USDA FOG ABATEMENT TRAINING:

EFFECTIVE FOG ABATEMENT PROGRAM IMPLEMENTATION

SESSION 3

POLLUTION PREVENTION resource center

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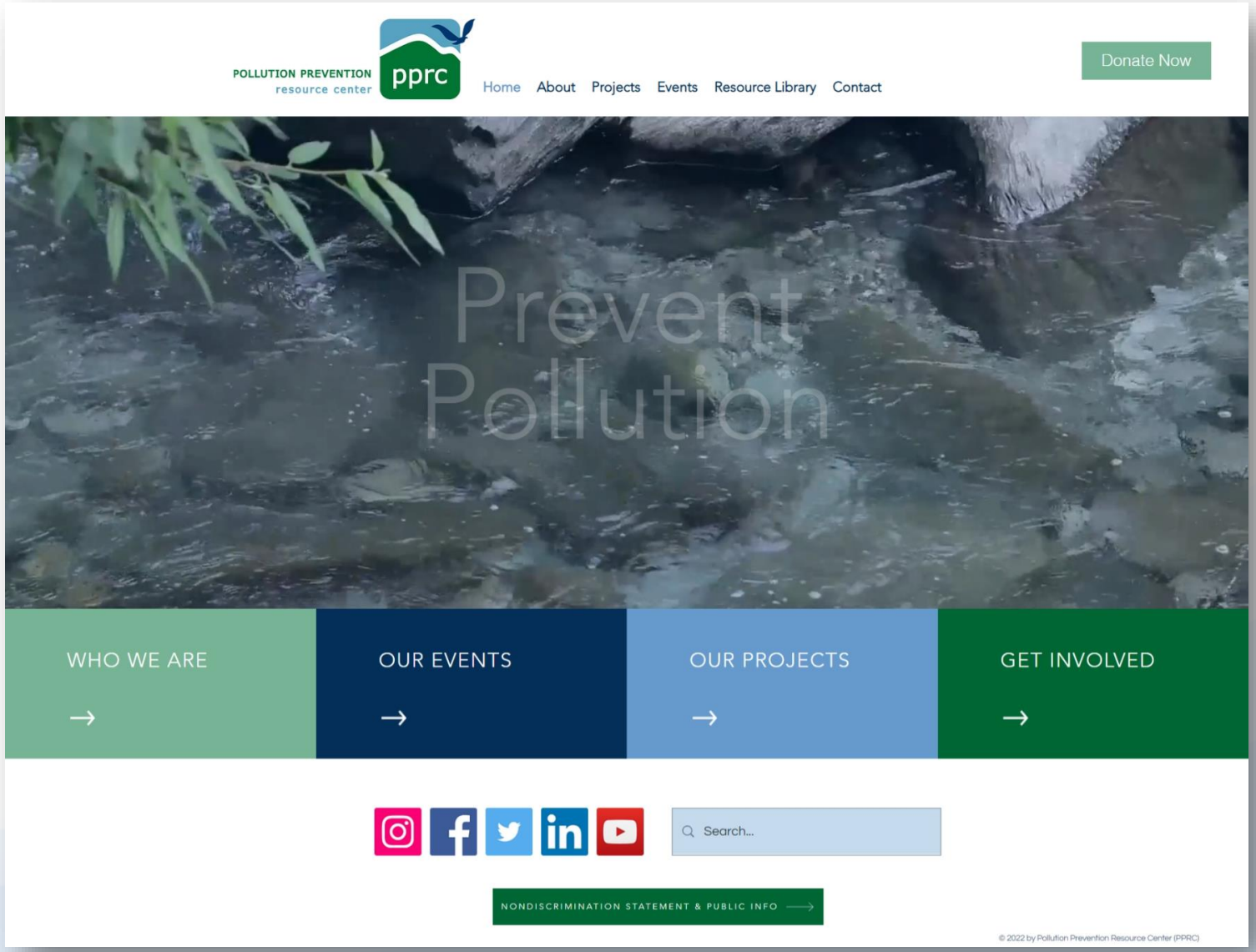

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TECHNICAL RESOURCES TAB

Tue, Apr 11 | Best Western Plus, Hood River Inn

2023 FOG Forum

Join us for a two day training and networking event focused on FOG (Fats, Oils, and Grease). The Forum is designed to inform and train wastewater professionals, restaurant owners, pretreatment professionals, plumbers and adjacent industries on the latest in FOG issues.

Time & Location

Apr 11, 8:30 AM – Apr 12, 4:30 PM
Best Western Plus, Hood River Inn, 1108 E Marina Dr, Hood River, OR 97031, USA

About The Event

We are pleased to be offering the 2023 FOG Forum in a hybrid format so that it may be attended in-person or virtually (synchronous) via Zoom. The Forum will be held at the beautiful Hood River Inn, nestled on the banks of the Columbia River. Check out the venue by visiting their website here!

We encourage open discussion during the presentation…

TRAINERS:

Clayton Brown

Jude Brown

Patrick Bryan

Arjen DeHoop

Ed Gilmore

Ken Grimm

David James

Jean Waters

PROGRAM IMPLEMENTATION

SESSION 3

- **YOUR EXISTING FOG PROGRAM**
- **ESTABLISHING LEGAL AUTHORITY**
- **STAKEHOLDERS**
- **FOG TRIAGE**
- **FOG MANAGEMENT PRACTICES**
- **FSE EFFECTIVE FOG PRETREATMENT**

SESSION 4

- FOG AND WATER SEPARATION
- GREASE REMOVAL DEVICES (GRD)
- FSE INSPECTIONS
- PREFERRED PUMPER PROGRAMS

PATRICK BRYAN, PPRC FOG TRAINER AND TECHNICAL PROGRAM MANAGER

Stanislaus County, Hazardous Materials Inspector
County Of Fresno, NPDES Inspector
Municipal Interagency Training Coordinator

- EXPERIENCE SERVING AS A WASTEWATER AND STORM WATER INSPECTOR FROM THE COUNTY OF FRESNO, CALIFORNIA.
- BACKGROUND IN COMMERCIAL AND DEVELOPMENT PROGRAMS PATRICK UNDERSTANDS THE DISCONNECT THAT CAN OCCUR BETWEEN THE COMMUNITIES WE SERVE SUCH AS FOOD SERVICE ESTABLISHMENT'S (FSES), OTHER REGULATORY INSPECTORS/PROGRAMS AND WITHIN OUR OWN AGENCIES.
- BUILDING RELATIONSHIPS WITH INTERNAL DEPARTMENTS AND PRIVATE STAKEHOLDERS IS ESSENTIAL FOR A SUCCESSFUL FOG PROGRAM.

FOG HAPPENS

noodles & company

IN-N-OUT BURGER

Red Lobster

Denny's

IHOP RESTAURANT

OUTBACK STEAKHOUSE

SUBWAY

T.G.I. FRIDAY'S

BUFFALO WILD WINGS GRILL & BAR

Wendy's OLD FASHIONED HAMBURGERS

CHIPOTLE MEXICAN GRILL

Jack in the box

HOOTERS

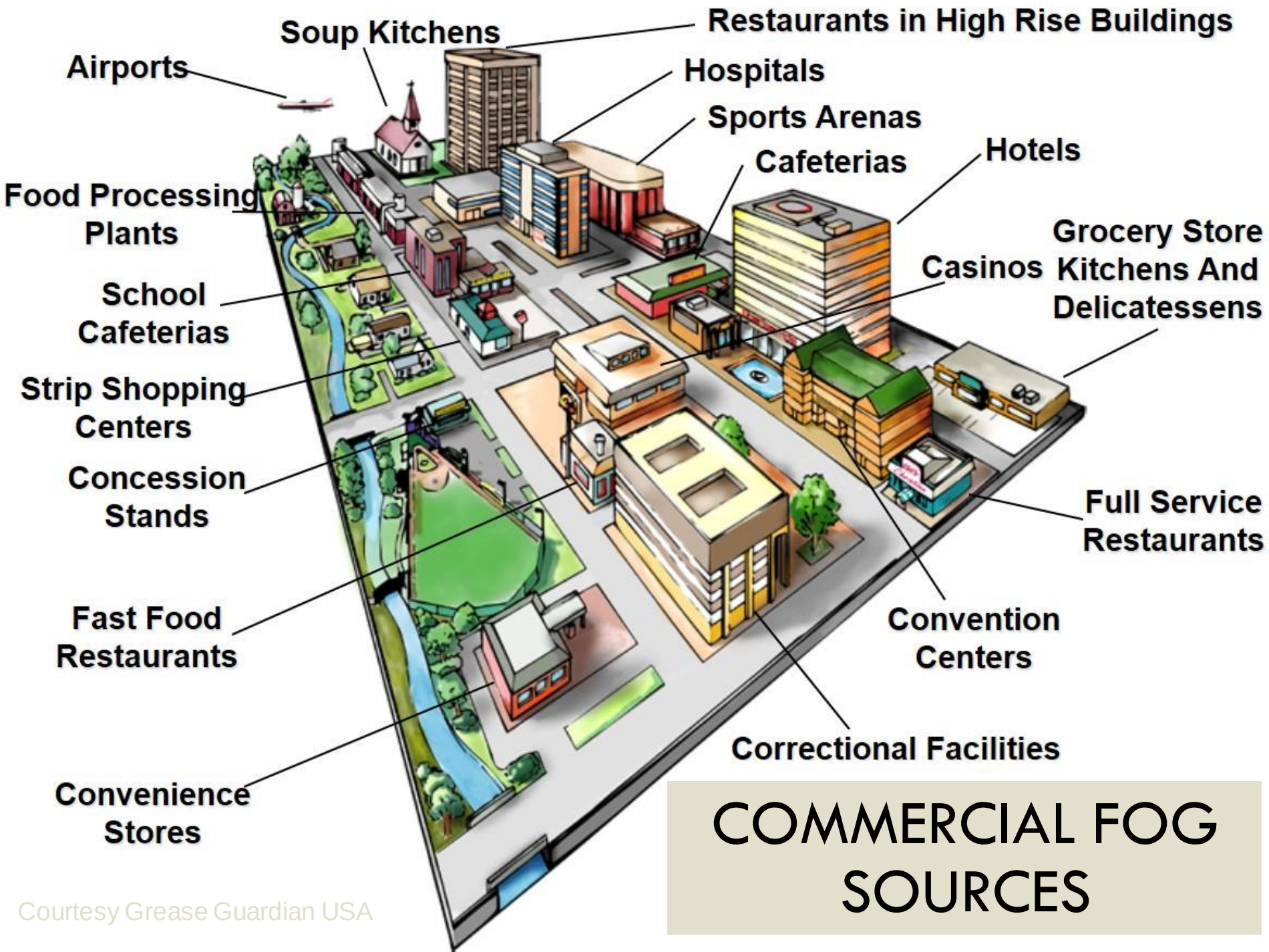
A&W ALL AMERICAN FOOD

DUNKIN' DONUTS

Krispy Kreme DOUGHNUTS

Applebee's

KFC



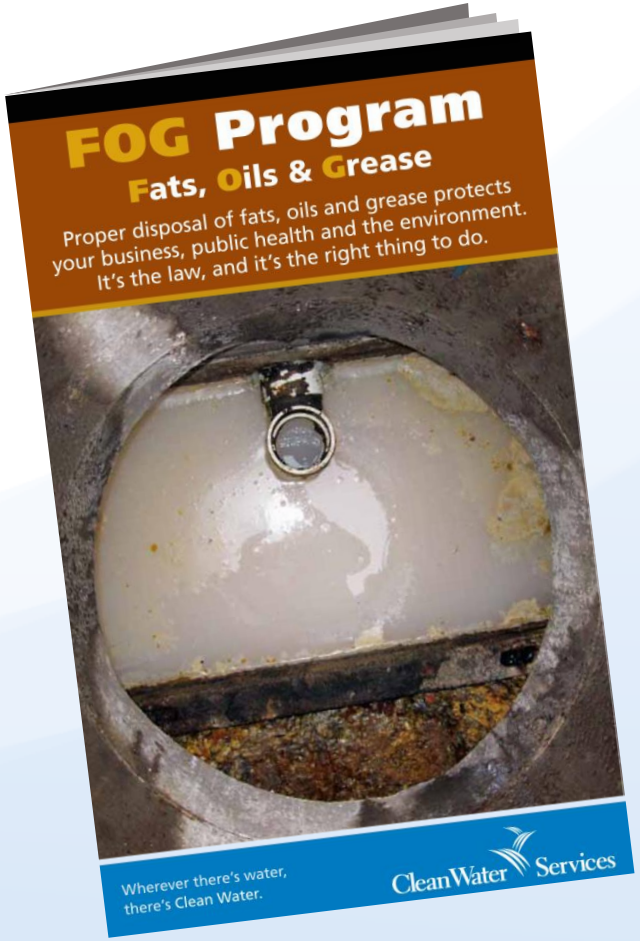
COMMERCIAL FOG SOURCES

Courtesy Grease Guardian USA

"We want a data-driven FOG program not an effort-driven Program"
Gary Christensen, City of Seattle Public Works

What are our Desired Outcomes?

- **Protect public health and the environment**
- **Cost effective, data driven program**
- **Comply with State and Federal Regulations**
- **FOG Program programmatic drivers**



SANITARY SEWER OVERFLOWS (SSO) DRIVER OUTCOMES & OUTPUTS

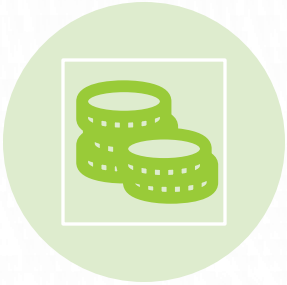
PROTECT PUBLIC HEALTH AND THE ENVIRONMENT

- REDUCE/ELIMINATE FOG-RELATED SANITARY SEWER OVERFLOWS (SSO)
  - METRICS – REDUCTION IN NUMBER OF SSOS
- REDUCE/ELIMINATE FOG CONTAMINATION IN STORMWATER
  - METRICS – INCREASE IN NUMBER OF COVERED AND PLUMBED TRASH ENCLOSURES
  - METRICS - REDUCTION IN NUMBER OF FOG-RELATED ILLICIT STORMWATER DISCHARGES

Poll Question

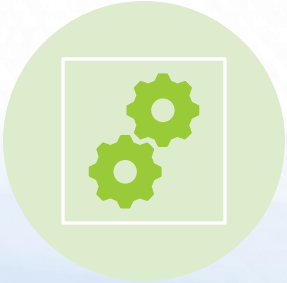
MEASURING FOG PROGRAM SUCCESS

PERFORMANCE MANAGEMENT



Inputs: What money and resources are needed?

Outcomes: What do we want to achieve?



Outputs: How do we know we're making progress?

Performance Measures: Tracking progress to achieve funded activities

ULTIMATE FOG PROGRAM OUTCOMES

- NO SANITARY SEWER OVERFLOWS (SSOs)
- NO FOG-BLOCKED SEWER LINES
- ENTIRE SEWER COLLECTION SYSTEM OPERATION & MAINTENANCE
- NO WASTEWATER TREATMENT PLANT DISCHARGE PERMIT VIOLATIONS DUE TO FOG
- ALL FSES ARE COMPLIANT

HOW DO WE HELP ACHIEVE THESE GOALS?

TYPICAL OUTCOMES & OUTPUTS

COST-EFFECTIVE, DATA DRIVEN PROGRAM

- **REDUCE NON-ROUTINE COLLECTION SYSTEM CLEANING**
  - METRICS – REDUCTION IN THE LINEAL FEET OF FOG LINES ("HOT" OR "RED" LINES) CLEANED
- **REDUCE NON-ROUTINE PUMP STATION CLEANING**
  - METRICS – REDUCTION IN NUMBER OF PUMP STATION SERVICES RELATED TO FOG ANNUALLY
- **REDUCE NON-ROUTINE MANHOLE INSPECTIONS**
  - METRICS – REDUCTION IN NUMBER OF MANHOLE INSPECTIONS RELATED TO FOG ANNUALLY

INFRASTRUCTURE DRIVERS TO REDUCE FOG RELATED COSTS

- BLOCKAGES & OVERFLOW COSTS
- MAINTENANCE COSTS
  - COLLECTION SYSTEM
  - PUMP STATIONS, AIR RELIEF VALVES
  - MANHOLES
  - TREATMENT PLANTS
- INFRASTRUCTURE DAMAGE
- TREATMENT PLANT OPERATION COSTS
- TREATMENT CAPACITY

FOG PROGRAM PROGRAMMATIC DRIVERS

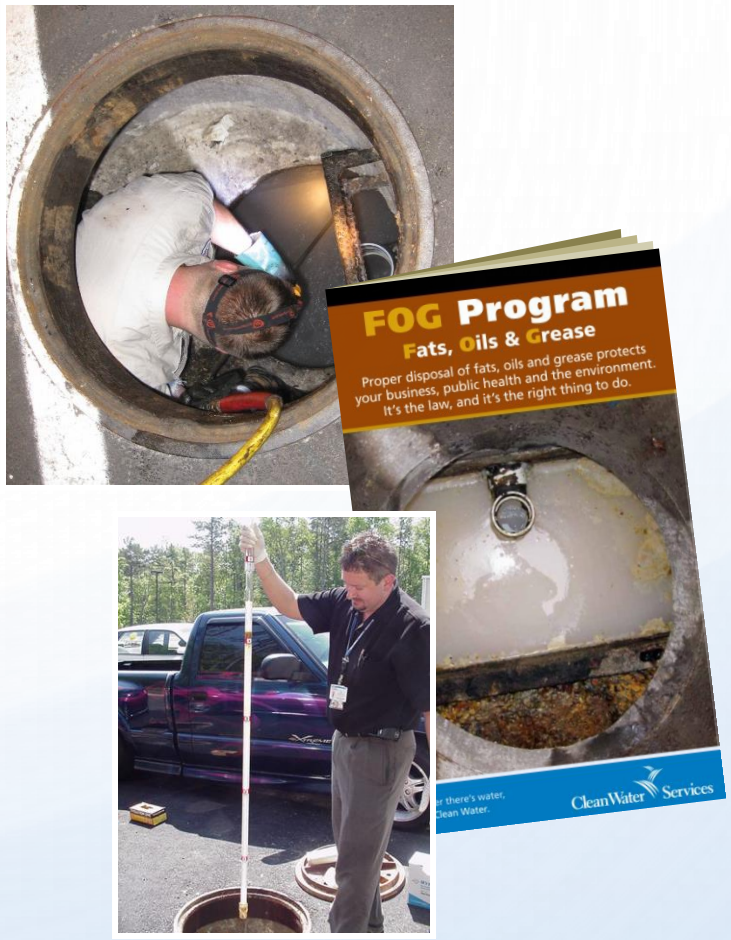
PROGRAM COSTS

- INSPECTIONS
- DATA MANAGEMENT
- OVERSIGHT

PUBLIC INTERACTIONS

EFFECTIVE FOR EXISTING FSE

ATTRACTIVE FOR NEW FSE



EXAMPLE OF PERFORMANCE MEASURES FOR THE SEWER COLLECTION SYSTEM

Performance Measures

Indicators	FY19 Actual	FY20 Projected	FY21 Estimate
Input			
Wastewater Main Miles	245	250	270
Number of Connections	22,000	22,500	23,000
Sewer Backups	134	160	165
Output			
Manholes Repaired	14	10	10
Number of Lines Filmed	192	75	80
Quantity Filmed (Feet)	31,192	2,000	3,000
Lines Repaired	26	36	40
Lines Located	250	120	130
Manholes Inspected	664	220	230
Lines Cleaned	36	60	70
Manholes Cleaned	54	50	60
Cleanouts Repaired	4	10	20

These performance measures are for the entire collection system

What % of these performance measures can be attributed to FOG?

ESTABLISH/ MODIFY LEGAL AUTHORITY

LEGAL AUTHORITY

- STATE AND/OR LOCAL PLUMBING CODES
  - UNIFORM PLUMBING CODE
  - INTERNATIONAL PLUMBING CODE
  - AMERICAN SOCIETY OF PLUMBING ENGINEERS PLUMBING ENGINEER DESIGN HANDBOOK, VOL

INDUSTRIAL PRETREATMENT LEGAL AUTORITY

- **APPLIES TO ALL NON-DOMESTIC DISCHARGES**
- **NATIONAL PRETREATMENT REGULATIONS (40CFR PART 403)**
- **ORDINANCE EXAMPLES**
- **PROTECTION STILL REQUIRED FOR POTWs WITHOUT AN APPROVED PRETREATMENT PROGRAM**

40 CFR Part 403
PROHIBITED DISCHARGES

NONE = No revision ne

							Comments / Notes
15. Slug Load or Slug Discharge	403.8(f)(2)(vi)	§ 1.4 III					
16. Other definitions based on terms used in the POTW Ordinance							
B. National Pretreatment Standards – Prohibited Discharges							
1. General Prohibitions							
a. Interference	403.5(a)	§ 2.1A					
b. Pass Through	403.5(a)	§ 2.1A					
2. Specific Prohibitions [403.5(b)]							
a. Fire/Explosion Hazard (60° C or 140° F flashpoint)	403.5(b)(1)	§ 2.1B(1)					
b. pH/Corrosion	403.5(b)(2)	§ 2.1B(2)					
c. Solid or Viscous/Obstruction	403.5(b)(3)	§ 2.1B(3)					
d. Flow Rate/Concentration (BOD, etc.)	403.5(b)(4)	§ 2.1B(4)					
e. Heat; exceeds 40° C (104°F)	403.5(b)(5)	§ 2.1B(5)					
f. Petroleum/Nonbiodegradable Cutting/Mineral Oils	403.5(b)(6)	§ 2.1B(6)					
g. Toxic Gases/Vapor/Fumes	403.5(b)(7)	§ 2.1B(7)					
h. Trucked/Hauled Waste	403.5(b)(8)	§ 2.1B(8)					

Office of Water
EPA-833-B-07-001
February 2007

Applies to All POTWs

- **pH>5.0**
- **No obstruction from solid or viscous wastes**
- **Trucked/hauled waste**

Western States Alliance

LEGAL AUTHORITY NEEDED

FOG CONTROL ORDINANCE

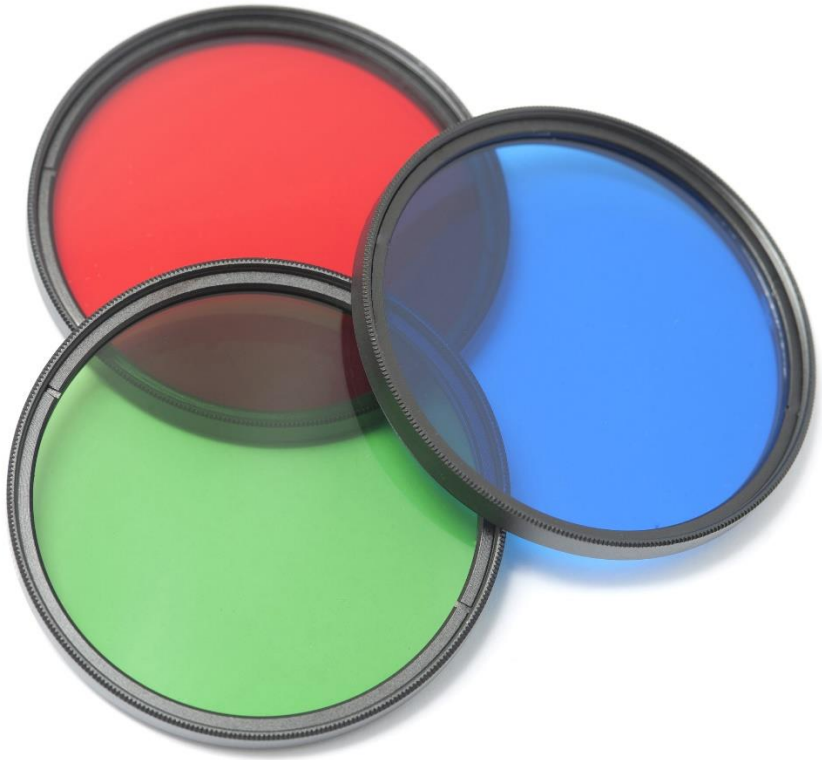
- **DEVELOP THE PROPER LEGAL AUTHORITY FOR A FOG CONTROL PROGRAM TO:**
  - **CONDITION OR PROHIBIT FOG DISCHARGES**
  - **REQUIRE GREASE REMOVAL DEVICES (GRD);**
  - **REQUIRE REGISTRATION AND/OR PERMITTING (OPTIONAL);**
  - **ESTABLISH MINIMUM PERFORMANCE REQUIREMENTS;**
  - **ESTABLISH DESIGN, OPERATION & MAINTENANCE STANDARDS;**
  - **PERFORM MONITORING, INSPECTIONS & ENFORCEMENT;**
  - **REQUIRE RECORDKEEPING, REPORTING & NOTIFICATIONS**
  - **REGULATE WASTE HAULERS AND DISPOSAL.**

JURISDICTIONAL AND LEGAL AUTHORITY CHALLENGES

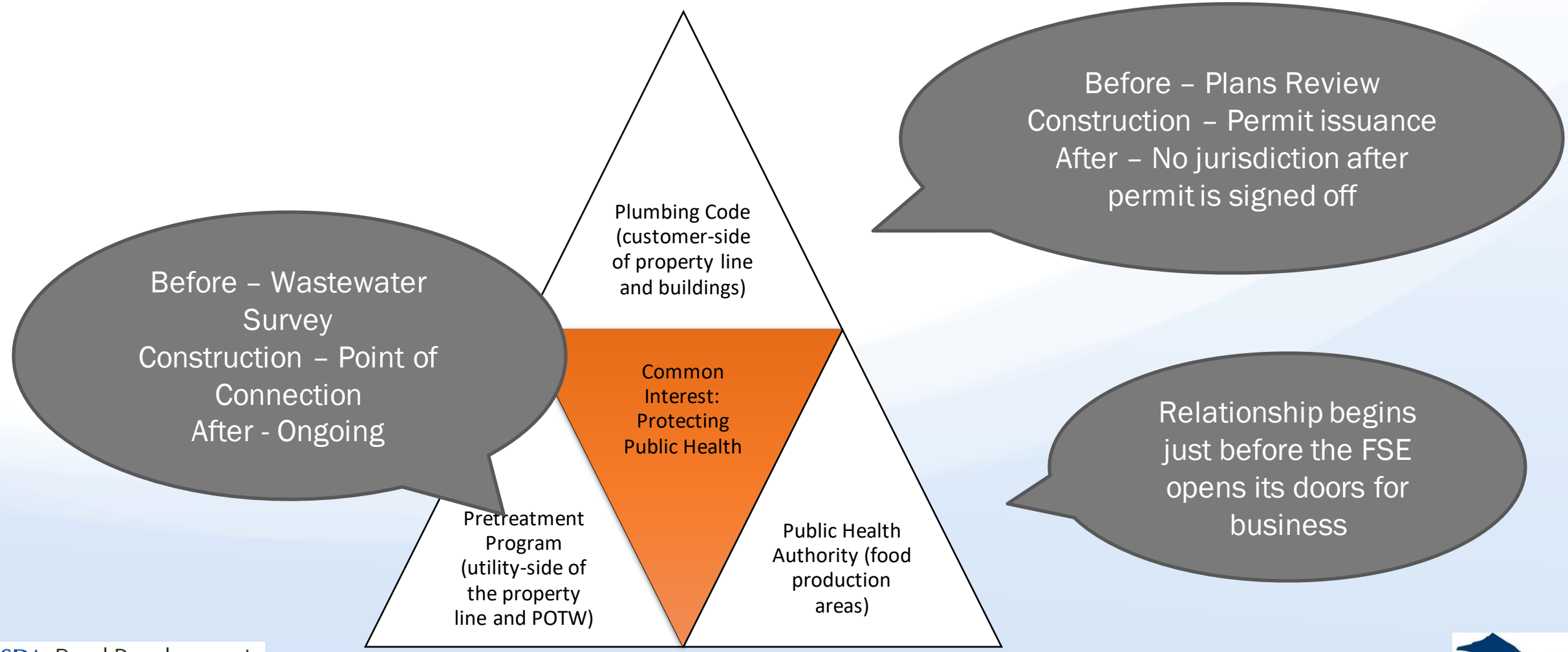
Overlapping Jurisdictions

There are three overlapping jurisdictions, each with its own code and authority:

- **Plumbing Code (State or local)**
- **Pretreatment Program (NPDES)**
- **Public Health Authority**



Jurisdictional Authority



Plumbing Code Amendment Example

- § 25-12-153 LOCAL AMENDMENTS TO THE UNIFORM PLUMBING CODE.
  - **1009.2 Approval.** Austin Water approves the size, design, type, and location of each interceptor or separator. Except as otherwise specifically allowed by the City Code, wastes that do not require treatment or separation may not be discharged into any interceptor. A grease, sand, or other gravity interceptor must be field tested by applying a minimum of a one-inch water column above the lid seal of the interceptor.

APPROACHING ENFORCEMENT

- **Broad Authority**
  - **Each application individual**
  - **Time consuming and potentially expensive**
  - **Administrative process lacking**
- **Situational**
  - **Re-inspection fee as needed**
  - **Cost Recovery for SSOs, Illicit discharges or Cleaning when source(s) identified**
  - **Non-conforming, illicit actions or construction**
  - **Repeated SSO, Illicit discharge, recalcitrant follow-up**

Enforcement Options

Use existing municipal code

- Can you use municipal “Nuisance” code?
- Typically enforced by code enforcement officer using a “ticket”

Use Sewer Use Ordinance

- Enforcement Response Plan should describe
  - Warning Letters
  - Escalating Administrative Penalties
  - Orders (Show Cause, Consent, Compliance)

FF. *Wastewater*. Liquid and water-carried Pollutants from residential dwellings, commercial buildings, industrial and manufacturing facilities, and institutions, whether treated or untreated, which are contributed to the POTW.

SECTION 2—GENERAL SEWER USE REQUIREMENTS

2.1 — Prohibited Discharge Standards

A. General Prohibitions. No IU shall introduce or cause to be introduced into the POTW any Pollutant which causes Pass Through or Interference. These general prohibitions and the specific prohibitions in paragraph B. of this subsection apply to all IUs of the POTW whether or not they are subject to Categorical Pretreatment Standards or any other National, State, or local Pretreatment Standards or Requirements.

B. Specific Prohibitions. No IU shall introduce or cause to be introduced into the POTW the following Pollutants:

1. Pollutants which create a fire or explosive hazard in the POTW, including, but not limited to, waste streams with a closed-cup flashpoint of less than 140 degrees F (60 degrees C) using the test methods specified in 40 CFR 261.21;
2. Wastewater having a pH less than 5.0 [**Optional Upper pH Limit** – or more than X.X s.u.][2], or otherwise causing corrosive structural damage to the POTW or equipment;
3. Solid or viscous Pollutants in amounts which will cause obstruction of the flow in the POTW resulting in Interference. [**Optional**: Solid or viscous Pollutants shall not be discharged whole or ground by garbage grinders. This includes, but is not limited to ashes, cinders, sand, oil and grease from food service establishments, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, underground garbage, paunch manure, hair and flesh, entrails, and paper dishes, cups, milk containers, etc.];
4. Pollutants, including oxygen-demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which, either singly or by interaction with other Pollutants, will cause Interference with the POTW;
5. Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 °C (104 °F) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits.

[2] The Pretreatment Regulations at 40 CFR 403.5(b)(2) establish a lower pH limit of 5.0, the POTW may establish an upper pH limit based on an evaluation of its collection system and treatment works. However, the establishment of an upper pH limit above 12.5 allows the discharge of characteristic hazardous waste and triggers reporting, as required by 40 CFR 403.12(p) and subsection 4.3 of this ordinance.

9

Poll Question

Ed Gilmore

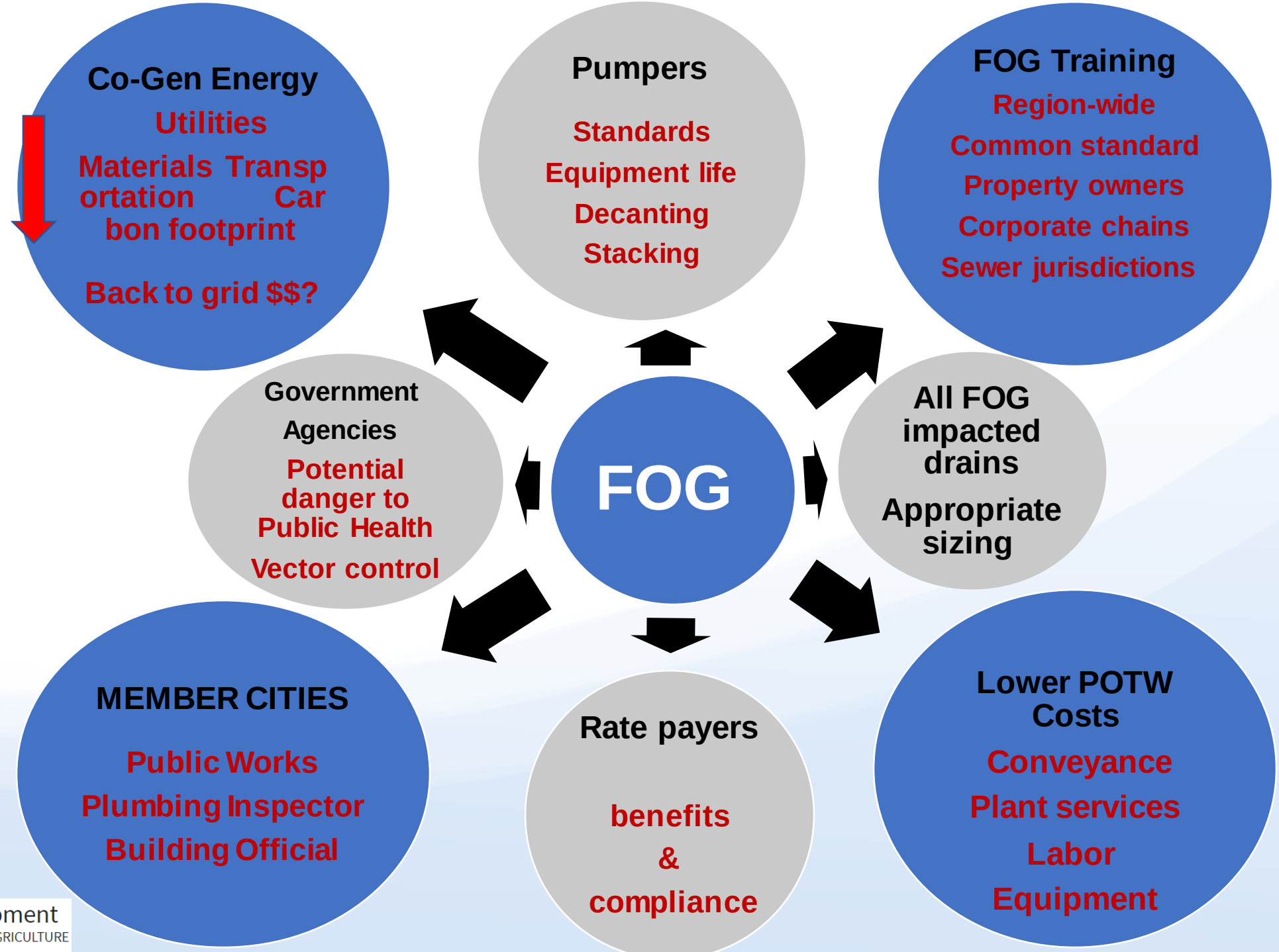
11 years Restaurant Owner

20 years, Source Control Specialist, Clackamas County, Oregon
Industrial Pretreatment, FOG, P2 and Septage programs

Currently Trainer, Western States Alliance, PPRC

Bachelor of Science, Biochemistry, Portland State University

Engaging Stakeholders



Stakeholders

- ***FSE's*** **(small businesses, chains, schools, churches, hospitals, industrial campuses, institutional kitchens)**
- **Building, plumbing officials, plan reviewers**
- **Health inspectors**
- **Pumpers**
- **Contractors, builders, architects**
- **Landlords, property managers**
- **DEQ, EPA, Cities**

Inventory and Survey of FSE's

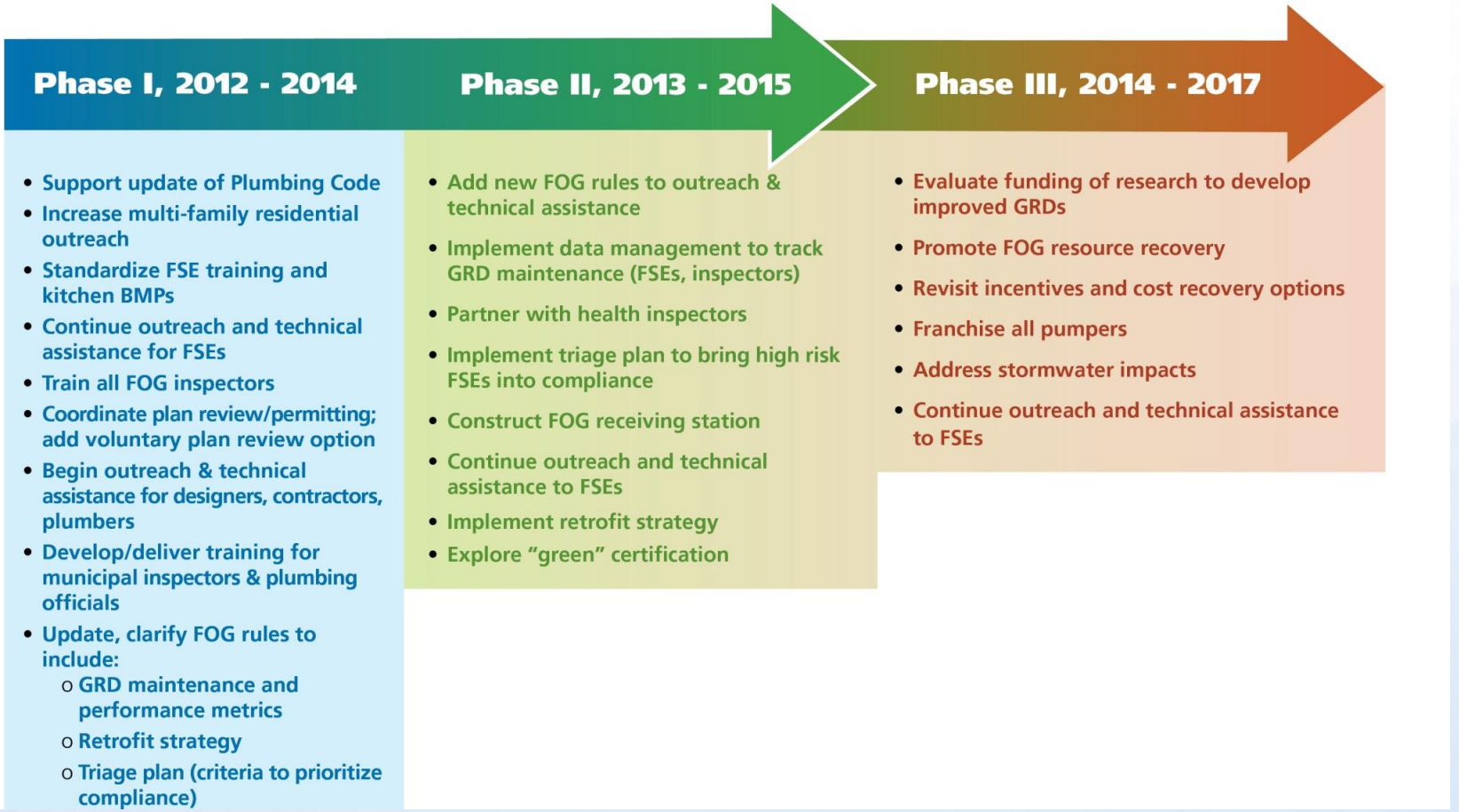
- **City Business License Listing**
- **Health Dept. FSE Licensing List**
- **Department of Agriculture Food Preparation Facility List (grocery)**
- **School District**
- **Retirement Facilities with Dining**
- **Extended Care Facilities**
- **Correctional Facilities**

Food Service Establishments:

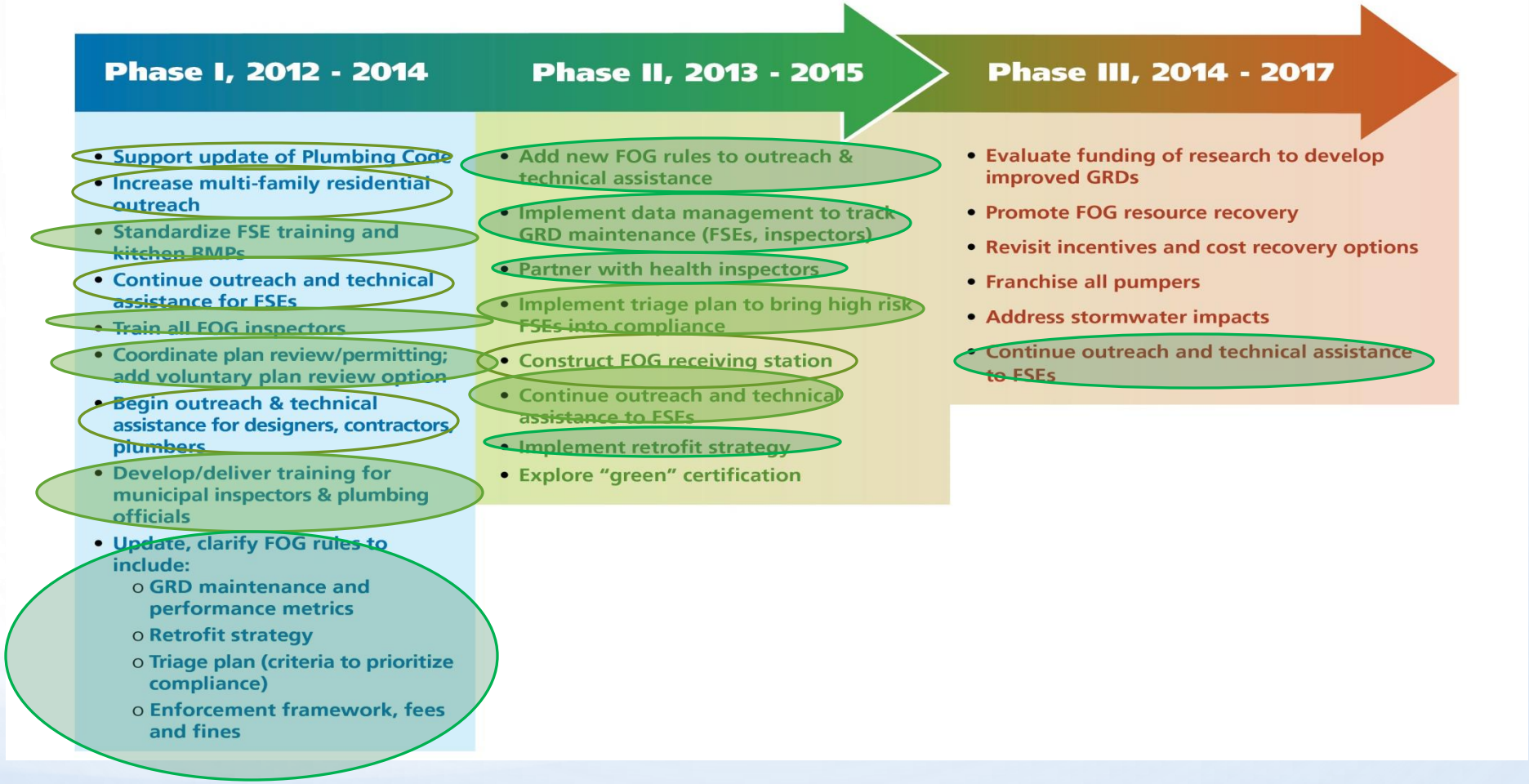
Do They Know…

- The municipality has FOG requirements
- They need have a Grease Removal Device (GRD)
- They must maintain the GRD with regularly scheduled pump outs
- They need to keep records of the pump outs
- There is potential for enforcement action

For Developing FOG Programs or FOG Program Improvement Use a Phased Approach with Task Outlines



Status - Next Steps

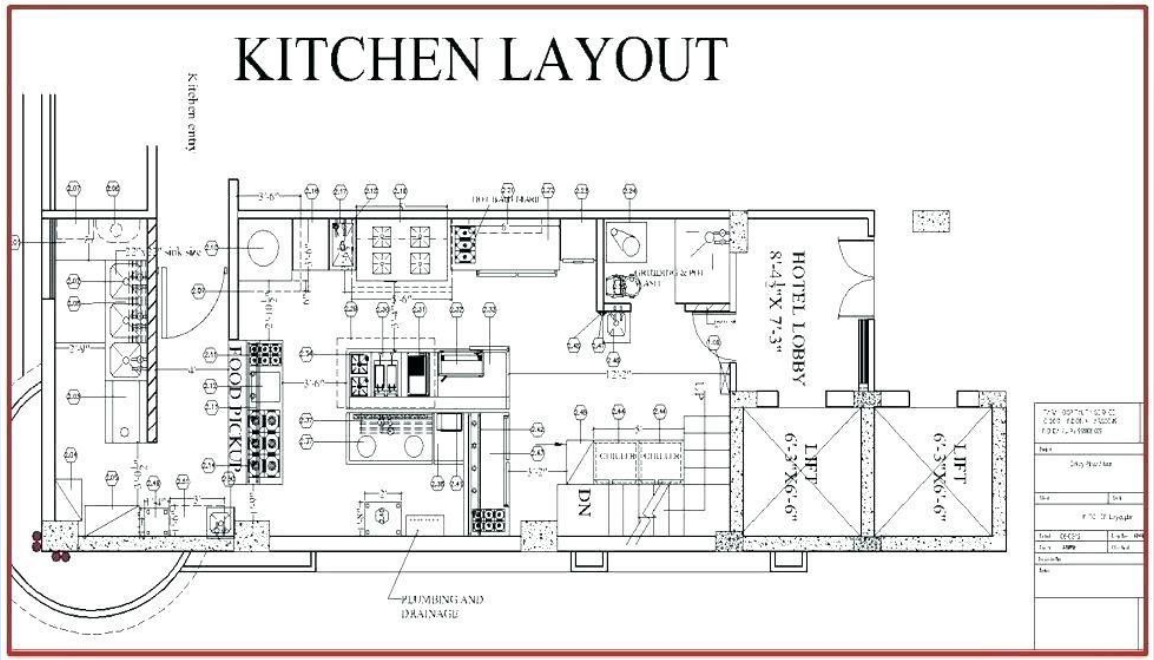


Plan Review

WHAT IS THE CURRENT PLAN REVIEW PROCESS?

Are you or can you be part of the Review Process?

Grease Interceptor Sizing
It Is Not Magic…



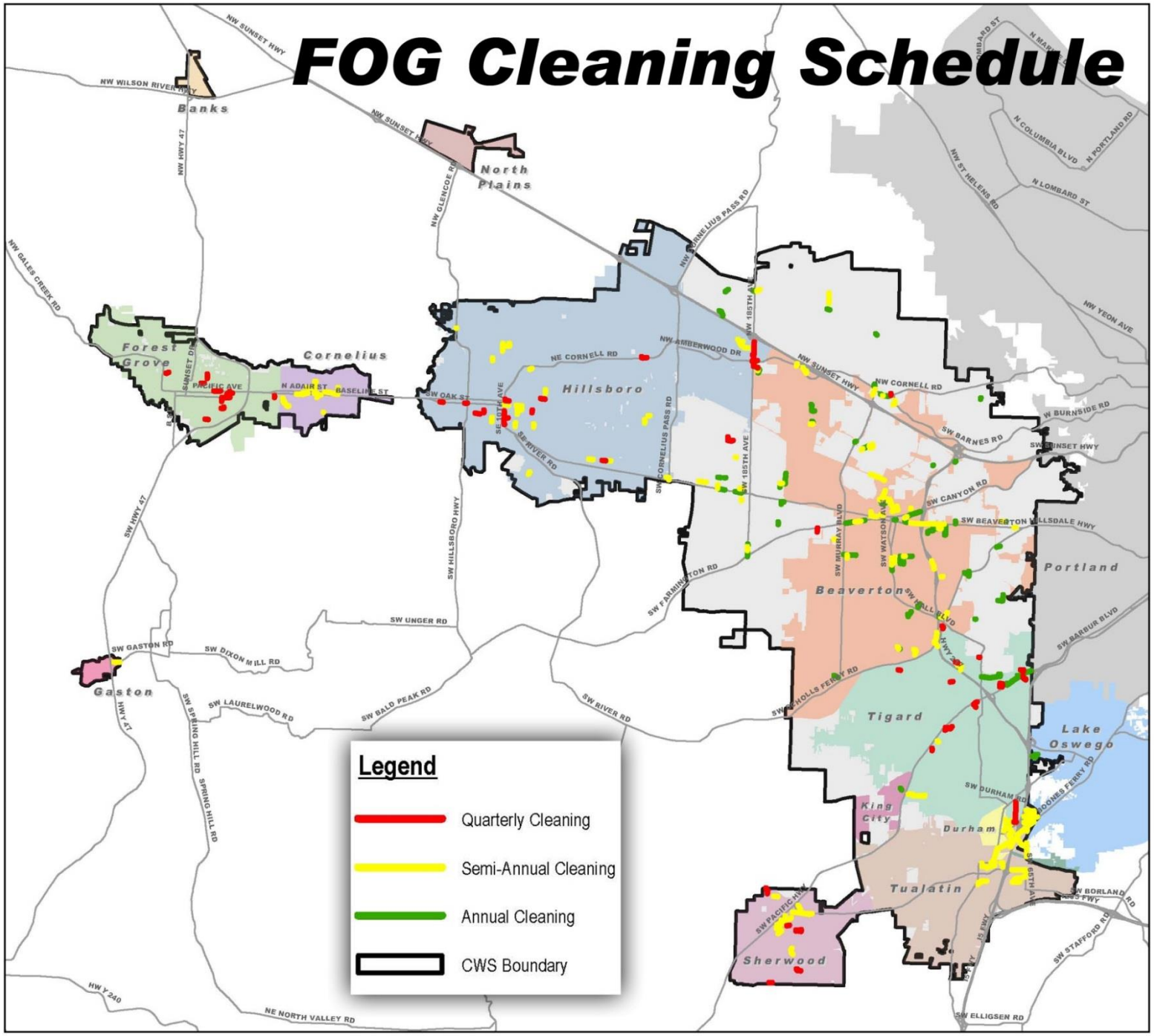
Poll Question

FOG Triage

FOG Triage

- **Identify the FOG Hot Spots**
- **Rate the FSE's FOG Production**
- **Create a Plan**
  - **Inspect the FSE**
  - **Effective Pretreatment**
  - **Effective Maintenance**

FOG Cleaning Schedule



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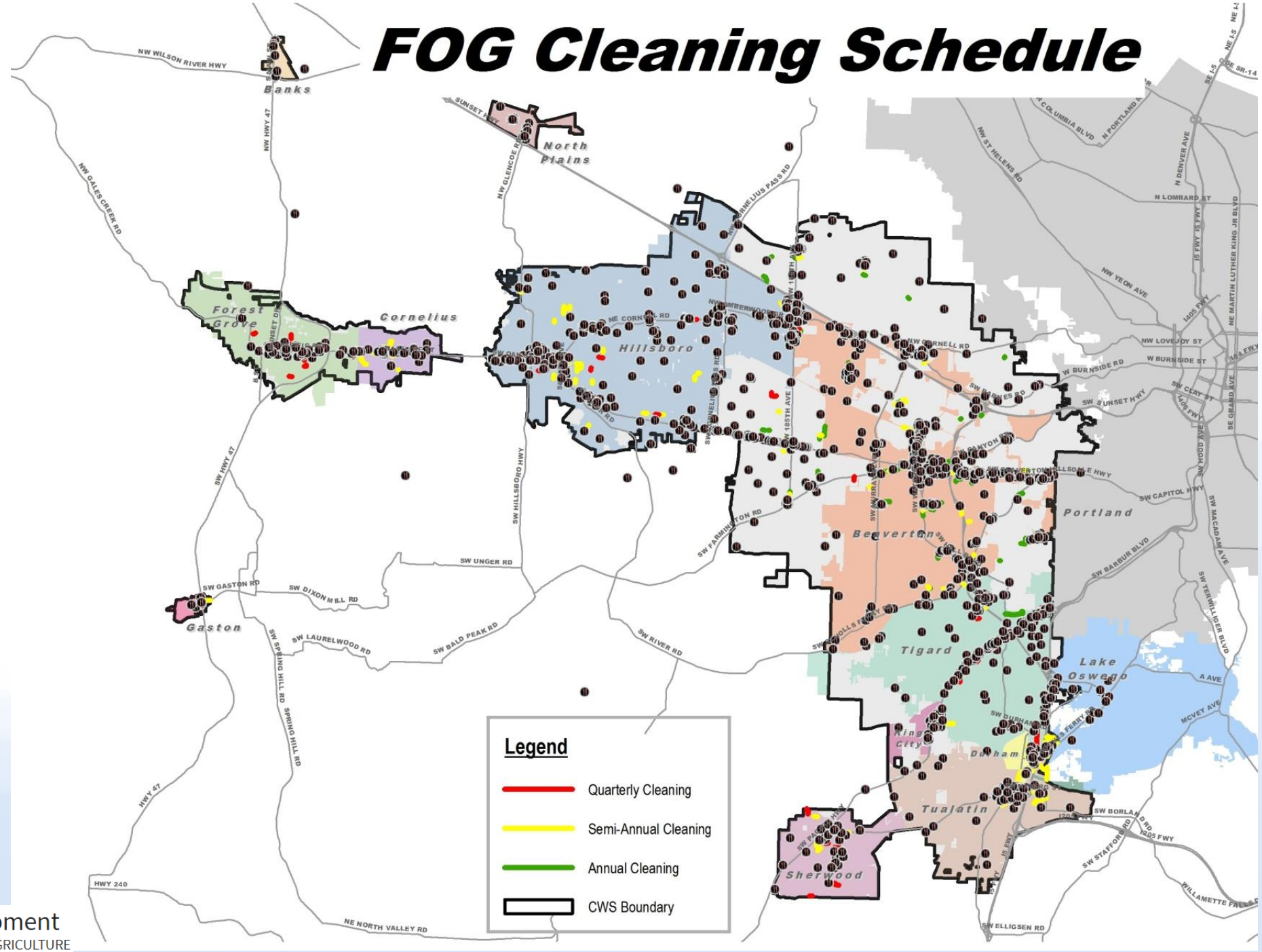
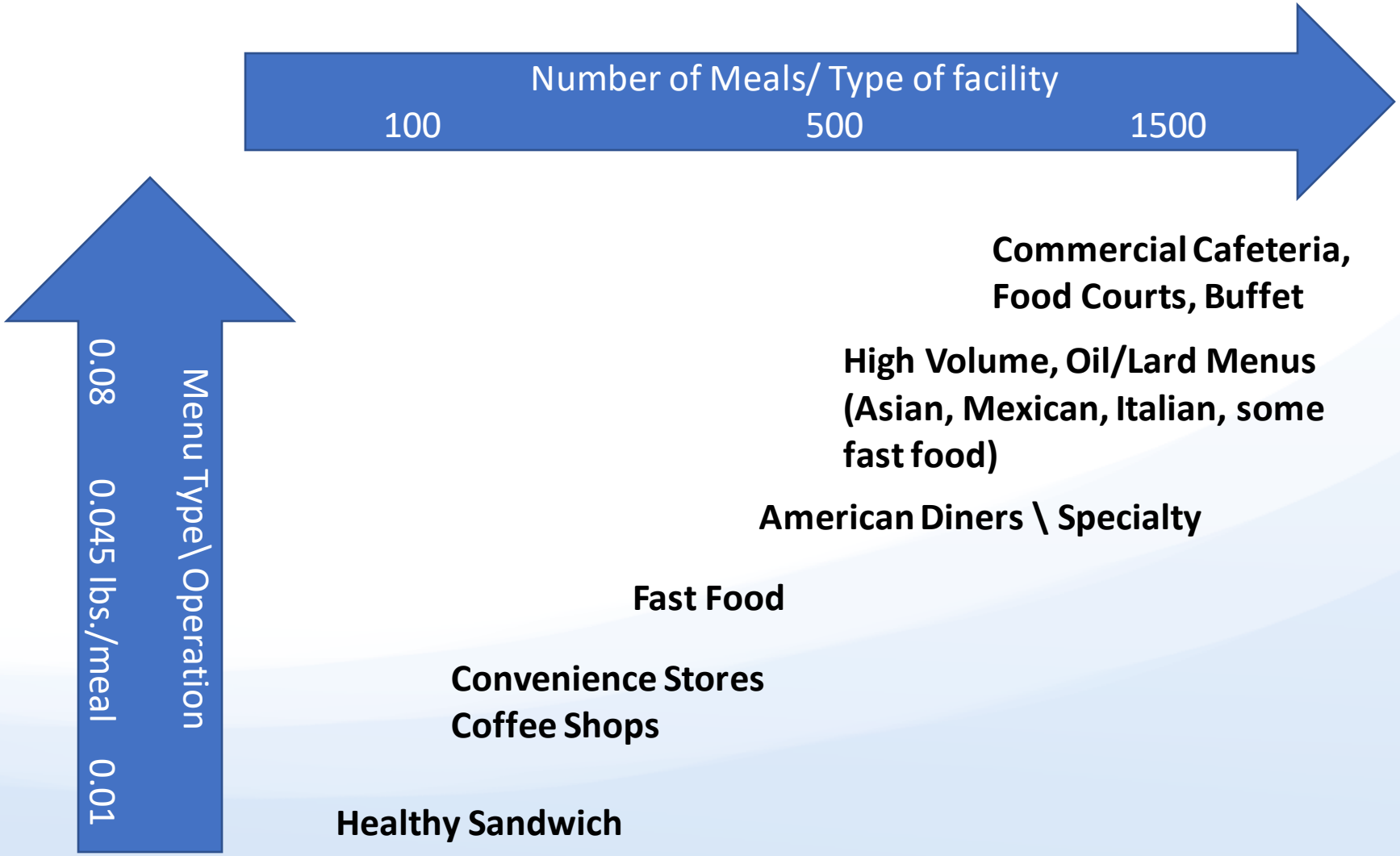
FOG Cleaning Schedule



FOG Production

- Very High
  - High
    - Medium
      - Low

FOG PRODUCTION



summarizes the FOG production measured at a range of FSEs in the service area, and projects the resulting potential supply of brown grease.

Sampling Approach

Brown grease samples were collected from the inlet bays of commercial grease interceptors at 53 establishments between August 31, 2010 and October 14, 2010. Samples were collected using a DIPTSTIK-PRO core sampler made for sampling grease interceptors, and samples were analyzed in the District's water quality laboratory. In addition to collecting the sample as described in Technical Memorandum No. 2, District staff recorded the duration of brown grease collection (from most recent pumping to sample collection) and the inlet bay dimensions. In addition, because the waste is generally stratified in the interceptors, staff also recorded the depths of the FOG), water, and solids layers in the inlet bay of the interceptor. Once collected, samples were analyzed for total solids content, volatile solids content, and chemical oxygen demand (COD). Of the 53 samples collected, 51 were analyzed for inclusion in the study. Two samples were excluded from the analysis based on the recommendations of District staff.

Table 1 shows the facilities included in the brown grease sampling effort, along with their initial classification as a very high, high, medium, or low brown grease-producing establishment. These classifications were established for a range of FSEs (café, diner, fast food, hotel, etc.) based on the experience and observations of the District's inspection staff. A detailed account of facility classification is included in Technical Memorandum No. 1.

Table 1: FSEs Included in FOG Sampling Program

Establishment	Estimated Grease Production
Kentucky Fried Chicken #349	Very High
Kentucky Fried Chicken #343	Very High
Elmer's – 1250 NW Waterhouse	Very High
Bugatti's – 2950 SW Cedar Hills	Very High
Outback – 8660 SW Tualatin-Sherwood Rd	Very High
Romanos – 17003 SW 72nd	Very High
Bugatti's – 2	Very High
Pastini	Very High
El Pollo Loco	Very High
Olive Garden	Very High
Sanchez Taqueria	Very High
Famous Dave's	Very High
McDonalds #17473-1	High
Sonic Drive-In	High
Jack in the Box #7114	High
Panda Express – 1	High

Establishment	Estimated Grease Production
Burger King	High
Red Robin #081	High
Baja Fresh – Cedar Hills	High
Chipotle – Cedar Hills	High
Wendy's – Baseline Rd.	High
Shari's – Murray Blvd.	High
Denny's – Scholl's Ferry	High
Panda Express -2	High
Applebees	High
Village Inn	High
Sonic Drive-In – 2	High
Carl's Jr.	High
Chevy's	High
IHOP	High
Muchas Gracias – 1	High
Panda Express – 3	High
Noah's Bagels	High
Muchas Gracias – 2	High
McDonald's #26244	High
Taco Bell #2403	High
Noodles & Company	High
Fred Meyer	High
Panda Express – 4	High
Marie Calendar's	High
Krispy Kreme	High
Wendy's – 2	High
Bales Thriftway Meat/Seafood	High
Bales Thriftway Deli/Bakery	High
PF Chang's	High
Safeway	High
La Isla Bonita	High
Reedville Café	Medium
Hot Seat	Medium
Papa Murphy's Pizza	Low

Sampling Results

Detailed results of the restaurant sampling are included in Appendix A as provided by the District's laboratory. Results include duplicate and spike samples where appropriate.

Kennedy-Jenks

1896	High	High	Thai restaurant	Thai Flombe	250 E Main ST
1897	High	High	Thai restaurant	Thai Lily Restaurant	
1898	High	High	Thai restaurant	Thai Princess - 12540 SW Main Tigard	12540 SW Main , # 150
1899	High	High	Thai restaurant	Thong Thai Restaurant	11705 SW Pacific HWY
1900	High	High	Thai restaurant	Pac Thai	1923 Pacific Ave
1901	High	High	Thai restaurant	Pacific Breeze	11525 SW Durham Rd Suite D-3
1902	High	High	Thai restaurant	Sawatdee Thai	20649 SW Roy Rogers Rd # 304
1903	High	High	Thai restaurant	Thai Bistro	8292 SW Nyberg St
1904	High	High	Thai restaurant	Thai Cabin	16165 SW Regatta Dr
1905	High	High	Thai restaurant	Thai Derm	3800 SW Cedar Hills Blvd
1906	High	High	Thai restaurant	Thai Elephant	2225 NW Allie Ave
1907	High	High	Thai restaurant	Thai Kitchen	2840 SW Cedar Hills Blvd
1908	High	High	Thai restaurant	Thai Lily	13490 NW Cornell Rd
1909	High	High	Thai restaurant	Thai Orchid	18070 NW Evergreen Pkwy
1910	High	High	Thai restaurant	Thai Princess	2401 NW Cornell Rd
1911	High	High	Thai restaurant	Thailand Rest	15915 NW Schendel Ave
1912	High	High	Thai restaurant	Zab Thai	530 SW 205th Ave
1913	High	High	Thai restaurant	Roses Thai /	6850 SW Bverton Hillsdale
1914	High	High	Thai restaurant	Siam Restaurant / Siam Thai Cuisine	3800 SW Cedar Hills Blvd
1915	High	High	Thai restaurant	Thai Orchid Restaurant /	4550 NE Cornell Rd
1916	High	High	Thai restaurant	Pepper Tree Thai Cuisine /	13080 SW Park Way
1917	High	High	Thai restaurant	Thai Cuisine /	7985 SW Nyberg St
1918	High	High	Thai restaurant	Zab Thai Cooking /	520 SW 205th Ave
1919	High	High	Thai restaurant	Santaweesuk, Chalermsra / Thai Apsara Restaurant	11793 SW Beaverton
1920	High	High	Thai restaurant	Rama Thai Restaurant /	12874 SW Canyon Rd
1921	High	High	Thai restaurant	Thai Imports /	12646 SW Walker Rd
1922	Medium	Medium	Vietnamese restaurant	Pho Binh Minh	11945 SW Pacific HWY
1923	Medium	Medium	Vietnamese restaurant	Pho Hoai Restaurant	
1924	Medium	Medium	Vietnamese restaurant	Pho Hung Restaurant	13225 SW CANYON RD
1925	Medium	Medium	Vietnamese restaurant	Pho Nam Restaurant	
1926	Medium	Medium	Vietnamese restaurant	Pho Nguyen	
1927	Medium	Medium	Vietnamese restaurant	Pho Ty	
1928	Medium	Medium	Vietnamese restaurant	Pho Van Beaverton Town Square	
1929	Medium	Medium	Vietnamese restaurant	Bambuza Vietnam Grill	7628 SW Nyberg Rd
1930	Medium	Medium	Vietnamese restaurant	Pho Hoai	733 SW 185th Ave
1931	Medium	Medium	Vietnamese restaurant	Pho Ty	16068 SW Tualatin Sherwood Rd
1932	Medium	Medium	Vietnamese restaurant	Pho Viet Restaurant	930 SE Oak St.
1933	Medium	Medium	Vietnamese restaurant	Sweet Lemon	4888 NW Bethany Blvd Suite K6
1934	Medium	Medium	Vietnamese restaurant	Pho Van Vietnamese Noodle Soup /	11651 SW Beavrtn Hillsdle
1935	Medium	Medium	Vietnamese restaurant	Nam Pho /	2020 NE Cornell Rd Ste A

Kennedy-Jenks

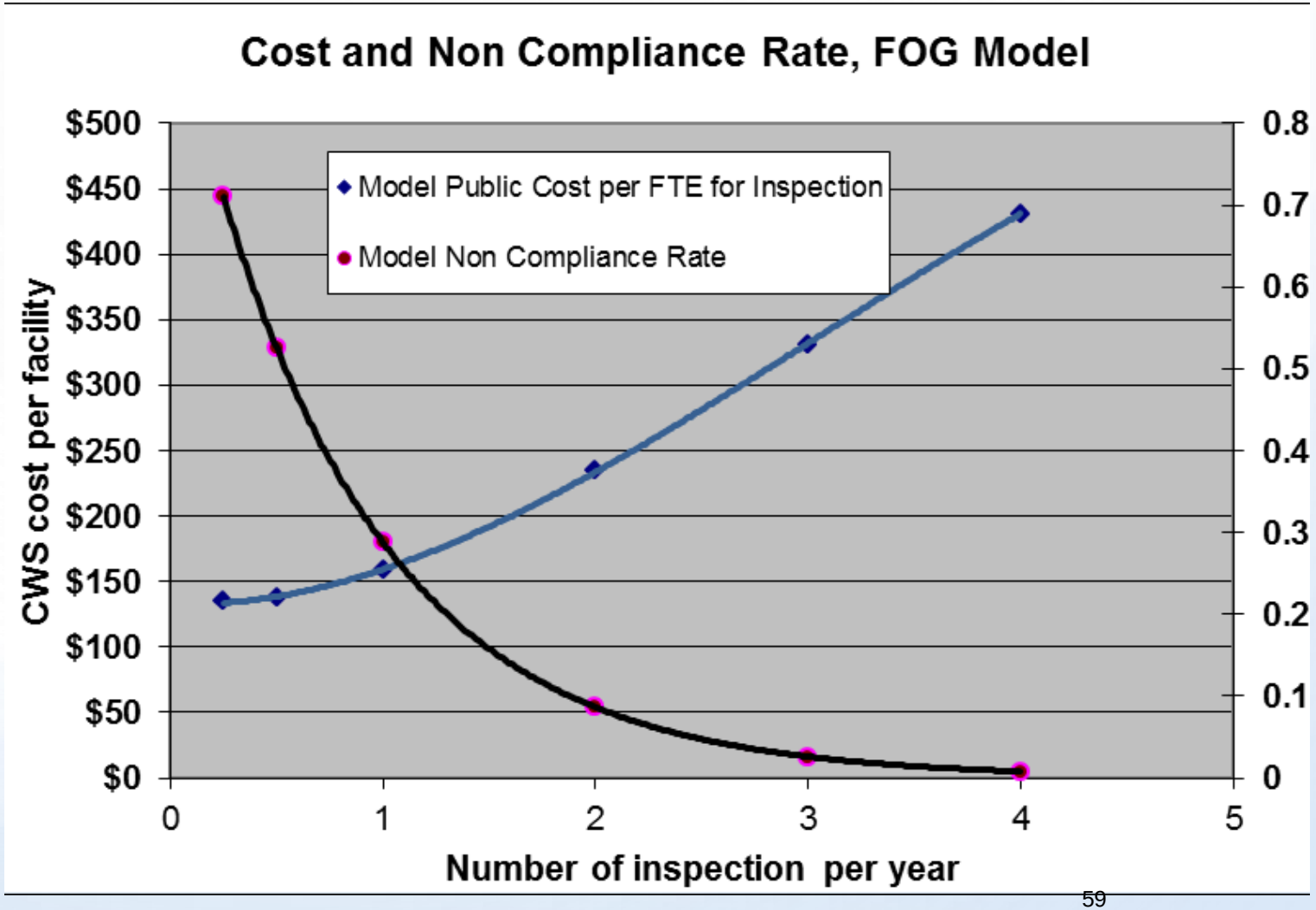
No.	Initial Designat	Revised Designation	Restaurant Type	FSE	FSE_address
1	Medium	Medium	Pizzeria, chain	Pizza Hut	4105 SW 117th Ave, Suite B
2	Medium	Medium	Pizzeria, chain	Pizza Hut	6047 SW 185th Ave
1	High	Medium	American restaurant	Giant	15840 Boones Ferry Rd
2	High	Medium	American restaurant	Stanfords	14801 Kruse Wy
3	High	Medium	American restaurant	22nd Street Station	2337 22Nd AVE
4	High	Medium	American restaurant	Beaverton Charburger	6050 SW Hall BLVD
5	High	Medium	American restaurant	Boston Market	8665 SW Tualatin Sherwood RD
6	High	Medium	American restaurant	Coleman's 9N Shady Rest	55660 NW WILSON RIVER HWY
7	High	Medium	American restaurant	Copper Monkey	6540 SW FALLBROOK PL
8	High	Medium	American restaurant	Crossroads Restaurant and Bar	9000 SW Washington SQ
9	High	Medium	American restaurant	Dolphin II Restaurant	10860 SW Beaverton Hillsdale HWY
10	High	Medium	American restaurant	Fuddrucker's Restaurant	
11	High	Medium	American restaurant	Good Dog Bad Dog	9633 SW Washington Square RD
12	High	Medium	American restaurant	Grandma Leeth's LLC	
13	High	Medium	American restaurant	Hot Dog Man	
14	High	Medium	American restaurant	Joe's Burgers	7455 SW Bridgeport RD
15	High	Medium	American restaurant	King's Restaurant	12800 SW Canyon RD
16	High	High	American restaurant	Stanford's Restaurant - 2770 NW 188th Ave	2770 NW 188th Ave
17	High	Medium	American restaurant	Sunset Humdinger	812 NW Murray BLVD
18	High	High	American restaurant	Applebee's	8559 Tualatin Sherwood Rd
19	High	Medium	American restaurant	Banning's	11477 SW Pacific Hwy
20	High	Medium	American restaurant	Alchemy on Main	250 E Main St
21	High	Medium	American restaurant	Amy's Burger Shack	7568 SW Shaleen St
22	High	Medium	American restaurant	Entrees Made Easy	7310 NE Butler Rd
23	High	Medium	American restaurant	Five Guys	2606 SW Cedar Hills Blvd
24	High	Medium	American restaurant	Grandma Leeths	10122 SW Parkway
25	High	Medium	American restaurant	Jordy's	2104 Main St
26	High	Medium	American restaurant	Ruby Tuesday	14550 SW Murray-Scholls Dr
27	High	Medium	American Restaurant	Sports Page	8590 SW Hall Blvd
28	High	High	American restaurant	Stanfords	2770 NE 188th Ave
29	High	High	American restaurant	TGI Friday	10145 SW Washington Square Rd
30	High	Medium	American restaurant	Village Inn	17070 SW 72nd Ave
31	High	Medium	American restaurant	HI Hat Inc /	11530 SW Pacific Hwy
32	High	Medium	American restaurant	Klondike Restaurant & Saloon /	2461 NW Schmidt Way 303
33	High	Medium	American restaurant	Chiam Inc / Chiam Restaurant	826 NW Murray Blvd
34	High	Medium	American restaurant	George's Giant Hamburger Inc /	11640 SW Pacific Hwy
35	high	Medium	American restaurant	Sun Rice /	13747 SW Liden Dr

FOCUS YOUR EFFORT "TRIAGE" TO ACHIEVE A SUCCESSFUL FOG PROGRAM

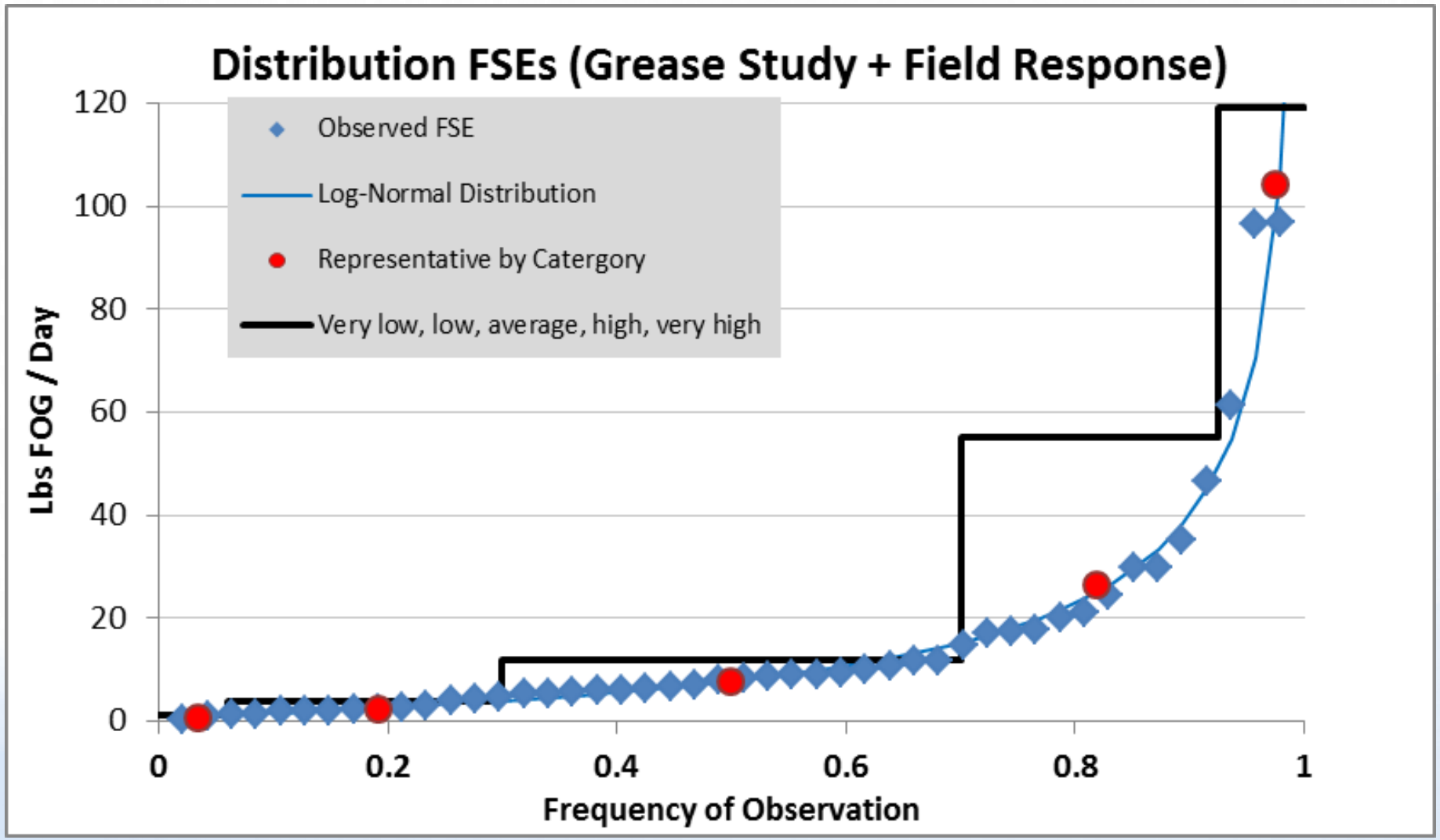
- PERFORMANCE GOALS
  - HOT SPOTS & HIGH AND VERY HIGH FOG FSEs
- PLAN REVIEW
- PUMP STATIONS, BLOCKAGES
- SSOs
- OUTREACH EFFORTS
  - MULTI-FAMILY HOUSING
  - FOG LINES RESIDENTIAL AREAS

PERFORMANCE GOALS

- **CURRENT, ALL FSES / YEAR**
  - INITIAL INSPECTIONS, STATUS
  - ANNUAL INSPECTION, 1 PUMP OUT
  - INSPECTIONS SIMILAR FOR ALL FSES
- **PRIORITIZED INSPECTION**
  - 15-20% OF FSE
  - RESULTS ORIENTED INSPECTIONS AND FOLLOW-UP
  - TECHNICAL SUPPORT TO FSE
  - CONSISTENT INSPECTOR TRAINING, BY JURISDICTION
  - PROGRAM SUPPORT BY JURISDICTION
  - EXPECTATIONS SPECIFIC BY EACH JURISDICTION



NOT ALL FSES GENERATE THE SAME FOG LOAD



Portland FOG Calculator

- **FSE sewer rates did not account for impact**
- **SIU's and homeowners bore brunt of burden**
- **City Council wanted solution that gave businesses opportunity to reduce ESC**
- **Calculator provides those options**
- **Works with businesses that may fit multiple categories**
- **Program currently in review**
  - **Rates may change**
  - **Interceptor language will change**

PORTLAND FOG CALCULATOR

Cut Through the FOG Rate Calculator

Fiscal Year 2019/20 Rates		
BOD Rate	$/Lb	0.831
TSS Rate	$/Lb	1.096

Account Number

Sewer Volume/Usage in CCF 1

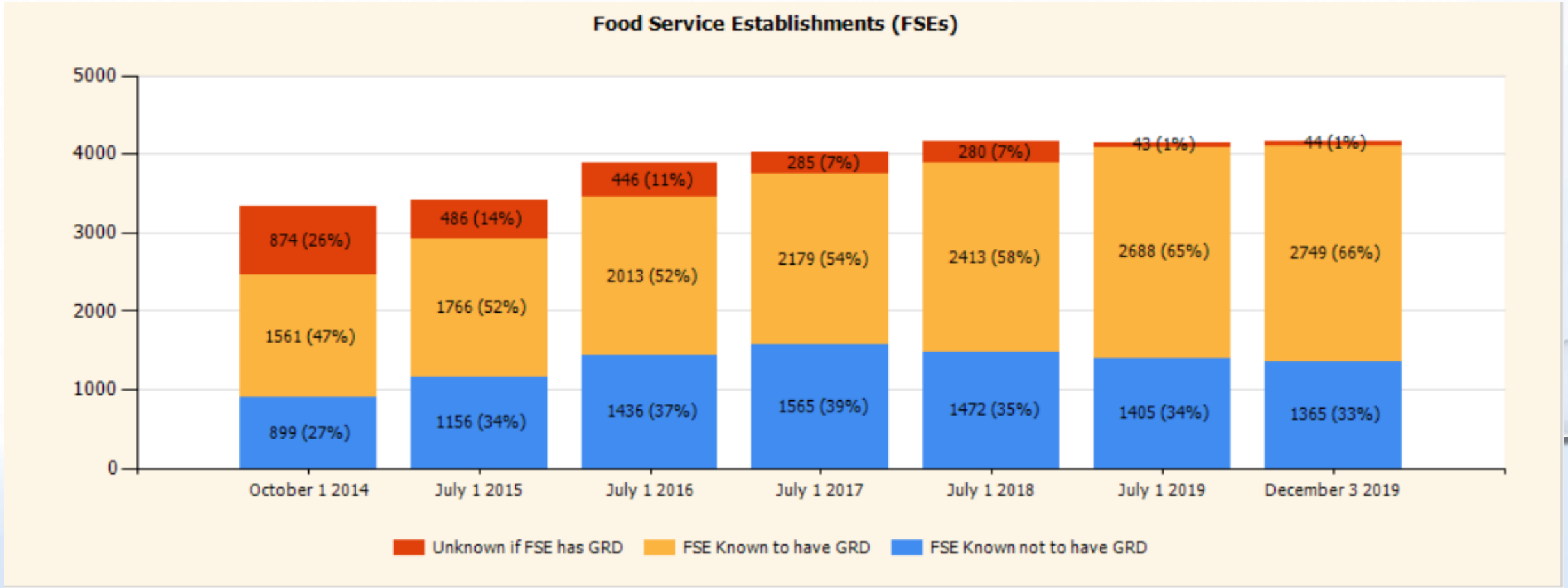
	BOD mg/L	TSS mg/L	ESSC Rate $/CCF	Flow % %	BOD Charge $	TSS Charge $
Restaurant, Sit Down.				2		
Base, No BMPs	1200	500	$5.695		$0	$0
with Grease Trap (GT)	1140	475	$5.213		$0	$0
with Grease Interceptor (GI)	1080	450	$4.731		$0	$0
no Grinders	1164	485	$5.406		$0	$0
no Grinders & GT	1104	460	$4.924		$0	$0
no Grinders & GI	1044	435	$4.441		$0	$0
Food Composting/Donation, no Grinders	1116	465	$5.020		$0	$0
Food Composting/Donation, no Grinders & GT	1056	440	$4.538		$0	$0
Food Composting/Donation, no Grinders & GI	996	415	$4.056		$0	$0
Restaurant, Fast Food						
Base, No BMPs	550	450	$1.981		$0	$0
with Grease Trap (GT)	523	428	$1.685		$0	$0
with Grease Interceptor (GI)	495	405	$1.388		$0	$0
no Grinders	539	441	$1.863		$0	$0
no Grinders & GT	512	419	$1.566		$0	$0
no Grinders & GI	484	396	$1.269		$0	$0
Food Composting/Donation, no Grinders	528	432	$1.744		$0	$0
Food Composting/Donation, no Grinders & GT	501	410	$1.447		$0	$0
Food Composting/Donation, no Grinders & GI	473	387	$1.151		$0	$0
Supermarket, with bakery, meat cutting, deli, produce, or seafood						
Base, No BMPs	1050	650	$5.944		$0	$0
with Grease Trap (GT)	998	618	$5.449		$0	$0
with Grease Interceptor (GI)	945	585	$4.954		$0	$0
no Grinders	1019	631	$5.647		$0	$0
no Grinders & GT	966	598	$5.152		$0	$0
no Grinders & GI	914	566	$4.657		$0	$0
Food Composting/Donation, no Grinders	977	605	$5.251		$0	$0
Food Composting/Donation, no Grinders & GT	924	572	$4.756		$0	$0
Food Composting/Donation, no Grinders & GI	872	540	$4.262		$0	$0
Brew Pub						
Base, No BMPs	1700	540	$8.563		$0	$0
with Grease Trap (GT)	1658	527	$8.250		$0	$0
with Grease Interceptor (GI)	1615	513	$7.937		$0	$0
no Grinders	1683	535	$8.438		$0	$0
no Grinders & GT	1649	524	$8.188		$0	$0
no Grinders & GI	1607	510	$7.875		$0	$0
Food Composting/Donation, no Grinders	1624	516	$8.000		$0	$0
Food Composting/Donation, no Grinders & GT	1581	502	$7.687		$0	$0
Food Composting/Donation, no Grinders & GI	1539	483	$7.337		$0	$0
Meat Market						
Base, No BMPs	1100	500	$5.177		$0	$0
with Grease Trap (GT)	770	350	$2.438		$0	
with Grease Interceptor (GI)	440	200	$0.726		$0	
Food Composting/Donation, no Grinders	1056	480	$4.812		$0	$0
Food Composting/Donation, no Grinders & GT	726	330	$2.210		$0	
Food Composting/Donation, no Grinders & GI	396	180	$0.498		$0	

Meat Market						
Base, No BMPs	1100	500	$5.177		$0	$0
with Grease Trap (GT)	770	350	$2.438		$0	
with Grease Interceptor (GI)	440	200	$0.726		$0	
Food Composting/Donation, no Grinders	1056	480	$4.812		$0	$0
Food Composting/Donation, no Grinders & GT	726	330	$2.210		$0	
Food Composting/Donation, no Grinders & GI	396	180	$0.498		$0	
Bakery, bread						
Base, No BMPs	1400	1100	$10.838		$0	$0
with Grease Trap (GT)	1330	1045	$10.099		$0	$0
with Grease Interceptor (GI)	1260	990	$9.360		$0	$0
Food Composting/Donation, no Grinders	1344	1056	$10.247		$0	$0
Food Composting/Donation, no Grinders & GT	1274	1001	$9.507		$0	$0
Food Composting/Donation, no Grinders & GI	1204	946	$8.768		$0	$0
Bakery, confections, cake, pie, cookies						
Base, No BMPs	2300	900	$14.139		$0	$0
with Grease Trap (GT)	2185	855	$13.235		$0	$0
with Grease Interceptor (GI)	2070	810	$12.330		$0	$0
Food Composting/Donation, no Grinders	2208	864	$13.416		$0	$0
Food Composting/Donation, no Grinders & GT	2093	819	$12.511		$0	$0
Food Composting/Donation, no Grinders & GI	1978	774	$11.606		$0	$0
Donut Shop						
Base, No BMPs	1200	350	$4.669		$0	
with Grease Trap (GT)	1140	333	$4.358		$0	
with Grease Interceptor (GI)	1080	315	$4.047		$0	
Food Composting/Donation, no Grinders	1152	336	$4.420		$0	
Food Composting/Donation, no Grinders & GT	1092	319	$4.109		$0	
Food Composting/Donation, no Grinders & GI	1032	301	$3.798		$0	
Coffee Shop						
Base, No BMPs	800	350	$2.594		$0	
with Grease Trap (GT)	760	333	$2.386		$0	
with Grease Interceptor (GI)	720	315	$2.179		$0	
Food Composting/Donation, no Grinders	768	336	$2.428		$0	
Food Composting/Donation, no Grinders & GT	728	319	$2.220		$0	
Food Composting/Donation, no Grinders & GI	688	301	$2.013		$0	
Commercial Kitchens, cafeterias, caterers, commissaries						
Base, No BMPs	1100	400	$4.492		$0	$0
with Grease Trap (GT)	1045	380	$4.070		$0	$0
with Grease Interceptor (GI)	990	360	$3.648		$0	$0
no Grinders	1067	388	$4.239		$0	$0
no Grinders & GT	1012	368	$3.817		$0	$0
no Grinders & GI	957	348	$3.408		$0	
Food Composting/Donation, no Grinders	1023	372	$3.901		$0	$0
Food Composting/Donation, no Grinders & GT	968	352	$3.479		$0	$0
Food Composting/Donation, no Grinders & GI	913	332	$3.180		$0	
Hotel, with full service restaurants and/or banquet kitchens.						
Base, No BMPs	500	400	$1.380		$0	$0
with Grease Trap (GT)	475	380	$1.113		$0	$0
with Grease Interceptor (GI)	450	360	$0.847		$0	$0
no Grinders	485	388	$1.220		$0	$0
no Grinders & GT	460	368	$0.953		$0	$0
no Grinders & GI	435	348	$0.700		$0	
Food Composting/Donation, no Grinders	465	372	$1.007		$0	$0
Food Composting/Donation, no Grinders & GT	440	352	$0.740		$0	$0
Food Composting/Donation, no Grinders & GI	415	332	$0.597		$0	

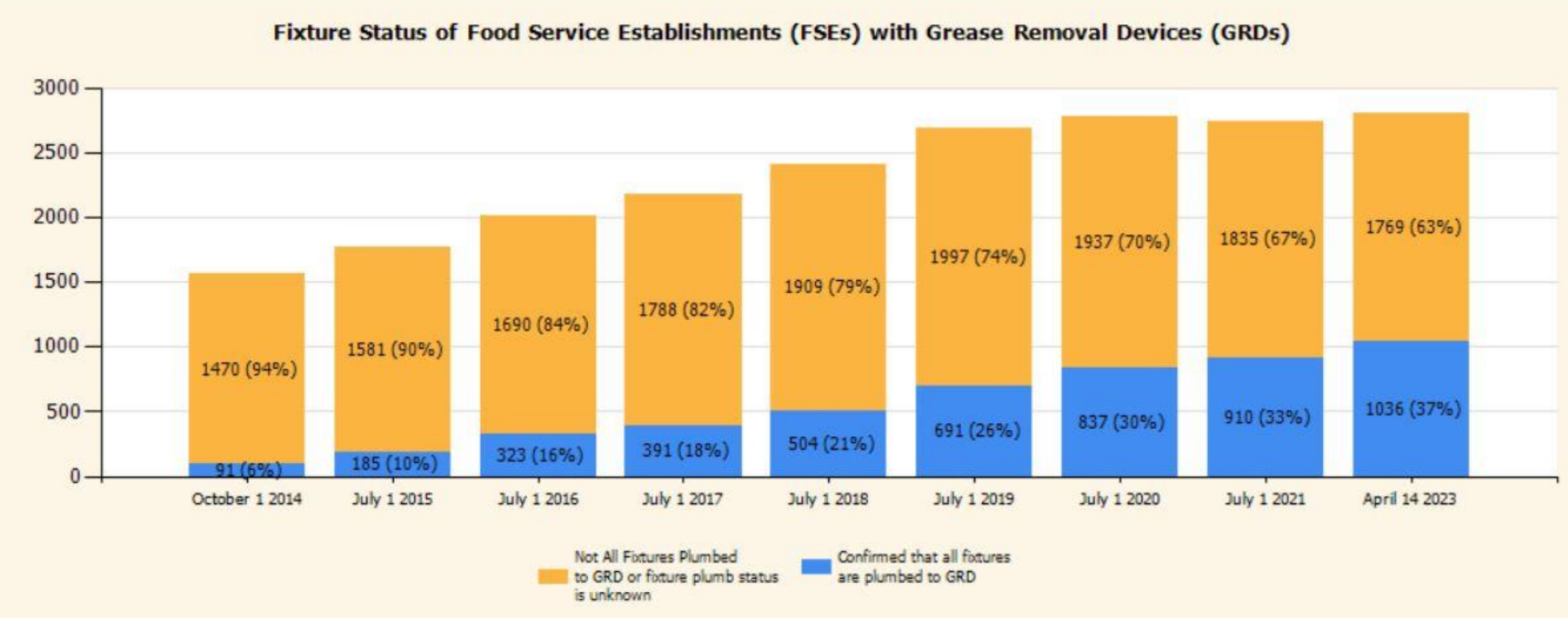
Total % 0

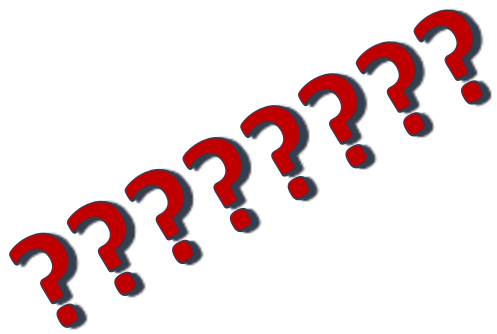
Net Bio Oxygen Demand	$0
Net Total Suspended Solids	$0

PORTLAND INSPECTION RESULTS OVER 5 YEARS



PORTLAND'S INSPECTION RESULTS OVER 9 YEARS





Poll Question

PATRICK BRYAN, PPRC FOG TRAINER AND TECHNICAL PROGRAM MANAGER

Stanislaus County, Hazardous Materials Inspector
County Of Fresno, NPDES Inspector
Municipal Interagency Training Coordinator

- EXPERIENCE SERVING AS A WASTEWATER AND STORM WATER INSPECTOR FROM THE COUNTY OF FRESNO, CALIFORNIA.
- BACKGROUND IN COMMERCIAL AND DEVELOPMENT PROGRAMS PATRICK UNDERSTANDS THE DISCONNECT THAT CAN OCCUR BETWEEN THE COMMUNITIES WE SERVE SUCH AS FOOD SERVICE ESTABLISHMENT'S (FSES), OTHER REGULATORY INSPECTORS/PROGRAMS AND WITHIN OUR OWN AGENCIES.
- BUILDING RELATIONSHIPS WITH INTERNAL DEPARTMENTS AND PRIVATE STAKEHOLDERS IS ESSENTIAL FOR A SUCCESSFUL FOG PROGRAM.

Best Management Practices in the Kitchen

Best Kitchen Practices

A Myth that Must Be Busted!

“Effective Kitchen BMPs Keep FOG Out of Public Sewers”

In A Perfect World …

BMPs such as scraping/wiping all utensils and plates into garbage keeps FOG out of drains

Kitchen BMPs

In The Real World …

What really happens:

- **Cleanup staff are in a hurry**
- **Fastest way to clean pots is with high pressure water**
- **Hose down the floor and squeegee to the nearest floor drain**

Kitchen BMPs …

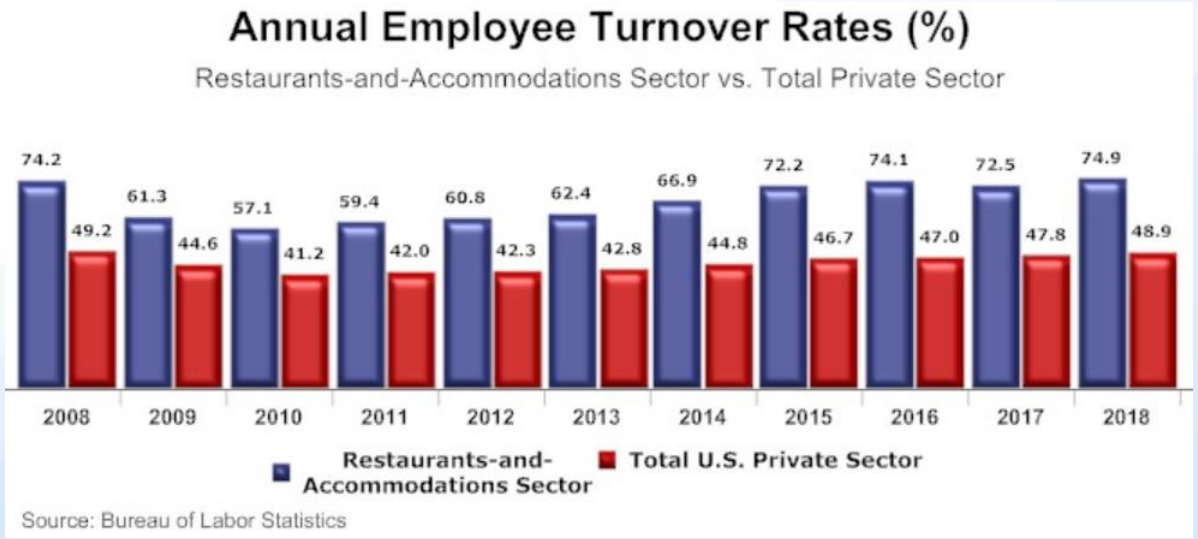
… frequently not an effective tool for FOG abatement

FSE manager's responsibility is about getting good food onto the customer's table

Kitchen BMPs …

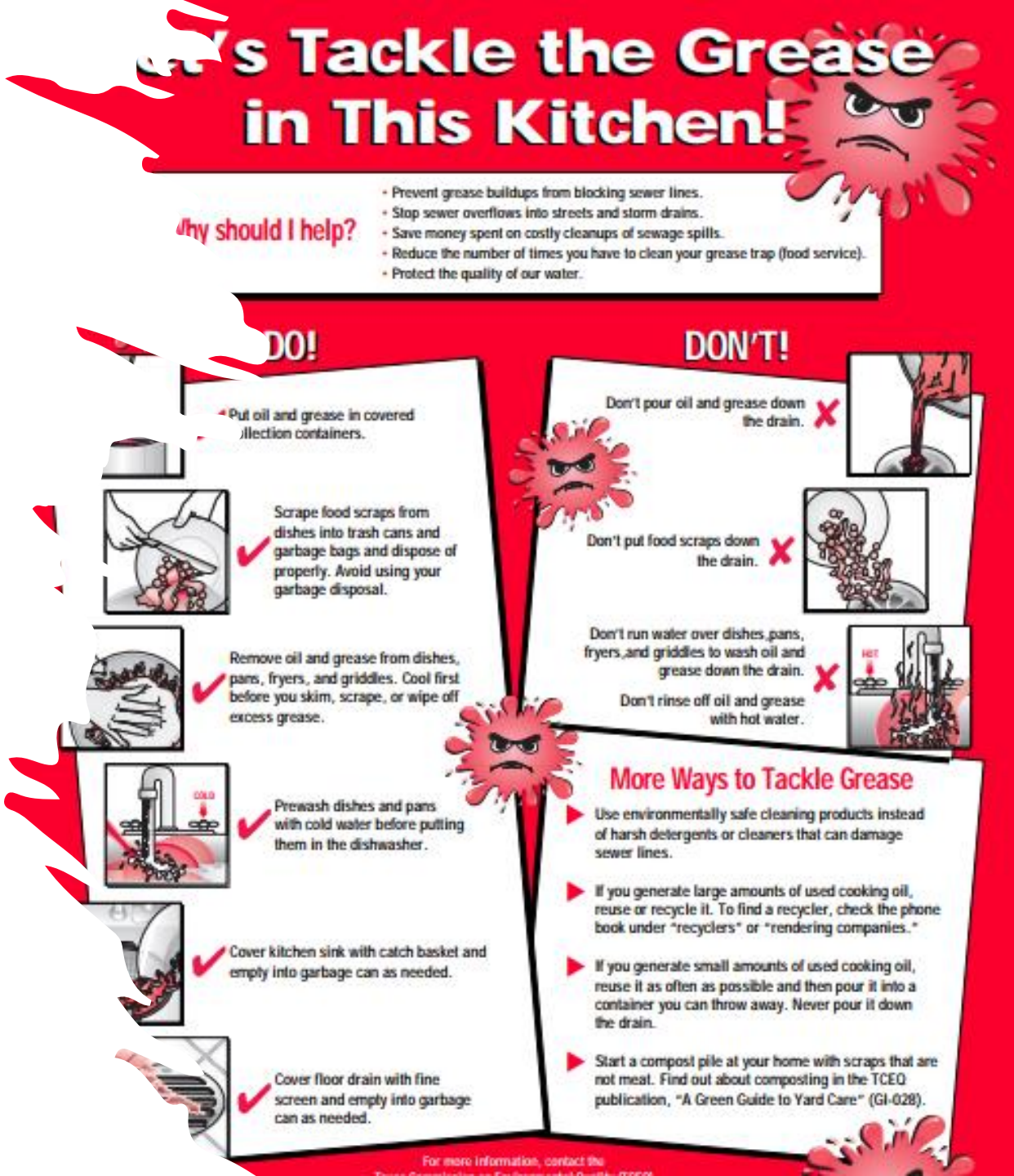
… frequently not an effective tool for FOG abatement

Employee turnover rate is high and Kitchen BMP training becomes very time consuming (16-200%)



Kitchen BMPs …

- **Scrape pots and pans prior to washing.**
- **Do not pour, scrape, or otherwise dispose of fats, oils, or grease into the sink or drains**
- **Collect fryer oil and store in barrels for recycling.**
- **Do not put food (including liquid food) including milk shake syrups, batters, and gravy down the drain**
- **Use strainers on sinks and floor drains to prevent solid material from entering the sewer.**
- **Post "NO GREASE" signs near sinks and drains.**



Kitchen BMPs …

- **Train all kitchen staff in best management practices for grease disposal and the impacts of grease accumulation in the sewer.**
- **Provide regular refresher training/discussion for proper disposal of fats, oils, and grease for all employees.**
- **Inspect grease abatement devices/interceptors after pumping to ensure adequate cleaning was performed.**

- **Dump mop water only to drains connected to your grease treatment system.**
- **Use absorbents to soak up spills containing fats, oils, and grease.**

Kitchen BMPs

Frequently Not An Effective Tool For FOG Abatement

FSE that does not own/pay for grease trap maintenance has no incentive to follow BMP

- CASE STUDY: Despite inspections, and training on kitchen BMPs and interceptor maintenance . . . just 3 months after public line cleaning:

FOG buildup at FSE connections

Restrictions in the pipe

FOG on top of pipe indicates blockage

Inspections

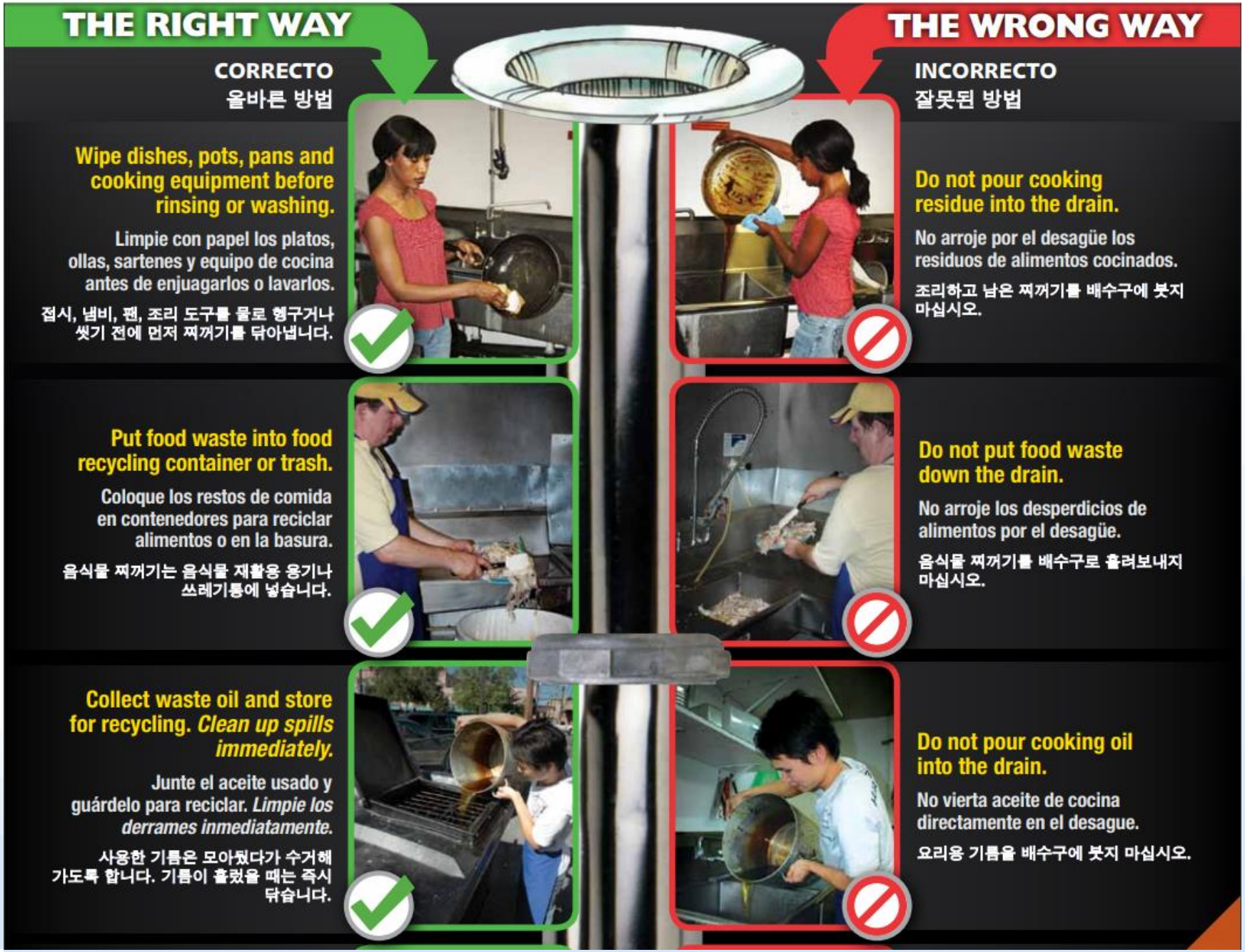
- INITIAL FSE INSPECTION SETTING UP FOG PROGRAM ESTIMATE 3-4 HR/FSE
- EFFICIENT FOG PROGRAM MAINTENANCE INSPECTIONS ESTIMATE 1 HR/FSE
- INCLUDE TRAVEL TIME
- INCLUDE INSPECTION DATA ENTRY TIME
- INCLUDE PUMP-OUT DATA REVIEW TIME
- ESTIMATE THAT 10% FSES WILL NEED RE-INSPECTION MORE FREQUENTLY THAN ONCE PER YEAR

SO, GET OUT OF THE KITCHEN?

Is There Nothing Good About BMP's?

The GOOD ABOUT Kitchen BMPs ?

- **Are One of the Tools in the Toolbox**
- **Are the First Line Of Defense Against FOG**
- **Will Not Solve FOG Problems But Can Still Help Control Costs**
- **Have the Most Available Resources to Download and Print – Especially Resources for FSE Employees**
- **Can Help Perpetuate a Cultural Consciousness About FOG Problems**


THE RIGHT WAY
CORRECTO
올바른 방법
THE WRONG WAY
INCORRECTO
잘못된 방법
Wipe dishes, pots, pans and cooking equipment before rinsing or washing.
Limpie con papel los platos, ollas, sartenes y equipo de cocina antes de enjuagarlos o lavarlos.
접시, 냄비, 팬, 조리 도구를 물로 헹구거나 씻기 전에 먼저 찌꺼기를 닦아냅니다.
Do not pour cooking residue into the drain.
No arroje por el desagüe los residuos de alimentos cocinados.
조리하고 남은 찌꺼기를 배수구에 붓지 마십시오.
Put food waste into food recycling container or trash.
Coloque los restos de comida en contenedores para reciclar alimentos o en la basura.
음식물 찌꺼기는 음식물 재활용 용기나 쓰레기통에 넣습니다.
Do not put food waste down the drain.
No arroje los desperdicios de alimentos por el desagüe.
음식물 찌꺼기를 배수구로 흘려보내지 마십시오.
Collect waste oil and store for recycling. Clean up spills immediately.
Junte el aceite usado y guárdelo para reciclar. Limpie los derrames inmediatamente.
사용한 기름은 모아뒀다가 수거해 가도록 합니다. 기름이 흘렀을 때는 즉시 닦습니다.
Do not pour cooking oil into the drain.
No vierta aceite de cocina directamente en el desague.
요리용 기름을 배수구에 붓지 마십시오.

Kitchen Best Management Practices (BMPs)

To Do	Why?	Benefits
Train employees	Employees help eliminate grease blockages and sewer spills	Avoid sewer blockage, fines and environmental issues
Display "No Grease" information in the workplace	Reminds employees to reduce FOG in the kitchen	Minimize grease discharge; reduce cleaning and disposal costs
Scrape or dry-wipe excess food and grease from cookware; dispose in trash	Keeps grease out of traps and interceptors	Less frequent cleaning, reduce maintenance costs
Install removable screens on all kitchen drains	Prevents food from clogging the sewer system	Reduce grease and food in traps and interceptors
Keep hot water to drains less than 140° F	Hot water dissolves grease and pushes it to the sewer pipe	Reduce costs to heat water; prevent FOG "pass through" in grease interceptors
Don't overfill FOG containers	Prevents slippery FOG spills	Employee safety
Pour cooking grease, liquid oil into covered grease container	Reduces amount of grease discharged to sewer	Reduce grease waste and garbage fees
Use Spill Kits	Absorb spilled grease and oil	Reduce material in grease traps and interceptors
Routinely clean kitchen exhaust system filters/hoods	Grease and oil in kitchen exhaust system can accumulate on the roof and may enter the stormdrain system when it rains	Protect local waterways. Avoid penalties or fines for polluting water

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Clean Water Services

Las mejores prácticas de administración para la cocina

Para hacer	¿Por qué?	Beneficios
Entrene a los empleados	Los empleados ayudan a eliminar los bloqueos causados por la grasa y los derrames en las alcantarillas	Los restaurantes se evitarán multas al no bloquear el alcantarillado y evitan problemas ambientales
Coloque la información de "No se permite grasa" en el lugar de trabajo	Les recueda a los empleandos a reducir la cantidad de manteca, aceite y grasa en la cocina	Reduce la descarga de grasa e los restaurantes; reduce el costo de limpieza y de desecho
Raspe o limpie en seco el exceso de comida y la grasa solidificada de los sartenes; tirela en la basura	Mantiene la grasa fuera de los colectores e interceptores	Menos grasa en los colectores significa tener que limpiar menos frecuente, lo cual reduce los costos de mantenimiento
Instale mallas removibles en todos los desagües de la cocina	Preveine que las particulas de comida entren y bloqueen el sistema de alcantarillado	Reduce la cantidad de grasa y de material de comida en los colectores e interceptores
Use agua caliente en los desagües a menos de 140° F	El agua a una temperatura más caliente de 140° F disuelve la grasa, causando que se solidifique después en la tuberia del alcantarillado	Reduce los contros de calentar agua; previene que la manteca, aceite y grasa "pase a través" de los interceptores para grasa
No rebalse los envases de FOG (manteca, aceite y grasa)	Preveine derrames resbalosos de manteca, aceite y grasa	Seguridad de los empleados
Vierta la grasa para concinar y el aceite liquido en un recipiente para grasa y cúbralo	Reduce la cantidad de grasa que es descargada al alcantarillado	Los restaurantes reducen el desperdicio de grasa y el costo potencial de transportar basura
Use los estuchess para los derrames	Los materiales absorbentes la grasa y el aceite derramado	Reduce la cantidad de material en los coletores e interceptores de grasa
De manera rutinaria, limpie los filtros y campanas del systema de ventilación de la cocina. (Vacie el aqua que usó para limpiar las campanas y los filtros en un desagüe conectado a un interceptor de grasa; o haga que le limpien las campanas a través de un servicio profesional.)	Si la grasa y el aceite se escapan a través del sistema de ventilación de la cocina, pueden acumularse en el techo y eventualmente entrar al sistema de alcantarillado de aguas pluviales	Se protege la calidad del agua en las vias fluviales locales. Evita multas o infracciones debido a las regulaciones sobre aguas pluviales

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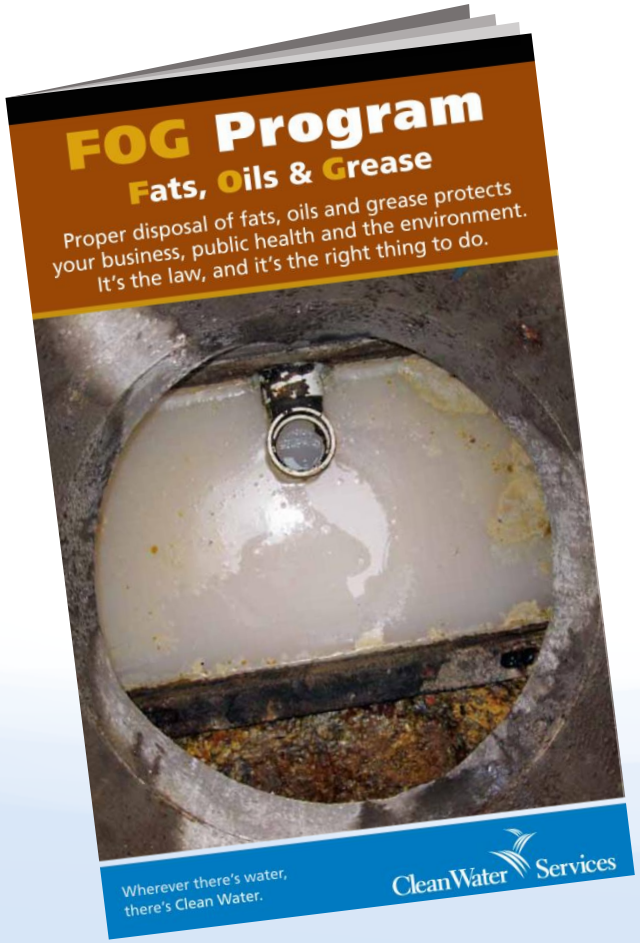
Clean Water Services

FOG Public Outreach, and Printed Material



Outreach for residential FOG reduction

- "Freeze-the-Grease" kits
- Web information for homeowners
- Quarterly newsletter for customers
- Videos

Outreach for commercial FOG generators

- Web information
- FOG booklet
- Kitchen poster
- Videos

Insert WSA BMP link

WSA
a project of pprc.org

FOG Printed Material

Es la Ley

Es en contra de la ley desechar las mantecas, aceites y grasas en el sistema de drenaje público. FOG es una causa principal de las obstrucciones e inundaciones, y el origen se encuentra frecuentemente en los establecimientos de servicios de comidas. Debido a que las inundaciones en los drenajes causan daño a la salud del público y al medio ambiente, las leyes federales, estatales y locales exigen el control FOG para proteger a las personas y a los recursos hidráulicos.

El Acto de Agua Limpia 40 CFR 403 y la ley prohíben la obstrucción de la corriente normal del agua en cualquier línea de drenaje público. La Ordenanza #27 de los Servicios de Agua Limpia prohíbe la descarga de substancias que puedan obstruir la corriente normal del drenaje sanitario. La Resolución y Orden Número 98-26 (04-70) exigen la instalación y mantenimiento de una trampa y/o interceptor de grasa para prevenir que penetren las mantecas, aceites y grasas en el sistema de recolección del drenaje. La Sección 5.02.5,f exigen que haya registros de reportes y de su cumplimiento.

Para más informacion sobre estas leyes, por favor visite **www.cleanwaterservices.org**

Patrocinado por los Servicios de Agua Limpia y las Ciudades Participantes

City of Cornelius · city of forest grove · City of Hillsboro · TIGARD · City of Tualatin · City of Sherwood Oregon

Contacto del Inspector: _____

Llame al	Correo electronico	Visite
503) 681-5180	fog@cleanwaterservices.org	wwwpreferredpumper.org

CleanWater Services

2550 SW Hillsboro Highway • Hillsboro, Oregon 97123 • www.cleanwaterservices.org/fog

FOG

(singlas en ingles)

Mantecas, Aceites & Grasas

El desecho apropiado de las mantecas, aceites y grasas protege su negocio, la salud pública y el medio ambiente.

Wherever there's water, there's Clean Water.

CleanWater Services

Todos los establecimientos de servicios de comida que están conectados a los drenajes públicos deben contar con un sistema aprobado de grasas como las trampas, interceptores y otros artefactos para colectar grasas y así prevenir que entren las mantecas, aceites y grasas además de los desechos de la comida a la tubería del drenaje.

Los sistemas de grasa deben ser correctamente instalados, limpiados y cuidados. Y, deben ser inspeccionados por los Servicios de Agua Limpia o empleados de la ciudad.

Mantecas, Aceites y Grasas (FOG)

FOG es un problema para los establecimientos de servicio de comida. La acumulación de FOG puede tapar la tubería de los drenajes y causar inundaciones muy costosas. FOG es malo para los negocios y malo para la salud pública y el medio ambiente.

Es más fácil prevenir los problemas causados por FOG que el tener que limpiar las inundaciones. Además es más barato, cuando uno se pone a considerar el costo de la limpieza, el cierre del negocio o su interrupción, el contrato del servicio de limpieza de las tuberías del drenaje, las reparaciones de construcción, el reemplazo del equipo, los reclamos de los seguros, el reembolso a los vecinos que hayan recibido daños, castigos, y otros pagos por daños al sistema del drenaje público.

Practicas del Mejor Manejo (BMP siglas en ingles)

Estas son las mejores maneras de tener cuidado con los artefactos de remoción de la grasa.

QUE HACER

- Limpiar las campanas de ventilación y los filtros con frecuencia (primero limpiarlos con toallas de papel)
- Proteger los drenajes con una pantalla
- Prevenir los derrames de mantecas, aceites y grasas
- Raspar en seco lo sobrante y ponerlo en un bote de basura, no en el lavadero
- Vaciar los botes de la basura antes de que se derramen
- Limpiar y cubrir el área de reciclaje exterior
- Llevar récords de la limpieza, las inspecciones y el servicio
- Entrenar a los empleados sobre las Prácticas del Mejor Mantenimiento para que FOG no llegue a las tuberías del drenaje
- Contratar un servicio para la limpieza de la grasa (Vea la lista de Servicios de Limpieza Preferidos)

QUE NO HACER

- No conecte los lavadores de platos al sistema de grasas
- No coloque químicos antigrasas en el sistema (empujan FOG a los drenajes)
- No lave el quipo de cocina afuera del establecimiento
- No permita que FOG penetre en los drenajes pluviales, en los retenes del agua, etc.
- No deseche incorrectamente las mantecas, aceites y grasas (FOG)

Programa de Servicios de Limpieza Preferidos

El Programa de Servicios de Limpieza Preferidos es un registro de las compañías que sacan y limpian las trampas y los interceptores de la grasa y que, además, cumplen con los procedimientos estándares dando un servicio consistente y reduciendo FOG. Para conocer mejor el Programa de Servicios de Limpieza Preferidos y saber más sobre las Prácticas del Mejor Manejo, por favor visite www.cleanwaterservices.org/PreferredPumperProgram

Se reduce el número de empleados y el tiempo cuando se usan de manera consistente las Prácticas del Mejor Manejo. La frecuencia de la limpieza cambia conforme a la clase de comidas que se preparen, el tipo del sistema, y la forma en que se limpie y se cuide. La limpieza cada semana previene los olores, y es más fácil limpiar un sistema que se cuida frecuentemente que tener que enfrentarse a semanas o meses de acumulamiento FOG y los olores respectivos. Llame a su inspector FOG para pedirle consejos sobre el programa de limpieza o visite el sitio WEB del Programa de Servicios de Limpieza Preferidos para entrenamiento y más información (www.cleanwaterservices.org/PreferredPumperProgram)

Inspección de establecimientos del servicio de comidas

Todos los establecimientos del servicio de comidas los visitará un inspector para inspeccionar el sistema de grasas y dar un reporte sobre su condición.
La gráfica de abajo hace una lista de las clases y la respuesta requerida. Se aprecian de antemano su cooperación y su cumplimiento.
Atención: Sus empleados deberán abrir el sistema de grasas al inspector.

Clase de Inspección	Respuesta del Establecimiento
Excelente o Buena	Continuar con la limpieza y el cuidado apropiados.
Insuficiente	Aumentar la frecuencia de la limpieza y el cuidado. El inspector podría volver a inspeccionar.
Pobre	Se le da al establecimiento un Aviso de Incumplimiento con la lista de acciones requeridas de corrección, la fecha en que se deben hacer para completar las acciones de corrección, y para notificar al inspector que haga una nueva inspección. De no cumplir con esto se podrían recibir castigos monetarios (hasta $2,500 por día) o se podría clausurar el negocio

https://cleanwaterservices.org/for-business-industry/fats-oils-grease-program/

USDA Rural Development
U.S. DEPARTMENT OF AGRICULTURE

WSA
a project of pprc.org

FOG Public Outreach

Also available in the following languages:

- Spanish (Español)
- Chinese (Simplified)
- Chinese (Traditional)
- Vietnamese
- Korean

正體字 | русский | Somali | Español | Tiếng Việt

FOG Public Outreach

正體字 | русский | Somali | Español | Tiếng Việt

Pete the Plumber Shares FOG Tips for Restaurants

Pete the Plumber's Tips on Dealing with Fats, Oils, and Grease

Pete the Plumber's Thoughts on Wipes

So, What Takes the Place of BMPs?

Connect all fixtures and drains in the food/beverage service areas to FOG pretreatment system

Size FOG pretreatment system to the FOG generator's food/beverage operation

Effective FOG pretreatment system includes maintenance prior to unacceptable FOG bypass

Ed Gilmore

11 years Restaurant Owner

20 years, Source Control Specialist, Clackamas County, Oregon
Industrial Pretreatment, FOG, P2 and Septage programs

Currently Trainer, Western States Alliance, PPRC

Bachelor of Science, Biochemistry, Portland State University

Poll Question

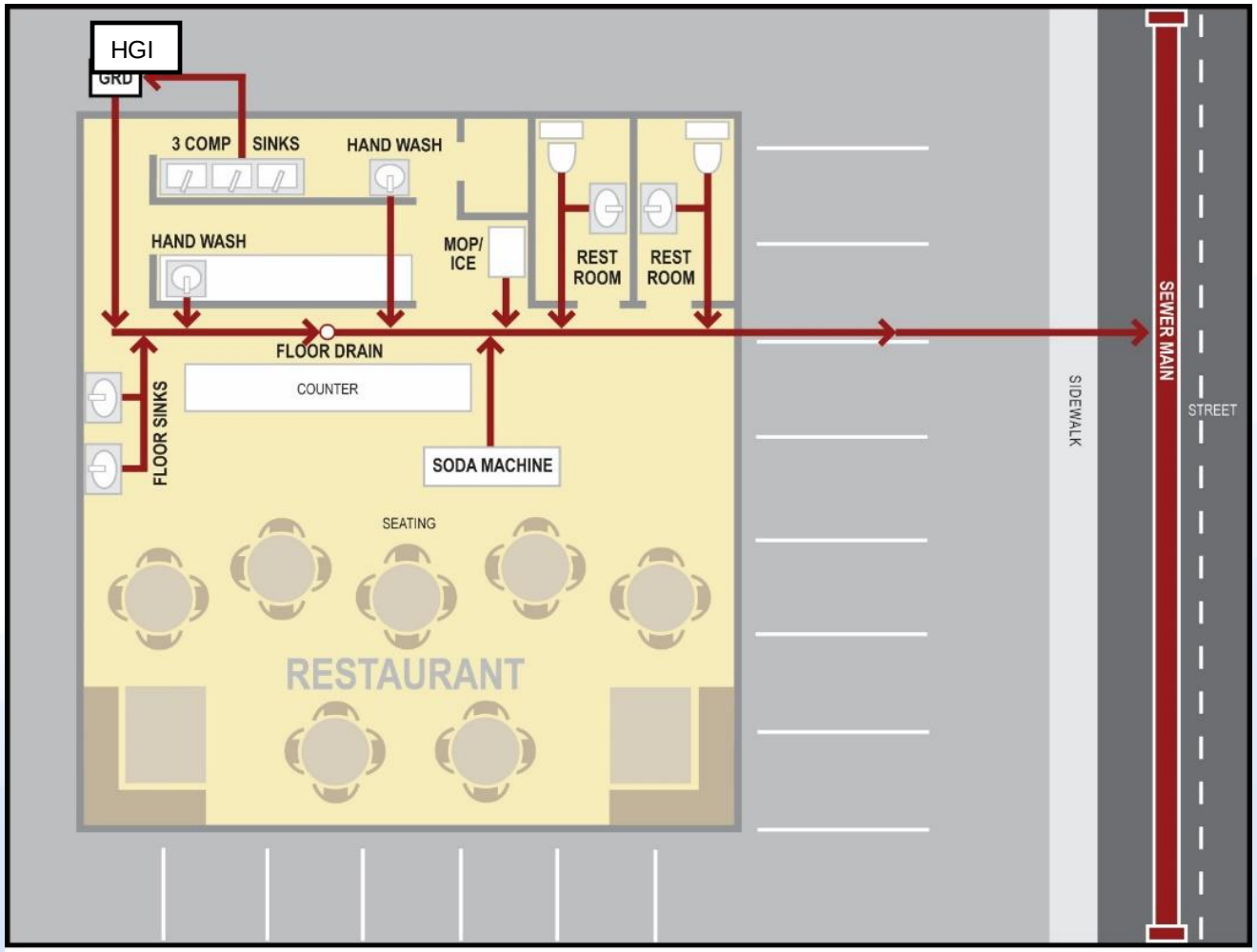
FSE Effective FOG Pretreatment

Effective Pretreatment

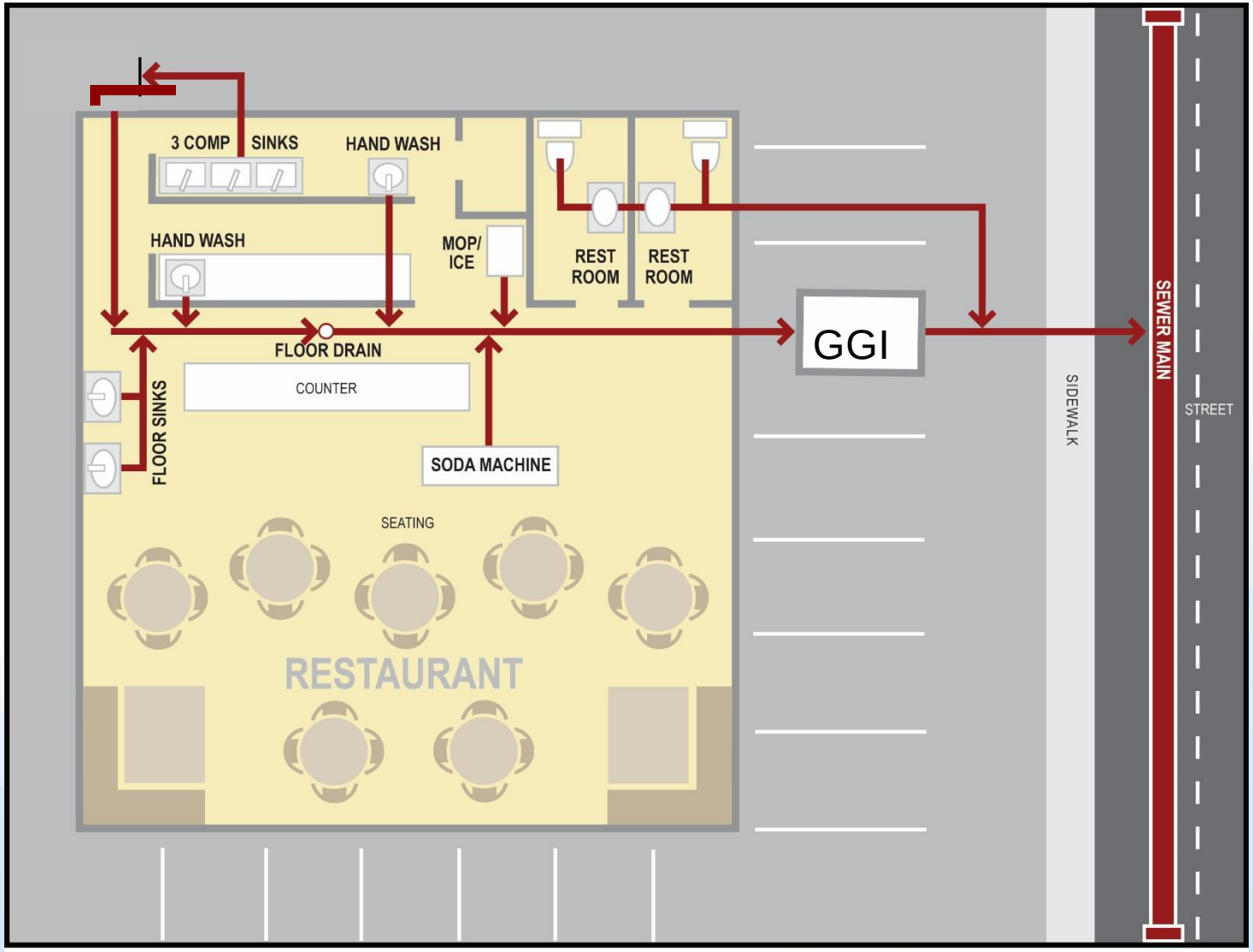
All fixtures and drains (F&D) from the food/beverage service areas shall be connected to an appropriately sized grease interceptor.

“An appropriately sized grease interceptor is sized for the food service operation and then the flow rate.”

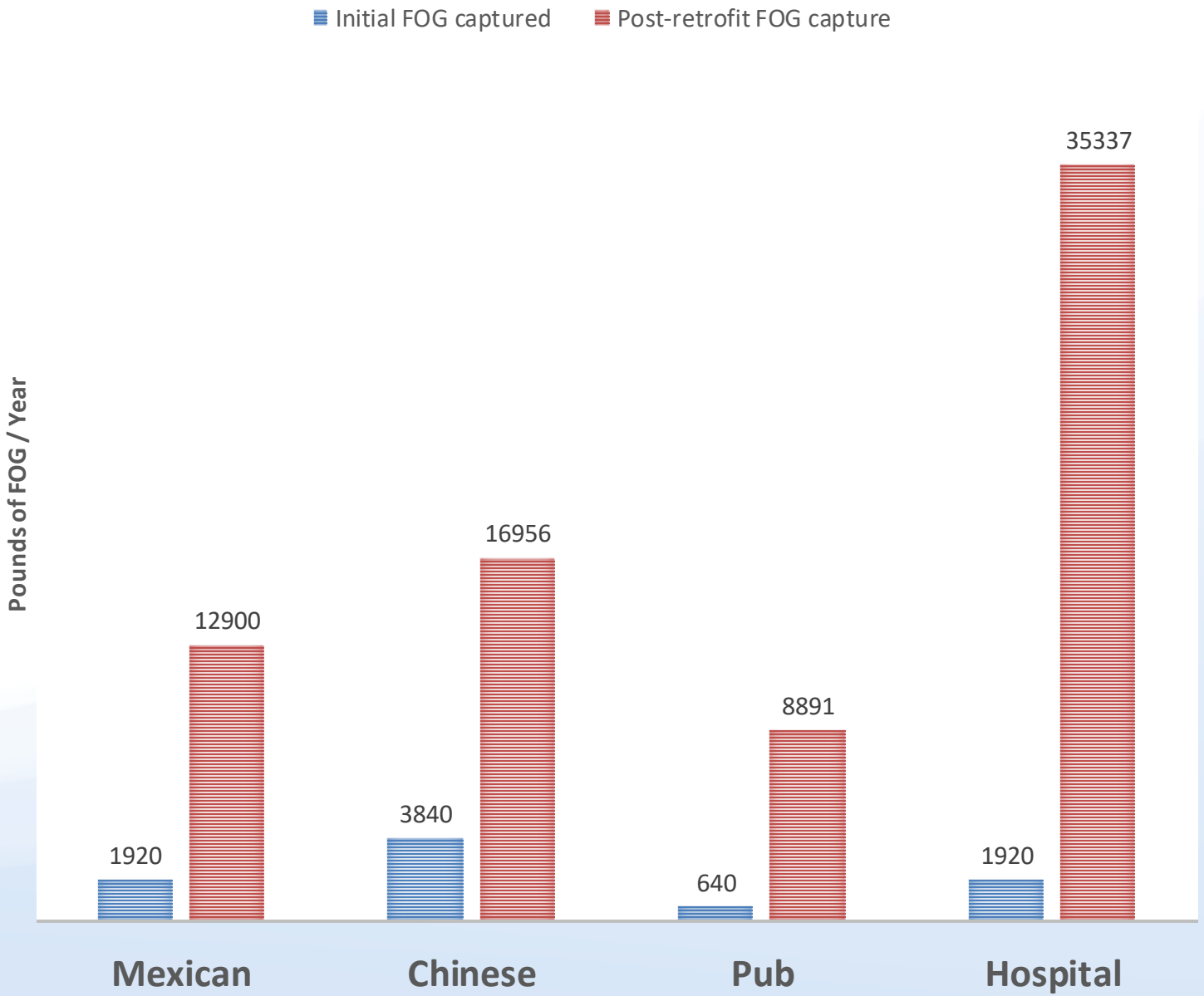
Ineffective Pretreatment for FOG



All Food/Beverage Service Area Fixtures & Drains Protected



CASE STUDIES REVEAL PRE-RETROFIT FOG LOADING



Sizing and Selection of Grease Interceptors

A Two-Step Process

Discharge Fixture Units (DFU's)

DRAINAGE FIXTURE UNIT VALUES (DFU)	
Sink Commercial 1½ inch drain	3 Units
Sink Commercial 2- inch drain	3 Units
Sink Bar 2 - inch drain	2 Units
Service or Mop Basin	3 Units
Dishwasher 2 - inch drain	4 Units
Floor Drain	2 Units
Food Waste Disposer	3 Units

Delete term: ~~Grease Trap~~
Add term: Hydromechanical Grease Interceptor (HGI)
Add sizing method for HGI:

Table 10-2 – 1015.1

Table 10-2
Hydromechanical Grease Interceptor (HGI) Sizing Chart*

DFU	HGI FLow (gpm)
8	20
10	25
13	35
20	50
35	75
172	100
216	150
342	200
428	250
576	350
720	500

*Based on intermittent potentially full flow in drainage lines.

Delete ~~Appendix H~~
Add new sizing method for Gravity Grease Interceptors (GGI):

Table 10-3
Gravity Grease Interceptor Sizing

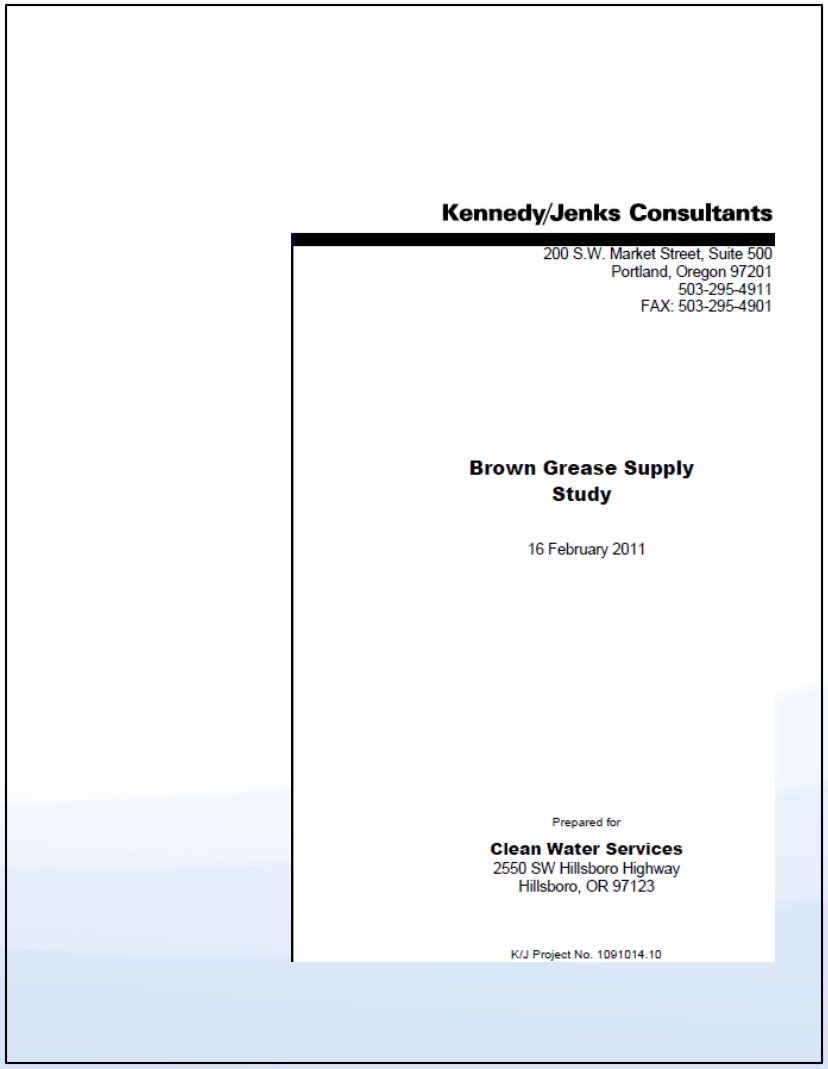
DFUs (1)	Interceptor Volume (2)
8	500 gallons
21 (3)	750 gallons
35	1,000 gallons
90 (3)	1,250 gallons
172	1,500 gallons
216	2,000 gallons
307 (3)	2,500 gallons
342	3,000 gallons
428	4,000 gallons
576	5,000 gallons
720	7,500 gallons
2112	10,000 gallons
2640	15,000 gallons

Notes
(1) The maximum allowable DFUs plumbed to the kitchen drain lines that will be connected to the grease interceptor.
(2) This size is based on: the DFUs, the pipe size from this code; Table 7-5; Useful Tables for flow in half-full pipes (ref: *Mohinder Nayyar Piping Handbook*, 3rd Edition, 1992).
(3) Based on 30-minute retention time (ref.: Metcalf & Eddy, Inc. *Small and Decentralized Wastewater Management Systems*, 3rd Ed. 1998). Rounded up to nominal interceptor volume.

International Plumbing Code (2015 and 2018)

- **1003.3.6 (2015 IPC) and 1003.6.7 (2018 IPC)**
- **Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems.** The required capacity of gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes.

SIZING AND SELECTION OF GREASE INTERCEPTORS



Kennedy/Jenks Consultants

200 S.W. Market Street, Suite 500
Portland, Oregon 97201
503-295-4911
FAX: 503-295-4901

Brown Grease Supply Study

16 February 2011

Prepared for

Clean Water Services
2550 SW Hillsboro Highway
Hillsboro, OR 97123

K/J Project No. 1091014.10

Case Studies Reveal FOG Loading

Grease Capacity (See Below) ÷ (Meals Per Day ✖ Grease Production Values (see A B C D E F below)) = **Operating Days Per Pump-out Cycle**

model	GB-15	GB-20	GB-25	GB-35	GB-50	GB-75	GB-250
maximum grease capacity (lbs.)	74	109	75	142	249	616	1,076

Restaurant Type	Grease Production Values	Examples
Low Grease Production	A 0.005 lbs (2.268 g) / meal (no flatware)	Sandwich Shop, Convenience Store, Bar, Sushi Bar, Delicatessen, Snack Bar, Frozen Yogurt, Hotel Breakfast Bar, Residential
	B 0.0065 lbs (2.948 g) / meal (with flatware)	
Medium Grease Production	C 0.025 lbs (11.340 g) / meal (no flatware)	Coffee House, Pizza, Grocery Store (no fryer), Ice Cream Parlor, Fast Food, Greek, Indian, Low Grease Output FSE (w/fryer)
	D 0.0325 lbs (14.742 g) / meal(with flatware)	
High Grease Production	E 0.035 lbs (15.876 g) / meal (no flatware)	Cafeteria, Family Restaurant, Italian, Steak House, Bakery, Chinese, Buffet, Mexican, Seafood, Fried Chicken, Grocery Store (w/fryer)
	F 0.0455 lbs (20.638 g) / meal (with flatware)	

EXAMPLE 1: ITALIAN, WITH FRYER, WITH FLATWARE

Grease Production Factor would be 0.0455 lbs. per meal

Type	Menu (Grease Factor ->)	without Fryer without flatware A	without fryer with flatware B	with fryer without flatware C	with fryer with flatware D
1	Bakery	0.025	0.0325	0.035	0.0455
2	Bar and Grille	0.005	0.0065	0.025	0.0325
3	Barbeque	0.025	0.0325	0.035	0.0455
4	Breakfast Bar - Hotel	0.005	0.0065	0.025	0.0325
5	Buffet	0.035	0.0455	0.058	0.075
6	Burger and fries, fast food	0.025	0.0325	0.035	0.0455
7	Cafeteria	0.025	0.0325	0.035	0.0455
8	Caterer	0.005	0.0065	0.025	0.0325
9	Chinese	0.035	0.0455	0.058	0.075
10	Coffee shop	0.025	0.0325	0.035	0.0455
11	Convenience Store	0.005	0.0065	0.025	0.0325
12	Deep fried Chicken / seafood	0.035	0.0455	0.058	0.075
13	Deli	0.005	0.0065	0.025	0.0325
14	Family Restaurant	0.025	0.0325	0.035	0.0455
15	Frozen Yogurt	0.005	0.0065	0.025	0.0325
16	Greek	0.005	0.0065	0.025	0.0325
17	Grocery Bakery	0.005	0.0065	0.025	0.0325
18	Grocery Deli	0.025	0.0325	0.035	0.0455
19	Grocery Meat Department	0.025	0.0325	0.035	0.0455
20	Ice Cream	0.025	0.0325	0.035	0.0455
21	Indian	0.005	0.0065	0.025	0.0325
22	Italian	0.025	0.0325	0.035	0.0455
23	Mexican, fast food	0.025	0.0325	0.035	0.0455
24	Mexican, full fare	0.035	0.0455	0.058	0.075
25	Pizza	0.025	0.0325	0.035	0.0455
26	Religious Institution	0.005	0.0065	0.025	0.0325
27	Sandwich shop	0.005	0.0065	0.025	0.0325
28	Snack Bar	0.005	0.0065	0.025	0.0325
29	Steak and seafood	0.035	0.0455	0.058	0.075
30	Sushi	0.005	0.0065	0.025	0.0325

Categories are threatening…

What do you mean I'm a "high grease producer", I don't produce any grease?

Table 8-3 Example Grease Production Values for Restaurants		
Restaurant Type	**Grease Production Values**	**Examples**
Low grease producer	0.005 lbs (2.268 g)/meal (no flatware)	Elementary cafeteria, grocery meat department, hotel breakfast bar, sub shop, sushi, take-and-bake pizza
	0.0065 lbs (2.948 g)/meal (with flatware)	
Medium grease producer	0.025 lbs (11.340 g)/meal (no flatware)	Cafe, coffee shop, convenience store, grocery deli, Greek, Indian, Japanese, Korean, Thai, Vietnamese
	0.0325 lbs (14.742 g)/meal (with flatware)	
High grease producer	0.035 lbs (15.876 g)/meal (no flatware)	Full-fare family, fast-food hamburger, hamburger bar and grill, German, Italian, fast-food Mexican
	0.0455 lbs (20.638 g)/meal (with flatware)	
Very high grease producer	0.058 lbs (26.308 g)/meal (no flatware)	Full-fare BBQ, fast-food fried chicken, full-fare Mexican, steak and seafood, Chinese, Hawaiian
	0.075 lbs (34.019 g)/meal (with flatware)	

APPLICATION OF GREASE PRODUCTION SELECTION METHOD

Example 1: Italian, with Fryer, with Flatware

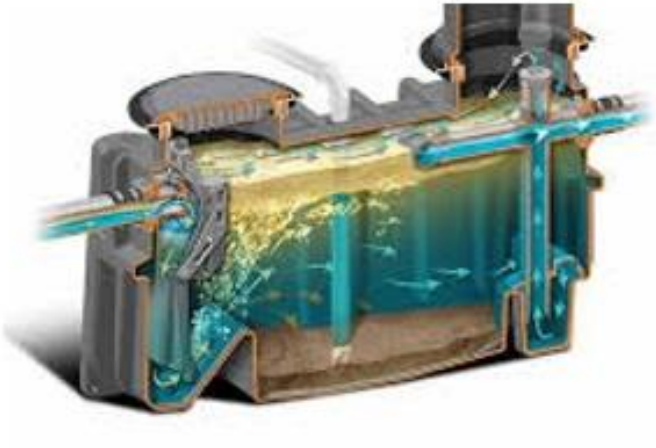
Step 2: Calculate Grease Production

Grease Factor from Table 2		Meals or Customers per day		Days between pump-outs	=	Grease Capacity Required
	X		X		=	
0.0455 lbs		469 meals/day	21.3 lbs/day OR 639 lbs/mo	?		?

ALL Fixtures C onnected

High-Capacity Hydromechanical 2006 - 2018

High-Capacity Hydromechanical Grease Interceptors Emerge…



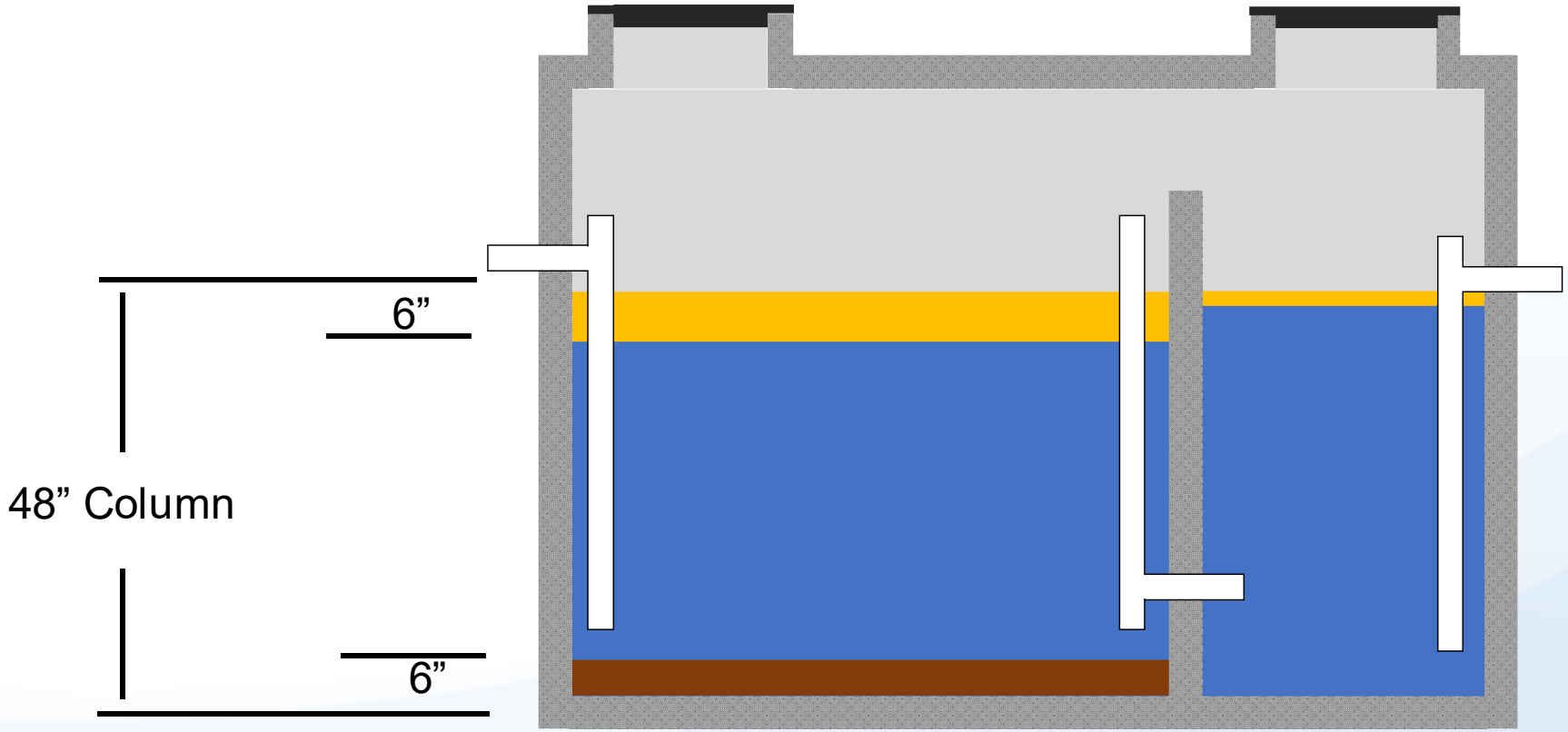
Endura
XL 100

Great
Basin GB-
250

Trapzilla
TZ-1826

100 GPM

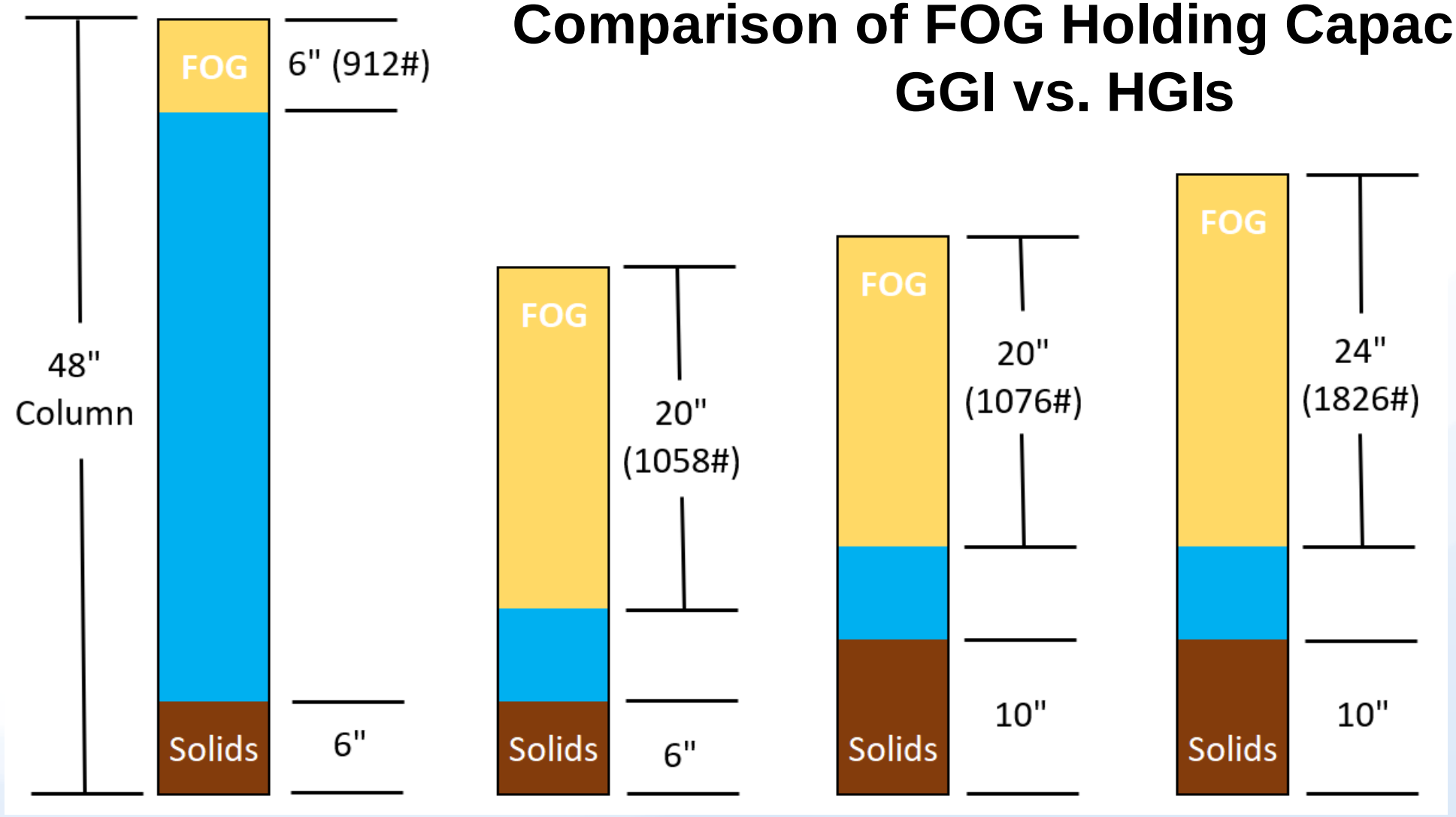
How much FOG + Solids in a 1000 gal. GGI?



(FOG depth) / (total water column) x (total gallons) = gallons of FOG

(125 Gallons of FOG) x (7.3 lbs per gal.) = **912 lbs**

Comparison of FOG Holding Capacities - GGI vs. HGIs



1000 gal.
GGI

Endura
XL 100

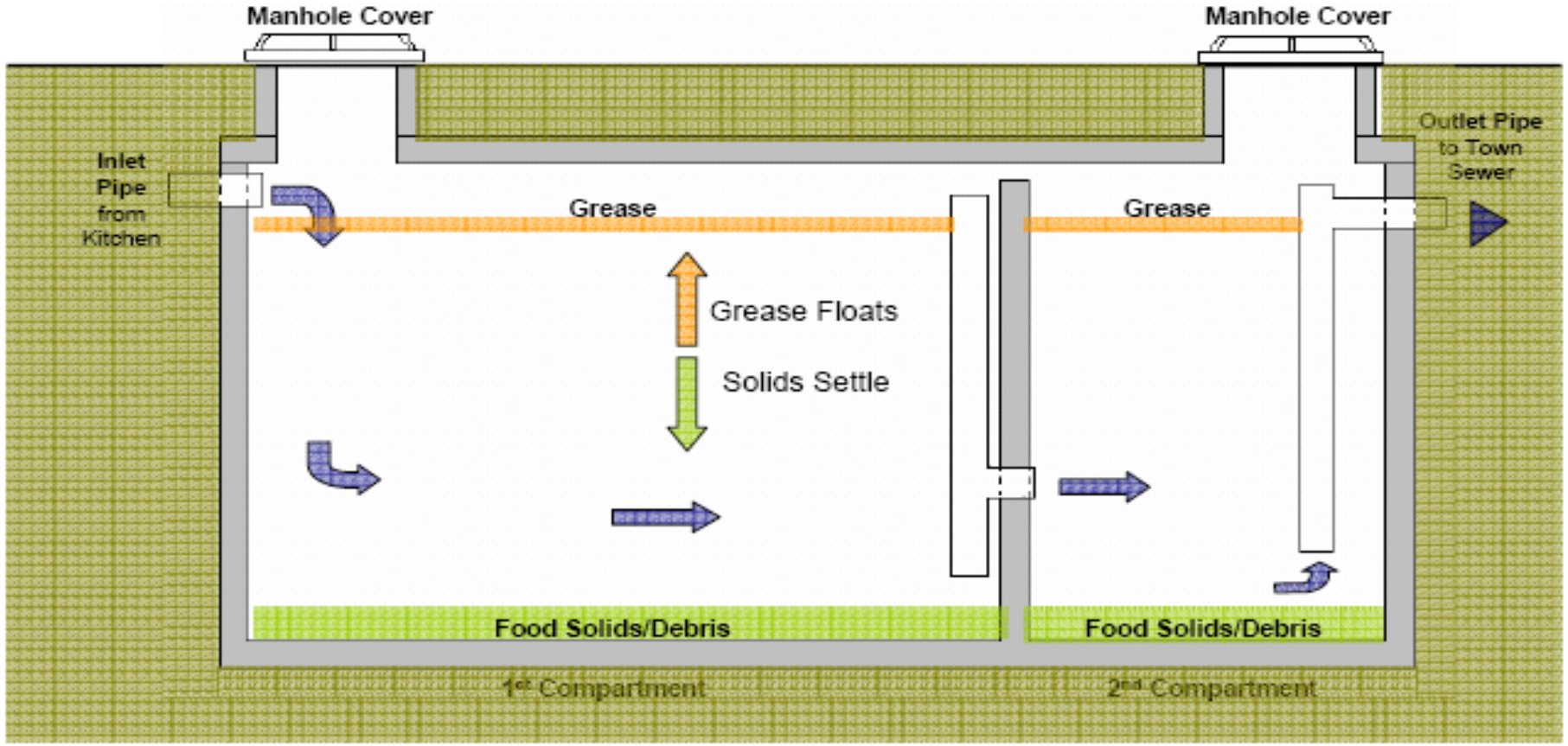
Great Basin
GB-250

Trapzilla
TZ-1826

measurements calculated

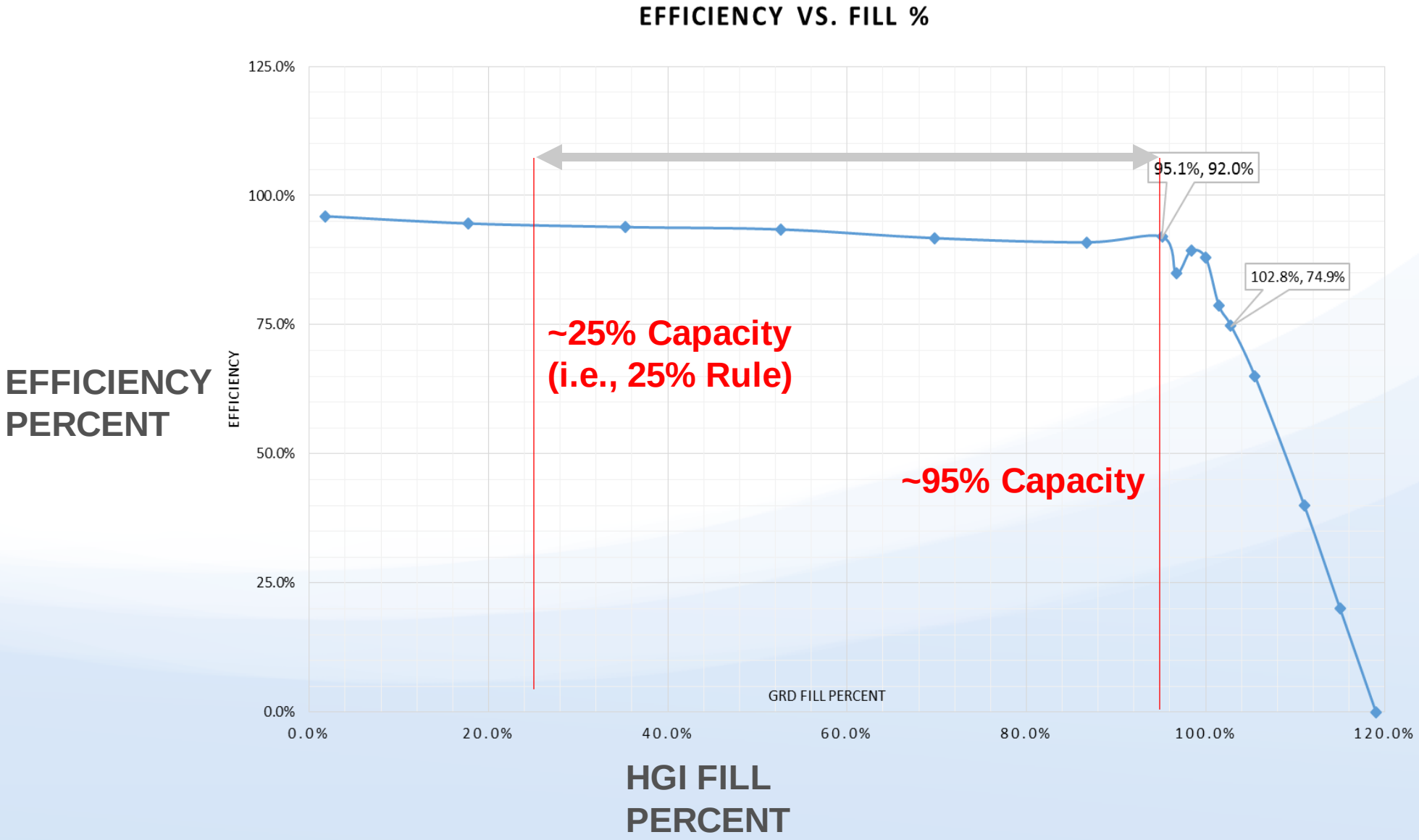
25% Rule says..

"When interceptor reaches 25% FOG/solids by volume, it's at capacity, and begins bypassing"



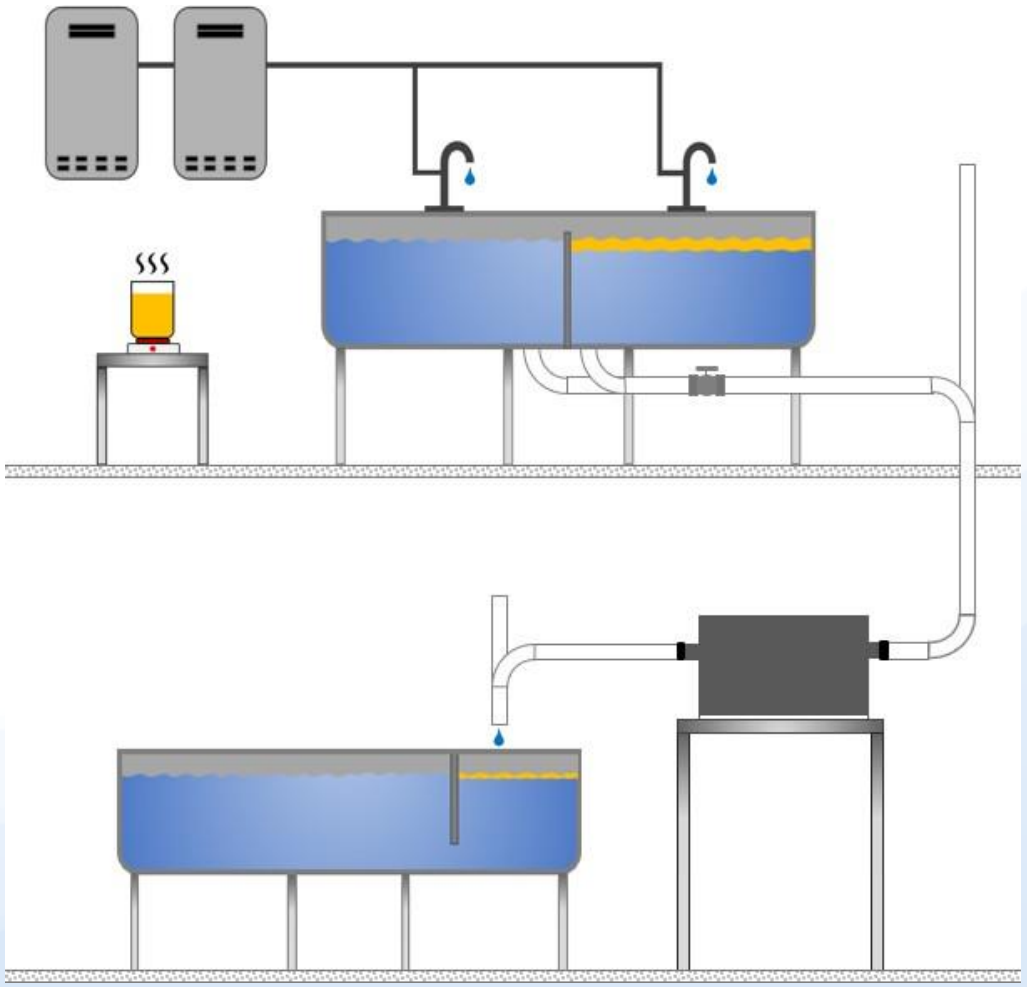
HGI EFFICIENCY TESTING RESULTS / FOG STORAGE CAPACITY

25% Rule applied to HGIs can cost FSEs excessive pump-out costs



HGI Testing to Certify Performance

- Temperature between 150° F and 160° F
- 1 lb. lard to 10 gal. water
- 2-minute run duration
- Lard from skim tank de-watered and weighed



For illustration purposes only

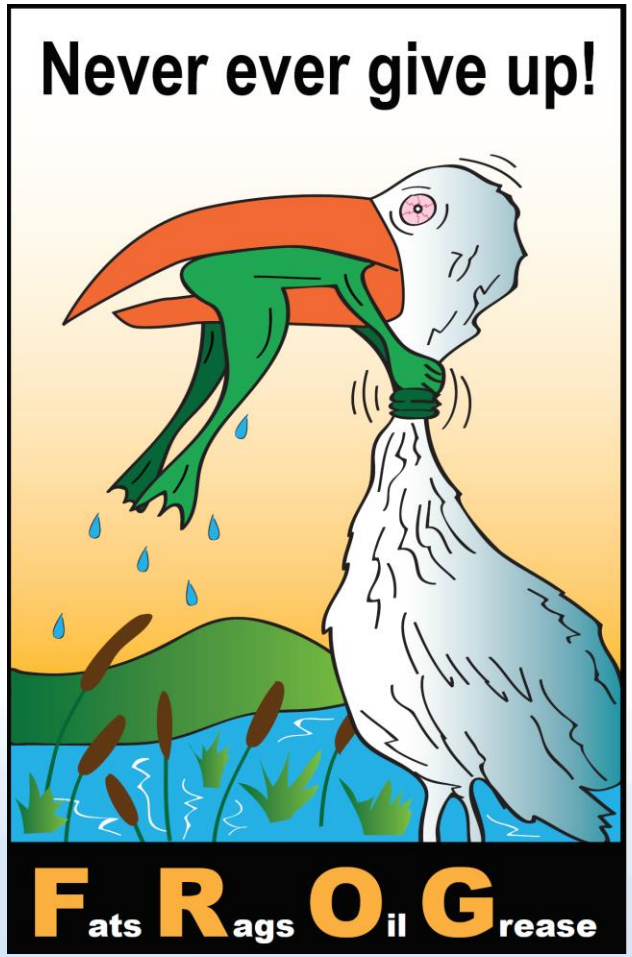
PROGRAM IMPLEMENTATION

SESSION 3

- **YOUR EXISTING FOG PROGRAM**
- **ESTABLISHING LEGAL AUTHORITY**
- **STAKEHOLDERS**
- **FOG TRIAGE**
- **FOG MANAGEMENT PRACTICES**
- **FSE EFFECTIVE FOG PRETREATMENT**

SESSION 4

- FOG AND WATER SEPARATION
- GREASE REMOVAL DEVICES (GRD)
- FSE INSPECTIONS
- PREFERRED PUMPER PROGRAMS



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THANK YOU FOR ATTENDING SESSION 3
USDA FOG PRETREATMENT TRAINING

RAPID RESPONSE --
https://pprc.org/rapid-response/
PPRC provides free and well-researched answers to specific questions about pollution prevention, with thorough and unbiased answers to inform decision making.

End of Session 3

See you next session!