Fats, Oil, & Grease (FOG) 
The Basics

Joint Meeting of WSAC & CDWAC

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** Special thank you to Vince Chavez, FOG Program Manager – Clean Water Services, Washington County Oregon
Who provided many of photos and much of the research provided in this presentation
What is FOG?
What are the Primary Sources?
What is the Problem
What is the Expectation?
What Can We Do?
The food we prepare and eat contains Fats, Oil, and Grease (FOG). Clean up from food preparation & waste disposal sends FOG down the drain, where it becomes a problem.
Concentrated sources harden and build up in the pipe having a soap like consistency. This material blocks the pipes, and resulting in Sanitary Sewer Overflows (SSOs)...

And backups into homes and businesses.

8X more overflows & backups in areas with a high concentration of restaurants than the city-wide average.
Primary Sources of FOG

Floor cleaning
Primary Sources of FOG

Pre-wash Sinks & Food Grinders
Primary Sources of FOG

Poorly Implemented Best Management Practices (BMPs)
The Perception

“FOG not really a problem, typically only 5 or 6 grease related SSOs/Year (low of 2 in 2014)”
This mentality lead to this above ground...
And this below ground...

Post cleaning

Prior to cleaning... 6 months later
The Reality

“If the facts don’t fit the theory, change the facts” – Albert Einstein

• 400-500 miles of line cleaning/year
• 981 miles-58% of pipe = some FOG impact (535 Miles - 32% significantly)
• Priority 1 Hotspots 8X more SSOs/mile than city wide average
• With projected growth & increased density... 50-60% increase in FOG to sewer over next 15 years
Case Study - Hospital

Two cafeterias, coffee shop and main kitchen

• 1 GRD 20 gal/40 lb for one 3-compartment sink
• Estimated FOG discharge: 0.045 lbs per meal; 0.0039 lbs per drink
• 771,120 meals/year = 34,700 lbs FOG/year
• 212,400 coffee drinks/year = 637 lbs FOG/year

Total FOG discharge per year: 35,337 lbs
• FOG captured by 20 gal GRD: 1,920 lbs per year
• 16.7 tons (33,417 lbs) FOG discharged to public sewer per yr.
## Ineffective Maintenance Cycles/Capacity

<table>
<thead>
<tr>
<th>Status</th>
<th>GRD Size</th>
<th>Connection</th>
<th>Lbs/Year</th>
<th>Cleaning Frequency</th>
<th>Cost/Year</th>
<th>Increase In FOG Captured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>20 Gal</td>
<td>3-comp sink</td>
<td>1,920</td>
<td>30 Days</td>
<td>Self</td>
<td></td>
</tr>
<tr>
<td>Mfr. Spec</td>
<td>20 Gal</td>
<td>(if) All FOG Drains</td>
<td>35,337</td>
<td>0.4 Days</td>
<td>$69,700</td>
<td>1740%</td>
</tr>
<tr>
<td>Updated</td>
<td>3 – 250 Gal</td>
<td>All FOG Drains</td>
<td>35,337</td>
<td>73 Days</td>
<td>$3,300</td>
<td>1740%</td>
</tr>
</tbody>
</table>

Source: Vince Chavez, Clean Water Services
Good Install? Newly built/opened facility

- Size
- All drains Connected
- Access for inspection
- Access **not** available

Oops, 2\(^{rd}\) level basement accessible through stairs/elevator only (300 gallon capacity)
So what is the problem

Is it this?
“The regulation is there but restaurants aren’t doing what is required.”

Or this?
“The regulation is there but it is not clear, difficult to find, not communicated well, and not enforced adequately or uniformly.”
So what is the Current Expectation
Seattle Municipal Code (SMC) 21.16.310

- Discharge of FOG is prohibited (Visible Accumulations) or discharge greater than 100 PPM.
- You Must have an appropriately sized Grease Removal Device (GRD)
- GRD Must be readily accessible for Maintenance/Inspection
- GRD Must be fully operational at all times
- GRD Must be maintained (25% rule)

Sample of Current Code Language:
“A grease interceptor is not in continuously efficient operation and is in violation if the total volume of grease, solids or food waste at any time displaces more than twenty-five percent of the effective volume of any chamber of the grease interceptor.”
Poorly communicated expectation has caused...

- Enforcement based program
  - 50-70% Inspector time spent on enforcement
- Inadequate plan review
  - 50% of FSEs – No Pretreatment
  - 60% of FSEs with Pretreatment – Inadequate size/installation
- Ineffective maintenance
  - 70% of FSEs with Pretreatment – Not maintained to code
What can we do?

..to change customer relationship from adversary to partner.

By making customers aware of costs & program requirements upfront...

We will increase awareness of code requirements before business open from current 40% to 85%

..to increase FOG inspector efficiency

By Ensuring GI sized, installed, and maintained so that inspector’s focus changes from enforcing code to confirming code compliance.

We will reduce inspector enforcement time from between 50 to 70% to between 5 to 10% by 2033.

...to reduce Drainage & Wastewater Line of Business risk.

By solving problems at the source.

We will reduce additional grease entering system by 30% over 15 years.
The Future of FOG in Seattle

• Simplified code requirements (Director’s Rule)
• Improved customer relationship through early outreach/education
• Update Plumbers/Design Engineers knowledge about code requirements
• More thorough plan review and construction inspection process
• Track compliance through routine maintenance reporting VS. Inspection
• Expand Residential Messaging
Where We’re At

1/14/2014
Issue Statement Report Drafted

10/10/2014
“One Team” Convened

11/24/2015
Consensus plan approved by “One Team”

2/11/2016
Concept plan approved by Asset Management Team AMT (Executive Level)

12/31/2016
Draft Rule and Implementation Plan Timeline Due

2/11/2019
Roll-out Complete Report Back to AMT
Questions?

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