

Lost in the FOG!

A Public Information Presentation on Fats, Oils, & Grease in the North Pole Municipal Sewer System

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What is FOG?

- **Fats, Oils, and Grease** describes a family of chemicals that have similar characteristics such as:
 - **Congealable** – solidifies at room temperature
 - **Floatable** – specific gravity is less than one, so it will float on water
 - **Soluble** – some forms can dissolve in water
 - **Emulsive** – some can form oil + water emulsions (tiny droplets in water)



Congealable



Floatable



Emulsive

Soluble

- **FATS: Solid at room temperature**

- Butter, shortening, margarine, peanut butter, meat trimmings, uncooked poultry skin, dairy products (cheese, milk, cream, sour cream and ice cream)

- **OILS: Liquid at room temperature**

- Vegetable oil, canola oil, olive oil, corn oil, salad dressings, cooking oils

- **GREASE: Turns to liquid during cooking, solidifies when cooled**

- Gravy, mayonnaise, melted meat fat, bacon and sausage, boiled poultry skin, salad dressing



Impact on the Wastewater System



Large amounts of FOG in the wastewater system cause problems in the collection system pipes. Grease is a major contributor to sanitary sewer overflows (SSOs). Every year SSOs discharge millions of gallons of waste water to the environment and surrounding bodies of water. FOG decreases pipe capacity and, therefore, requires that piping systems be cleaned more often and/or replaced sooner than otherwise expected. FOG leads to stoppages and backups into residential and commercial properties. FOG may also interfere with effective treatment at the wastewater treatment plant.

Wastewater Collection System Costs Due to FOG in the Sewers

The additional maintenance and emergency response by the City of North Pole wastewater system operators has a very real economic impact on the City budget. This impact is borne by all utility rate payers in the City.

Individual businesses and institutions with commercial kitchens incur contractor expenses to clear line blockages caused by the discharge of excessive amounts of FOG.



Manhole Cleaning in the City of North Pole

Before



After



Direct FOG Costs						
Expense	Hours staff members time	Number of staff member	Number of lift stations	Times per year	Amount	
Fairbanks Pumping and Thawing	-	-	-	-	\$2,195.00	One-time event
Cleaning level sticks once per month lift stations directly affected by restaurants	1	1	4	12	\$2,644.80	Annually
Finnel lift station cleaning	3	2	1	6	\$1,983.60	Annually
Yukon lift station cleaning	3	2	1	4	\$1,322.40	Annually
Cary lift station cleaning	3	2	1	3	\$991.80	Annually
North Blanket lift station cleaning	3	2	1	3	\$991.80	Annually
McDondalds to Yukon lift station jet clean	4	2	1	2	\$881.60	Annually
Estimated annual direct costs related to FOG:					\$8,816.00	
<i>Average loaded hourly wage for utility staff</i>	\$55.10					

City Municipal Code

- **The City of North Pole has provisions in the Municipal Code that are intended to protect the wastewater collection system equipment from damage caused by high concentrations of FOG, and to protect the City from the environmental liability and additional costs incurred because of FOG discharges to the sewer system.**
- **See Chapter 13.20 Sewer Service, North Pole Municipal Code**
- <http://www.codepublishing.com/AK/NorthPole/>

- **13.20.020; C. Specific Prohibitions.** No user shall introduce or cause to be introduced into the POTW the following pollutants, substances, or wastewater:
 - (3) Solid or viscous substances, including fats, oils, or greases of animal or vegetable origin, in amounts which will cause obstruction of the flow to and/or within the POTW resulting in interference.
- **13.20.020; F. Local Limits.**
 - (2) The following pollutant limits are established to protect against pass through and interference. No person shall discharge wastewater containing in excess of the following daily maximum concentration limits--Oil and/or grease (total) 100 mg/l.

- **13.20.020; S. Building Sewers. All building sewers shall be installed in complete accordance with provisions of the Uniform Plumbing Code.**
- **13.20.020; T. Service Connection.**
 - **(9) All commercial kitchens and other food processing facilities shall furnish, install and maintain a grease trap/interceptor to trap animal and vegetable based greases and oils in accordance with the Uniform Plumbing Code and the local limits criteria listed in subsection (F)(2) of this section. Final acceptance of such a device and the operation and maintenance plan to ensure its proper performance is subject to approval by the North Pole Utility Department. Further applicability and information on this requirement can be obtained from the North Pole Utility.**

Controlling FOG Discharges to the Sewer

- **Best Management Practices – BMPs**
- **Grease Traps**
- **Grease Interceptors**



BMPs Can Make A HUGE Difference!

- Train and educate the kitchen staff about how important FOG control is to the facility plumbing system, the municipal wastewater system, and the environment.
- Post proper signage near sinks and dishwashers



BMPs can reduce amount of FOG to manage

- **“Dry wipe” pots, pans, plates, and utensils prior to washing in a pot wash sink or dishwasher**
 - Remove as much food, fat, oil and grease particles as possible – put in trash
 - This reduces the load on grease traps and interceptors, which saves \$\$\$\$
- **Use strainers in sink drains to catch food scraps and other solids, dispose of scraps in the trash**
- **Do not use food grinders as they will fill up the grease trap or interceptor with solids and decrease their effectiveness**



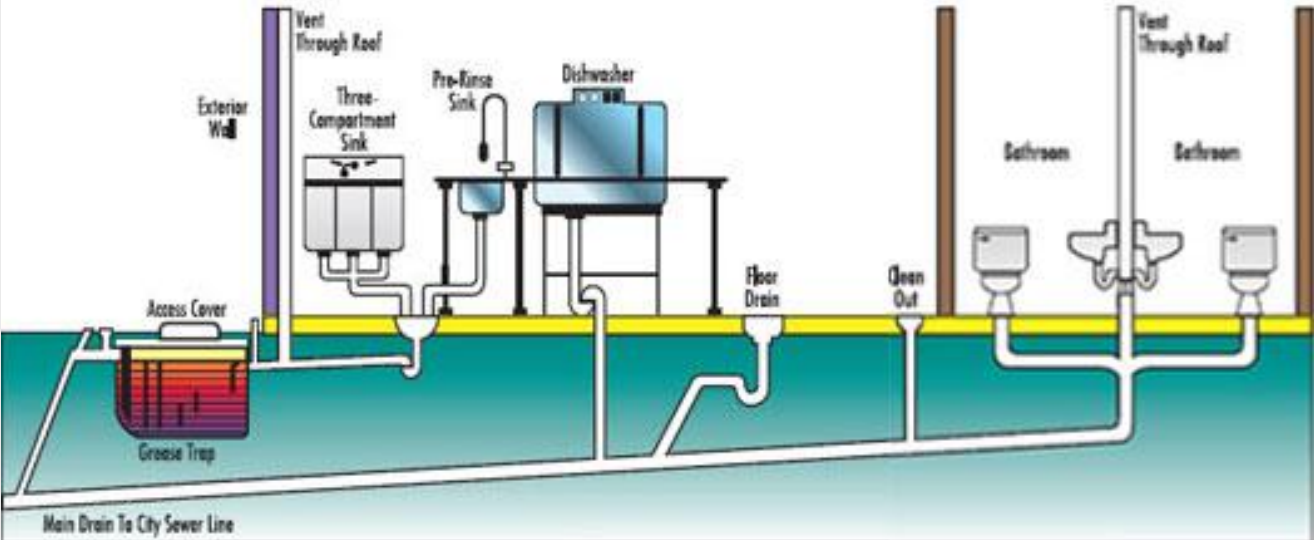
BMPs can improve FOG control and safety

- **Keep water temperatures less than 140 °F in all sinks, especially the pre-rinse sink before the mechanical dishwasher. High temperatures will dissolve grease and allow it to pass through the grease trap or interceptor to the sewer system.**
- **Do not discharge strong caustic or acidic chemicals or solvents to the sewer system. These may interfere with grease traps or interceptors and can be hazardous to the City wastewater system operators.**
- **Do not add biological agents for grease remediation without permission from the City wastewater system operators.**

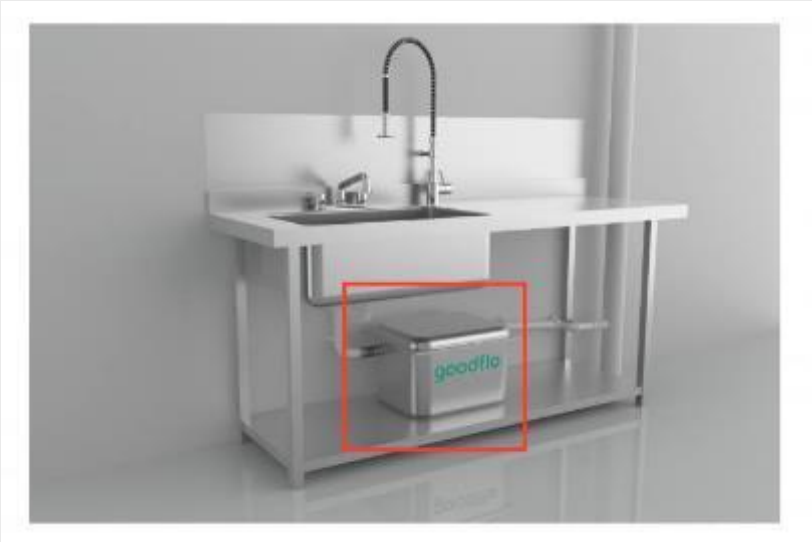
Grease Traps and Interceptors

- **Properly maintain grease traps and interceptors to prevent introducing FOG into the wastewater collection system**
 - **Clean under sink grease traps weekly or more often if required, particularly if the traps are over 50% full when cleaned weekly**
- **Grease interceptors should be pumped empty at a frequency that maintains their performance, typically once per month in a high volume commercial kitchen**
- **Observe trap or interceptor cleaning to ensure it is being done properly, and keep a maintenance log that records the frequency of cleaning and volume of material removed**

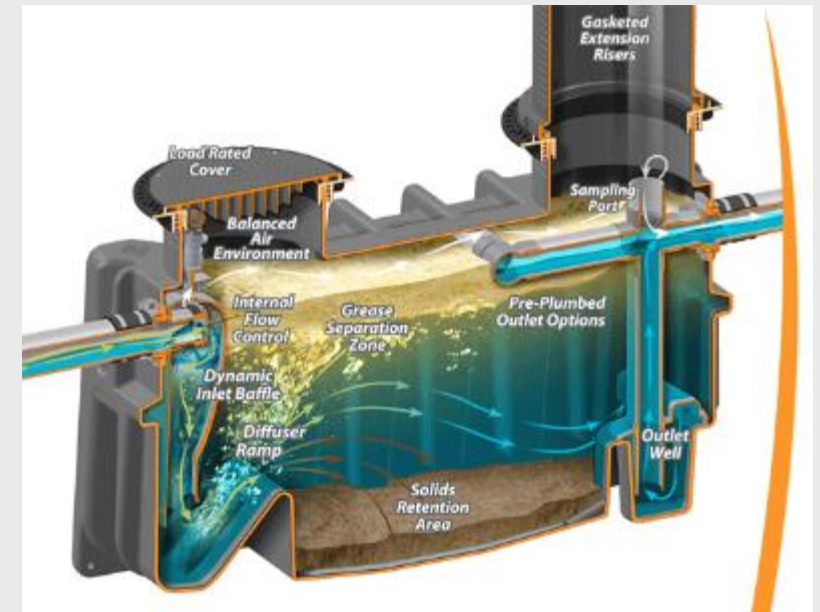
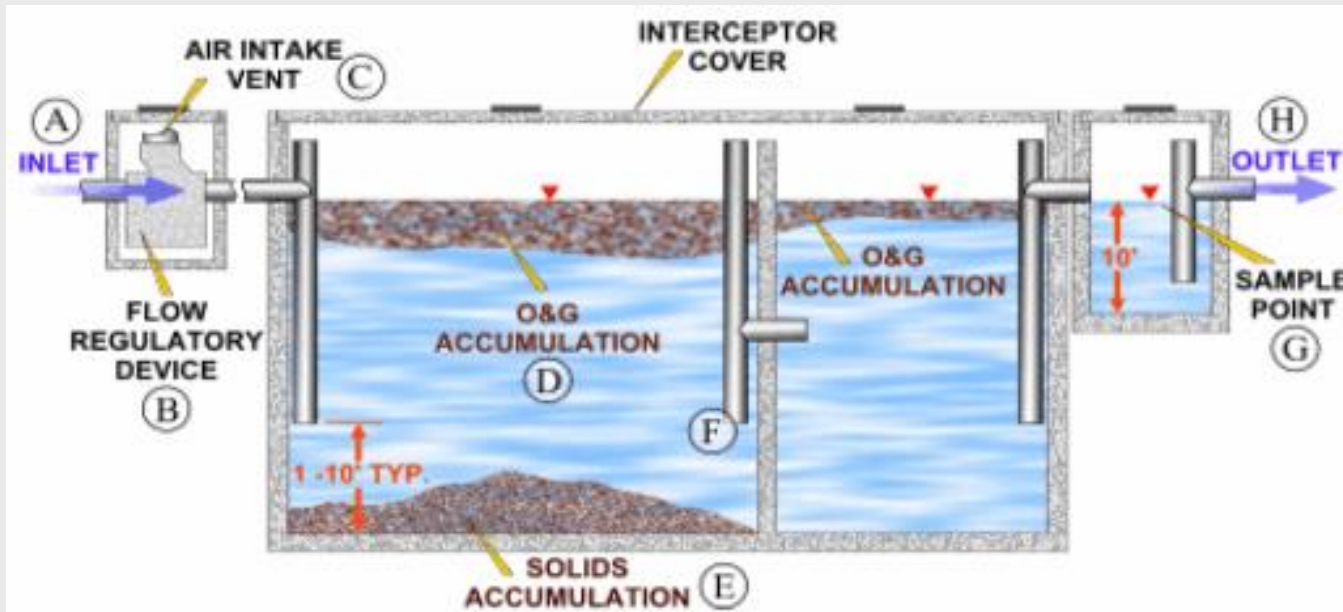
Grease Traps – smaller, in floor or under counter units



Grease traps may be cleaned by the kitchen or maintenance staff, or by a professional pumping contractor.



Grease Interceptors – Larger Installations



Grease interceptors are typically 750 to 1,250 gallons in capacity, and usually located outside the facility. The large capacity allows the wastewater to cool and the FOG to congeal and rise for storage until the unit is pumped out by a contractor.

Grease Interceptors – Contractor Serviced



**Thank You for Helping
Clear the FOG!**

