 |
| 2008 Dec | 198 | 127 | 451 | 64 | 153484 |
| 2009 Feb | 152 | 180 | 360 | 55 | 134259 |
| Total Average | 182 | 127 | 367.75 | 54.575 | 149027.75 |





Grease Interceptor sizing calculations

Requirements are determined by the volume of waste water that the interceptor can handle compared to demand. Unit selection depends on the type desired and it's capacity rating in GPM.

Plumbing and Drainage Institute

(PDI) defines standard sizes in flow (GPM)

Cost of pumping

- ❑ 300.00 per load – 4000 gallons
- ❑ 2 loads per month
- ❑ 7200.00 / year
- ❑ **Oversight**
- ❑ 2hrs/wk
- ❑ 4hrs/month
- ❑ 48 hrs/year



Sizing Chart

| Trap Outlet | Fixture Value | GPM |
|-------------|---------------|------|
| 1-1/4" | 1 | 7.5 |
| 1-1/2" | 2 | 15.0 |
| 2" | 3 | 22.5 |
| 2-1/2" | 4 | 30.0 |
| 3" | 5 | 37.5 |
| 5" | 6 | 45.0 |



Alternate Method

- ❑ Calculate volume in cubic inches
- ❑ Convert this volume to gallons
- ❑ Multiply by 0.75
- ❑ Calculate flow rate and drainage period
(1 or 2 minutes)

Example

Sink size-

$$12'' \times 18'' \times 6'' = 1296 \text{ cu in}$$

$$1296/1728 = .75 \text{ cu ft}$$

$$.75 \text{ cu ft} \times 7.48 \text{ gal/cu ft} =$$

$$5.61 \text{ gallons} \times 75\% = 4.2 \text{ gallon capacity}$$

PDI – standard size equivalent to gpm of flow

Dishwasher

- ❑ A separate grease trap is recommended for each dishwasher

| ❑ Capacity in gallons | GPM |
|-----------------------|-----|
| 15-20 | 15 |
| 20-30 | 20 |
| 30-50 | 25 |
| 50-70 | 35 |
| 70-100 | 100 |



The Bottom Line

Many businesses find that taking steps to prevent FOG materials from entering the sewer system saves money. Keeping FOG out of your drains will reduce the likelihood of grease related plumbing problems. Fats, oils and grease can often be recycled, reducing garbage costs.











