Stafford County Utilities Commission
Tuesday, December 10, 2019
7:00 p.m. – Board of Supervisors' Chambers
George L. Gordon, Jr. Government Center
1300 Courthouse Road
Stafford, VA 22554

I. Call to Order
II. Roll Call
III. Approval of Minutes
    a. No minutes taken on 11/12/19 (no quorum)
IV. Presentations by the Public (3 Minutes)
V. Reports by Commission Members
VI. Director's Report – Jason Towery
VII. New Business
    A. Utilities 5-Year Plan (Jason Towery)
VIII. Unfinished Business
    A. Fats, Oils, Grease (FOG) Program Proposal (Jon Brindle)
IX. Adjournment

# Utilities Fund - Five Year Plan

Stafford County Government

11/19/2019

# By the numbers…

**711**
Miles of waterline

**541**
Miles of sewer line

**5.933**
Hydrants

**12,716**
Manholes

**3.45 Billion**
Gallons of drinking water treated

**3.22 Billion**
Gallons of sewage treated

**38,165**
Water customers

**34,918**
Sewer customers

**8.7%**
Five-Year growth rate

**$965 Million**
Total system value

# Reviewing Our Goals

## 5 Year Goals

- Implement the Master Plan Changes into the CIP
- Create and fund a Water & Sewer Pipe Replacement Program
- Implement a Fats Oils and Grease (FOG) Prevention Program
- Create and fund a Capital Pump Station Rehabilitation Program
- Fund an Inflow & Infiltration (I&I) Reduction Program
- Begin a 5 year Unidirectional Flushing Program

Lake Mooney Intake Tower
Hartwood District

4

# Meeting Our Goals: Accomplishments


New Courthouse Tank

- Master Plan adopted May 2018
- FY19 and FY20 CIPs **allocated $20M to 3R**
- 11,000’ of Pipe lined saving nearly **$3.4M**

| | Pipe Length | Open Cut Costs | Lining Costs | Cost Savings |
|---|---|---|---|---|
| Foxwood Village | 1,401 | $ 630,450 | $ 75,762 | $ 554,688 |
| Falmouth | 2,290 | $ 687,000 | $ 79,601 | $ 607,399 |
| King Highway | 492 | $ 172,200 | $ 15,793 | $ 156,407 |
| West Ridge Court | 439 | $ 153,650 | $ 53,414 | $ 100,236 |
| Claiborne | 375 | $ 131,250 | $ 54,981 | $ 76,269 |
| Staffordboro Commuter Lot | 944 | $ 330,400 | $ 65,629 | $ 264,771 |
| Rt. 1 /Staffordboro | 5,538 | $ 1,938,300 | $ 314,206 | $ 1,624,094 |
| | **11,479** | **$ 4,043,250** | **$ 659,386** | **$ 3,383,864** |

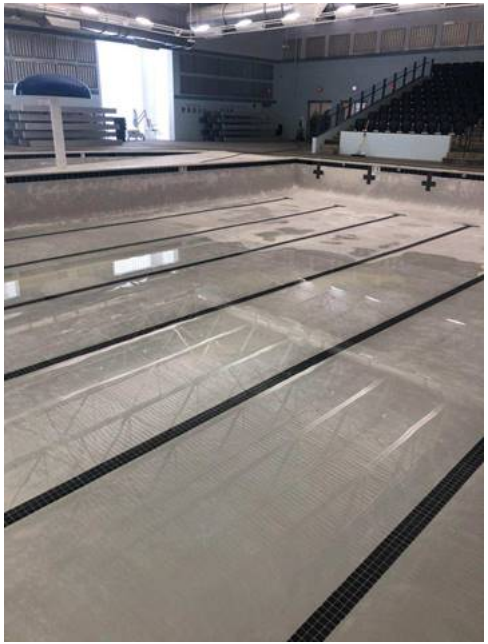
- Replaced and upgraded 4,377 LF of waterline with a **net savings of $880K**
  - Average 4 man pipe crew costs $258K/year
  - Project Savings more than supported salaries

# Meeting Our Goals: Accomplishments

- Fats Oils and Grease (FOG) Coordinator hired January 2019
  - **Estimate costs of $1.6M/year to remove FOG** from the sewer system
  - Estimate that 50% of our backups are due to FOG
  - Ongoing Media Campaign #canyourgrease
  - Over 38,000 informational fliers sent out
  - Utilities Commission was presented the new FOG Program Proposal on November 12th
- Recently **replaced 2 pump stations that were 40 to 50 years old** (average pump station is 30 years old)
- This Fall the Board approved a comprehensive I&I study in Aquia Harbour

**Example FOG Violation**

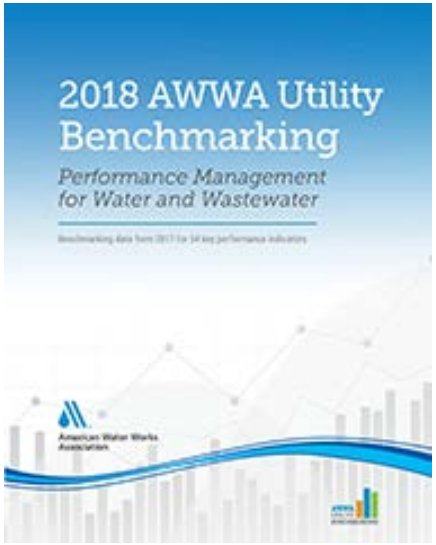
# Meeting Our Goals: Accomplishments



Rouse Center Pool 8.6.19

- **170 Miles of Pipe U/D Flushed in 2 years** (25% of the total system)
- **System-wide Burn & Flush**
  - 5,358 Hydrants exercised and inspected
  - Flushed approximately 670 miles of waterline
- Rebuilt Filters at the Smith Lake WTP
  - Existing filters between 20 - 30 years old
  - Better water quality
- Decommissioned old Courthouse Tank and brought new Courthouse Tank online
  - Better water pressure
  - Better water quality

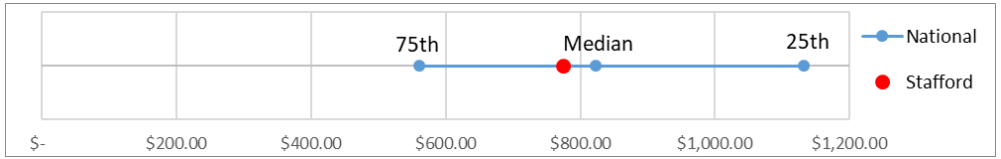
# AWWA Utility Benchmarking



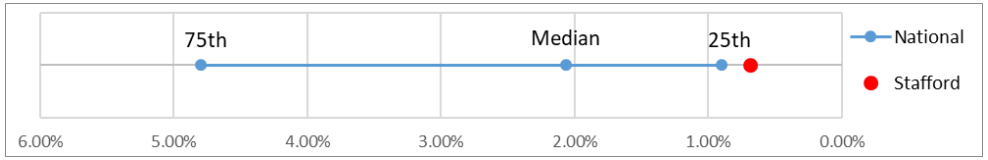

- Nationwide survey of **157 water and wastewater utilities**
  - 94 Utility participants operate both water and wastewater systems
  - Compares organizational development, financial, customer service, operational capacity, and other key performance metrics
- **11 Virginia Utilities participated** in 2018
  - Including Fairfax Water, PWCSA, Loudoun Water, Henrico County, Hanover County, and Chesterfield County
- Stafford County Utilities compared itself against the combined water and wastewater utilities in over 100 categories, addressing:
  - Cost of Service and Financial Metrics
  - Employee Turnover and Training
  - Staffing Levels
  - Operations

# Cost of Service and Financial Metrics

O&M Costs per customer account are close to the median score

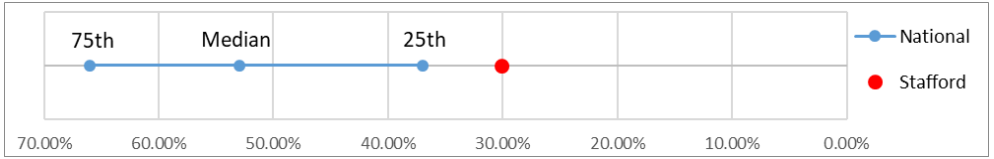



Renewal and Replacement Rate (%) is less than half the median investment level

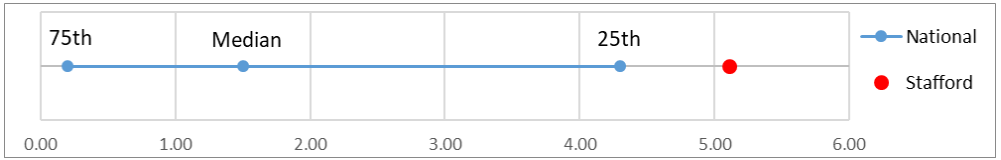



# Operations

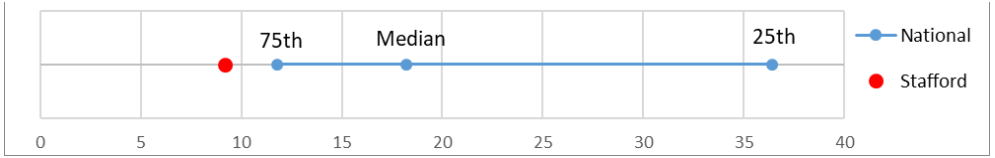
## Planned Maintenance Ratio is low



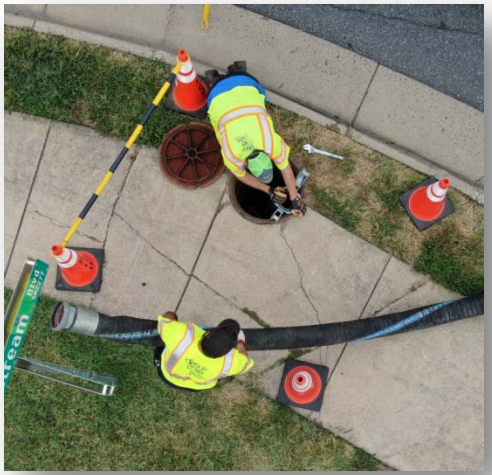

## Sewer Overflows per 100 miles of pipe is high (I&I)



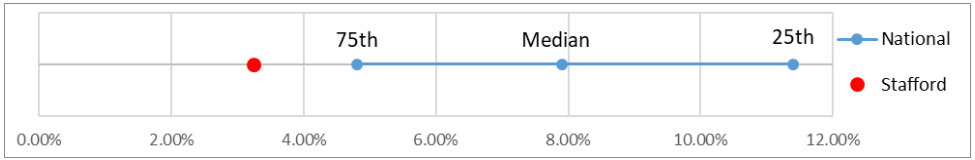

## Water system leaks and breaks per 100 miles of pipe is low



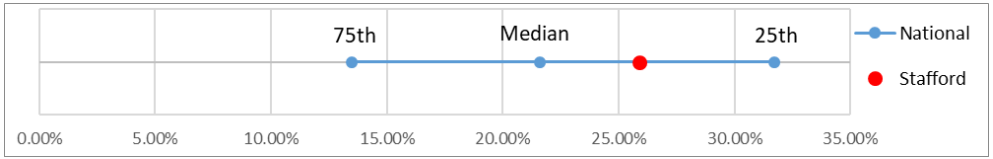

# Employee Turnover and Training



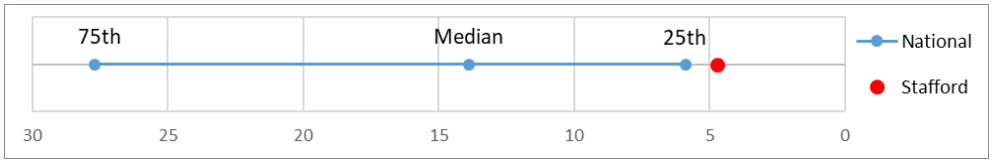
## Employee Turnover (% turnover/year) is low



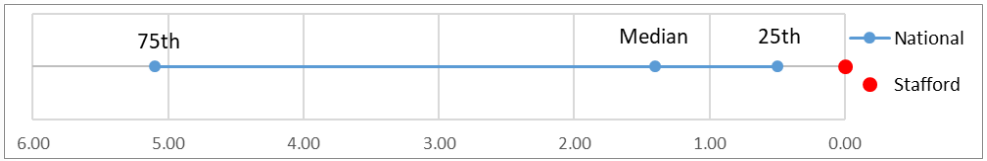

## Retirement Eligibility (% of workforce) is high




## Training (hours/employee) is low



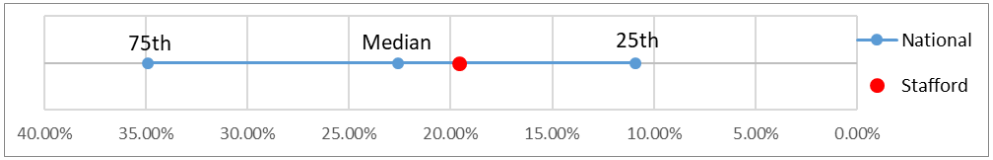

## Emergency Response Readiness Training is low



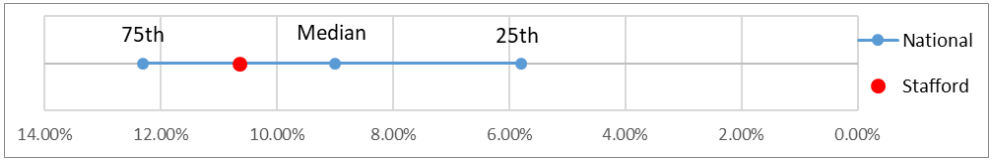

# Staffing Levels

## Stafford Utilities staffing levels for:

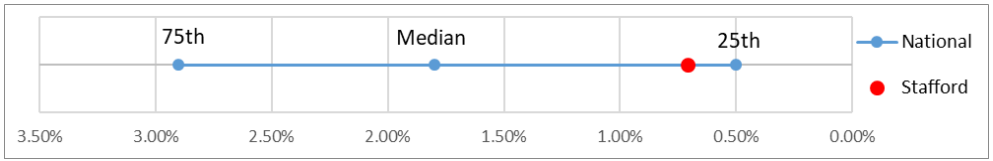
### Customer Service and Billing (3% growth)




### Engineering



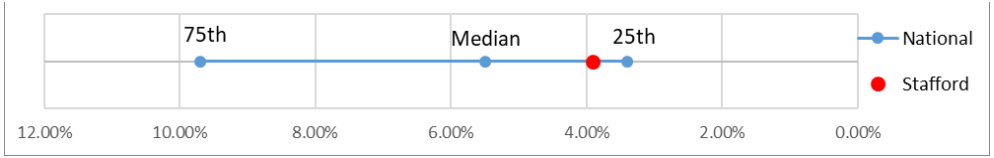

### Utility Planning (Asset Management)



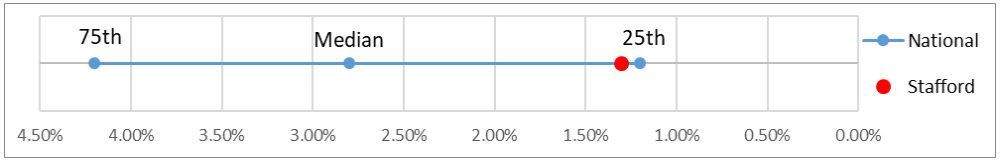

# Staffing Levels (continued)

Stafford Utilities staffing levels are low for these resources:

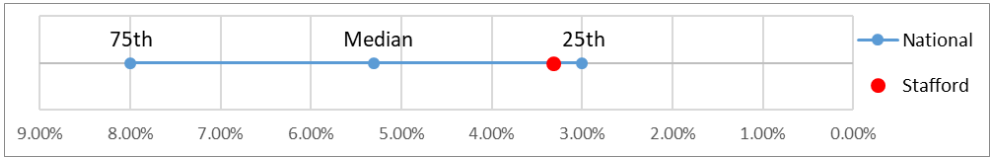
## Finance Support:




## HR Recruitment and Training Support:




## IT/GIS Support:




# Benchmarking Summary

## Areas we compare well:

- Operations & maintenance cost per customer account
- Water line breaks (low)
- Employee turnover (low)
- Engineering staffing levels

## Areas of caution:

- Customer Service staffing
- Legal support

## Areas to improve:

- Staffing levels in our operations division and administrative support (HR, Finance, and others)
- Asset management and planned maintenance (less reactive)
- Renewal and replacement rate (3R)
- Employee training (with the loss of long time employees training is a premium)

# Key Action Items

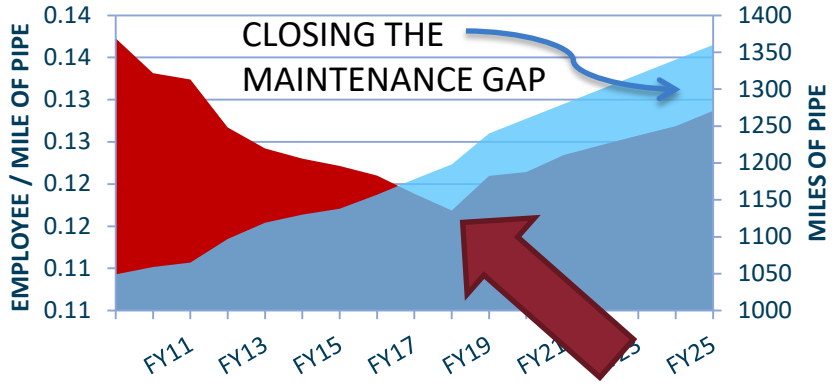
- **Asset Management Strategy:** As Utility Systems age, “best practice” involves adopting an “Asset Management” strategy for investments, which will:
  - Increase investments into condition assessments
  - Increase investments into 3R program
  - Increase the % of planned maintenance
- **Succession Planning:** To prepare for pending surge of retirements, increase “knowledge capture” and training
- **Core Operations Support:** Consider enhanced staffing for Finance, HR, and IT based on staffing levels at Peer Utilities

# Strategic Focus

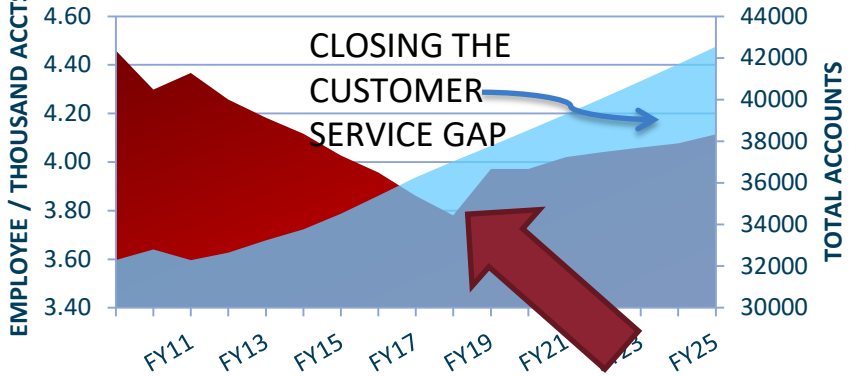

- Healthy System Growth
- 3R and Asset Management
- Knowledge Management and Succession Planning
- Environmental Compliance
- Financial Sustainability

**Does the Board agree that this is the correct focus?**

## Employees / Miles of Pipe




## Employees / Accounts




# Personnel Needs

## FY21

- Project Manager (3R)
- Property Acquisition Specialist (50%)
- Recruitment & Training Specialist
- Senior Accounting Technician
- 3R/Asset Manager

## FY22

- Civil Engineer (operations)
- GIS Technician
- Pre-Treatment Inspector
- Water Sampler

## FY23

- Customer Service Representative
- Maintenance Mechanic (ICS)
- Plant Mechanic (ICS)
- Safety Specialist

**Discussion?**

# Financial Sustainability

- **Utilities Fund is self-supporting**
  - Operations and 3-R capital funded by user fees / operating revenues
  - Expansion capital project and debt service funded by availability and pro rata fees
- **Utilities Fund's financial policies and five year plan consistent with GF**
  - The FY21 Budget proposes a 1.5% rate increase in accordance with the Utilities Fund Financial Policies
  - Consumer Price Index: 3 year rolling average of 1.45%
  - Increase costs of materials, supplies, labor, and utilities

**Direction on rate increase for FY21 Budget?**

# Strategic Growth - CIP

**Input/Questions?**

- FY21-25 proposes approximately $115 M in new Capital investment and reinvestment
  - $42M (water) $66M (wastewater)
  - 46% Economic and Development growth ($53 M)
  - 41% of CIP project spending associated with 3R
    - 3R (treatment plant upgrades) - $30M
    - 3R (linear pipe, pump stations, etc.) - $17M
  - 8% dedicated to State/Federal Mandates ($9M)
  - 5% dedicated to contingency, equipment, & vehicles ($6M)

| Expenditures | FY2021 | FY2022 | FY2023 | FY2024 | FY2025 |
|---|---|---|---|---|---|
| Water | 6,140,000 | 12,075,000 | 10,635,000 | 3,875,200 | 9,156,800 |
| Waste Water | 14,407,860 | 20,194,300 | 13,194,200 | 7,876,600 | 10,609,800 |
| Other | 1,028,700 | 878,200 | 977,800 | 3,015,300 | 820,500 |
| **Total Expenditures** | **$21,576,560** | **$33,147,500** | **$24,807,000** | **$14,767,100** | **$20,587,100** |

# 5 Year Operating Plan

| | FY2020 Adopted | FY2021 Projections | FY2022 Projections | FY2023 Projections | FY2024 Projections | FY2025 Projections |
|---|---|---|---|---|---|---|
| **OPERATING REVENUES** | | | | | | |
| User Fees | $45,240,830 | $45,919,442 | $47,067,429 | $48,244,114 | $49,450,217 | $50,686,473 |
| Water & Sewer Fees | 45,240,830 | 45,919,442 | 47,067,429 | 48,244,114 | 49,450,217 | 50,686,473 |
| Other Charges/Fees | 1,832,881 | 1,860,374 | 1,906,884 | 1,954,556 | 2,003,420 | 2,053,505 |
| Interest/Property Rental | 1,235,203 | 1,253,731 | 1,285,074 | 1,317,201 | 1,350,131 | 1,383,884 |
| **Total Operating Revenues** | $48,308,914 | $49,033,548 | $50,259,386 | $51,515,871 | $52,803,768 | $54,123,862 |
| **OPERATING EXPENDITURES** | | | | | | |
| Operating & Personnel | 29,392,494 | 31,439,506 | 32,112,724 | 32,795,372 | 32,808,726 | 33,505,026 |
| Debt Service | 7,987,770 | 7,987,770 | 8,723,770 | 8,723,770 | 9,593,770 | 9,593,770 |
| Use of Operating Rev for Capita | 10,928,650 | 9,606,272 | 9,422,892 | 9,996,729 | 10,401,272 | 11,025,066 |
| **Total Operating Expenditures** | $48,308,914 | $49,033,548 | $50,259,386 | $51,515,871 | $52,803,768 | $54,123,862 |

# QUESTIONS?

STAFFORD Virginia

# FOG Program Proposal

November 12th 2019

# What is FOG?

- Fats, Oils, and Grease found in
  - Cooked Meats
  - Fryer Oil
  - Dairy
- Global Issue
  - London “Fat Berg” – 40 tons
- FOG is the Glue of “Fat-Bergs”

# Introduction

- 50% of Sanitary Sewer Overflows (SSO) and backups are caused by FOG
  - Damage Infrastructure and Private Property
  - Threaten Environment
- 2018 Totals
  - 13 SSO
  - 191+ Backups
- SSO prevention is a DEQ priority
  - FOG control is key to reducing SSOs
- Stafford Local Limit is 100mg/L
  - FOG limits are difficult to detect, and require labs
  - Formal FOG program will establish discharge compliance without lab testing

# FOG Related Costs

| Description | Time (hrs / yr) | Total $/yr |
|---|---|---|
| Sewer line backup response (crew) | 1952 | $24,400 |
| Sewer line backup response (tv truck) | 488 | $48,800 |
| Sewer line backup response (vac truck) | 488 | $61,000 |
| Sewer line routine / preventative (crew) | 12480 | $234,000 |
| Sewer line routine / preventative (tv truck) | 3120 | $468,000 |
| Sewer line routine / preventative (vac truck) | 3120 | $585,000 |
| Pump station pumpout (crew) | 1648 | $41,200 |
| Pump station pumpout (vac truck) | 690 | $172,500 |
| **Total:** | **23,986** | **$1,634,900** |

# FOG Related Costs

- Sewer Line Response Total = $134,200
- Sewer Line Preventative Total = $1,287,000
- Pump Station Pumpout Total = $213,700
- Stafford County FOG Removal Total = $1,634,900

# FOG Control Efforts – Prevention

- Commercial Kitchen Survey:
  - 386 identified

- FOG Packet:
  - Distributed in 8 stages
  - 4 items

- FOG Questionnaire:
  - Establishments required to return completed questionnaire
  - 1st step of FOG program
  - Now up to 50% participation

# FOG Control Efforts – Removal

- Physical Removal:
  - Almost 24,000 labor hours
  - Requires specialized equipment
  - Goal needs to be prevention

- Chemical Trials:
  - Very effective in pump stations.
  - Need more evidence for sewer lines.

# Chemical Trial – Garrison Woods

Start

Week 10

# Chemical Trial – Ebenezer Church

8/20 full coverage (95%)

9/12 – 50%

# FOG Control Efforts – NOV

- NOVs are issued for FOG buildup in sewer main shown in CCTV coming from a dedicated lateral
- Four Notices of Violation (NOV) issued in 2019.
  - 1 SSO Investigation
  - 1 Flagged Inspection
  - 2 Sewer Survey
- Positive responses:
  - Hardware upgrades
  - Increased GCD service frequency
  - Staff training

# NOV Pictures

# NOV Pictures


# FOG Control Efforts – Outreach

- Residential Outreach:
  - Webpage created: StaffordCountyVA.Gov/FOG
  - FOG flyer in Oct – Nov water bill cycle.
    - 38,000 customers
  - Planned social media campaign for Thanksgiving holiday starts 11/18/2019

# FOG Program

- Two Step Implementation
  - Questionnaire – Distribution Completed:
    - Questionnaire used to determine permit status
    - 50% Response to questionnaire
    - 95% of respondents have Grease Control Device if needed
  - *** Permit:**
    - Regulate the use of grease control devices and grease introduced into the sanitary sewer system
    - General Permit
      - Include high-potential grease contributors, exclude "heat and serve."
      - Unresponsive to questionnaire
    - 250 establishments expected to be included
    - Fee to cover costs

* Action Item – Input Needed for adoption of General Permit from Utilities Commission

# FOG Program

- General Permit Requirements
  - Best Management Practices Enforced:
    - Signage – "No Grease"
    - Training – Restaurant Staff
    - Sink Strainers
  - * Grease Control Device (GCD):
    - **Recommend as a requirement**
    - Approximately 5% of establishments do not have GCD
    - Cost of retrofit is between $1,500 and $8,000
  - Oil Recycling:
    - If applicable must recycle all liquid oil

* Action Item – Input Needed for GCD requirement from Utilities Commission

# FOG Program

- General Permit Components:
  - Inspections
    - Annual inspections
      - Implementation of BMPs
      - GCD service
  - Record Compliance
    - Inspections
    - Free Training for employees
    - Service records
    - Fogbmp.com
  - Testing: In severe cases

# FOG Program

- General Permit:
  - *Fee structure options:

    Option A: Annual fee of $200, no additional.

    **Option B: Annual fee of $100, reinspection fee of $50. (Recommended)**

    Option C: Annual fee of $0, reinspection fee of $100.

    Option D:  None.

* Action Item – Input needed for permit fee implementation from Utilities Commission

# FOG Program

## Other Locations

| Location | Fee Summary |
|---|---|
| Washington Suburban Sanitary Commission | $537 Annual |
| Town of Culpeper | $250 / 5 year |
| Gloucester County | $40/ Annual and $25 for inspection |
| Prince William Service Authority | None |

# Permit Violations Enforcement Response Plan

| Violation | Response |
|---|---|
| BMP with No Previous | Note on inspection, no further action |
| BMP with Previous | Reinspection |
| GCD or Oil Recycling | Reinspection |
| Reinspection Violation New | Reinspection |
| Reinspection Violation Recurring | Fine, Reinspection |
| Severe Violation / Repeated Recurring | NOV, Fine, Reinspection |
| Unpaid Fine / NOV non-compliance | Suspension of service |

# Permit Violations – Response

- Reinspection:
  - Reinspection fee if approved
  - 3-6 months after fail, or violation
  - No reinspection if proof of correction submitted
  - Will not exceed 4 inspections annually

- * Fine:
  - "Civil-summons ticket", must be approved.
  - Fine:
    - 2 Grease Control Device or Oil Recycling
    - 3 Best Management Practice Violations

- NOV:
  - Sewer buildup, or repeated single violation
  - Requires corrective action plan.

* Action Item – Input Needed for fine development from Utilities Commission

# Permit Violations – Response

- Suspension of Service:
  - Unpaid fees or fines.
  - Immediate danger.
  - NOV non-compliance
- Cost recovery
  - Recoup costs for blockage or cleanup.

# Action Item Discussion

- General Permit
- Permit Fees
- Grease Control Device Requirement
- Fines

Additional Comments / Questions

Jon Brindle
Pretreatment Coordinator
Jbrindle@StaffordCountyVA.gov
(540)658-5123

# Stafford County Department of Public Works

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Presented to Stafford County Utilities Commission November 12th 2019

By: Jon C. Brindle
Stafford County Public Works
Pretreatment Coordinator

# Table of Contents

List of Attachments:

A. Pump Station Pumpout Labor Breakdown
B. FSE Letter.
C. Best Management Practices Handout.
D. FOG and GCD Questionnaire.
E. Pump Station Chemical Trial Photos
F. NOV Pictures
G. NOV Example
H. Residential Water Bill Insert
I. Inspection form

# Abbreviations and Acronyms

| | |
|---|---|
| BMP | Best Management Practices |
| CCTV | Closed Circuit Television |
| DEQ | Virginia Department of Environmental Quality |
| ERP | Enforcement Response Plan |
| FOG | Fats, Oils, and Grease |
| FSE | Food Service Establishment |
| GCD | Grease Control Device |
| GIS | Geographic Information System |
| GP | General Permit |
| NOV | Notice of Violation |
| RFE | Retail Food Establishment |
| SSO | Sanitary Sewer Overflow |
| VDH | Virginia Department of Health |

# Summary

**Overview:**

Fats, oils, and grease (FOG) accumulation in sewer systems is one of the greatest challenges facing municipalities and service authorities globally. In 2018 Stafford County had 13 sanitary sewer overflows and 191 recorded sewer main backups. It is estimated that 50% of these events were caused by FOG buildup. Response and prevention of overflows and backups is extremely costly with an annual estimate for Stafford County over $1.6 million to remove FOG from the collection system. In addition to physical removal several other efforts are taking place including chemical and bioremediation, and commercial and residential outreach. In order to reduce the amount of FOG going into the system it is recommended that Stafford County adopt a comprehensive FOG control program focused on commercial kitchens with the highest potential for illicit discharge.

**FOG Program Proposal:**

The proposed FOG program will consist of three stages. The first stage is the FOG and GCD questionnaire that will be required to be completed and returned by every food service establishment and retail food establishment in the county. This questionnaire has already been distributed county wide. Based on the information provided in the questionnaire and best professional judgement by a county representative all commercial kitchens will be divided into two groups based on their potential to contribute FOG to the sewer system. Establishments with high potential for FOG discharge will be required to comply with a FOG general discharge permit. The general permit will consist of required best management practices, proper grease control device service and maintenance, and annual inspections. It is estimated that approximately 250 establishments will qualify for the general permit. An enforcement response plan for violations will also be detailed within the general permit.

**Items for Approval:**

- Adoption of General Permit
- Permit Fees
- Grease Control Device Requirement
- Violation Fines

# Introduction

Food service establishments (FSEs), and retail food establishments (RFEs) generate thousands of gallons of used cooking oil, grease, and food wastes each day. If this waste is not managed properly it can cause major problems for the FSE and the county. Nearly one half of all sanitary sewer overflows (SSO) are caused by mismanagement of fats, oils and grease (FOG), stemming from blockages of the sewer lines. Stafford County's utilities continue to have excessive blockages and FOG buildup in multiple areas threatening the county's infrastructure and surrounding environment. In 2018 Stafford had 9 SSOs from the collection system that were a high enough volume (excess of 50gal discharge) to require reporting to DEQ, with an additional 4 SSOs that were non-reportable. The field operations crews also responded to 191 recorded backups in the collection system, with an additional unknown number of non-recorded minor backups in 2018. These SSO and backup events represent a significant risk to Stafford's infrastructure, and require substantial investment in labor and equipment in response. Additionally, field operations has crews working daily on preventive maintenance both in the sewer lift stations and the collection system to physically remove FOG buildup before a backup or SSO event occurs.

The prevention of SSOs is a priority for DEQ and is the focus of new requirements issued to Stafford County. Reducing the cost related to FOG abatement is an obvious benefit to the county and is necessary to maintain the sustainability of the utilities department. To reach these goals it is recommended that Stafford adopt a comprehensive FOG control program that includes outreach, education, and formal FOG requirements for commercial establishments. Once FOG is in the system it is difficult to remove or treat for, therefore the overlying goal of this program will be to prevent and reduce the FOG from entering the collection system. Stafford County has established a strict local limit of 100mg/L for oil and grease in commercial discharge. However, without lab testing it is difficult to determine compliance and violations. With the implementation of general kitchen requirements Stafford can enforce the local limit for oil and grease and protect the county's infrastructure and environment without the need for difficult and costly lab testing.

# FOG Related Costs

In Table #1 below you will see the current projected total annual cost for FOG removal from the collection system and pump stations. The response figures are based on the 2018 recorded work totals, and the preventative numbers are from current work schedules reported by the field supervisors. The projected annual total cost is $1,634,900. The majority of this total is from the preventative cleaning and inspection of the sewer line totaling $1,287,000.

Table #1 Details:

A. FOG Factor: This number is the metric used to calculate an adjusted cost total based on the percentage of the associated activity that is attributable to FOG. These numbers were estimated based on responses from the field supervisors. It is estimated that 50% of the backup response and 75% of the preventative work in the sewer system is caused by FOG. The pump station pumpouts are necessary because of the buildup of a "FOG blanket" on the surface of the wetwell that can cause reduced efficiency and significant mechanical interference. Therefore, the FOG factor for the pump station pumpout crews is 100%.

B. Sewer Line Response: A backup response crew consists of 1 CCTV truck ($200/hr) with a 2 person crew ($25/person/hr) and 1 Vacuum / jetter truck ($250/hr) with a 2 person crew ($25/person/hr). The average daytime backup takes 2 hours to clear at a total cost of $1,100 to the county. Additionally, once a month on average there is an event related to a severe blockage (extended work time), occurs at night (overtime), or requires traffic control (additional personal and equipment). These monthly responses have a cost five times higher than the average response at $5,500. It is also estimated that three times a year on average there is an abnormal event that requires a larger response that can exceed a cost $10,000. All of these backup responses were combined and converted into crew hours then included in the total response hours for the year. The totals are 1,952 labor hours and 488 hours for each truck. The cost estimate for backup and SSO response is $134,200.

C. Sewer Line Preventative: Many areas are known to have past backups and are termed as "trouble spots". Trouble spots and heavy contribution areas are the focus of preventative cleaning and inspection to avoid costly backups and SSOs. A preventative crew consists of 1 CCTV and 1 Vac truck crew at the same costs as above. The field operations team has one crew dedicated full time (40hrs/ week) to preventative care and another that averages 20hrs/ week. The combined totals for the year are 12,480 labor hours and 3,120 hours per truck. The estimated cost for preventative FOG cleaning is $1,287,000.

D. Pump Station Pumpout: The pump station maintenance is more variable with each of Stafford's 96 pump stations requiring a different cleaning frequency ranging from bi-weekly to annually, and varying labor times. Also, depending on the size and orientation of the station the pumpout can require a crew of up to five and a single vac truck. The breakdown of the pump station labor requirements is included as Attachment A. The annual totals for the pump stations are 1648 labor hours at $25/hr and 690 vac truck hours at $250/hr. The estimated total for pump station pumpouts is $213,700.

# Table #1

| Description | Time (hrs / yr) | FOG Factor | Cost ($/hr) | Total $/yr |
|---|---|---|---|---|
| Sewer line backup response (crew) | 1952 | 0.5 | 25 | $24,400 |
| Sewer line backup response (tv truck) | 488 | 0.5 | 200 | $48,800 |
| Sewer line backup response (vac truck) | 488 | 0.5 | 250 | $61,000 |
| Sewer line routine / preventative (crew) | 12480 | 0.75 | 25 | $234,000 |
| Sewer line routine / preventative (tv truck) | 3120 | 0.75 | 200 | $468,000 |
| Sewer line routine / preventative (vac truck) | 3120 | 0.75 | 250 | $585,000 |
| Pump station pumpout (crew) | 1648 | 1 | 25 | $41,200 |
| Pump station pumpout (vac truck) | 690 | 1 | 250 | $172,500 |
| **Total:** | | | | **$1,634,900** |

# Current FOG Control Efforts

Physical removal of FOG will probably always be necessary as the primary solution once FOG discharge has entered the collection system. Nevertheless additional efforts are ongoing to limit the FOG in the system and prevent prohibited discharge. A survey of all food service and retail food establishments was performed in 2019, and a FOG educational packet was then individually distributed to these establishments. Field crews are performing sewer line video surveys of potential areas of concern and specific instances of violations are being dealt with accordingly. Additionally, several attempts have been made at chemical and bioremediation of FOG in the collection system with some success.

A. Physical Removal: In the past the physical removal of FOG was the only option available to Stafford to address the FOG buildup in the collection system. As detailed above this process is very expensive and time consuming resulting in over 16,000 labor hours annually. The objective of all other FOG control efforts is to minimize the amount of fats, oils, and grease going into the collection system, or breakdown the FOG buildup already present thereby reducing the need for responsive or preventive FOG removal.

B. FSE and RFE Survey: In 2019 a survey of Stafford County was conducted to identify every Food Service Establishment and Retail Food Establishment within the county connected to the sewer system. This was first done as a desktop exercise cross referencing VDH lists and internet searches with GIS maps. Then a physical survey was conducted to verify locations and operational status. The final total was 386 FSE, and RFE including county facilities tied to the collection system. This survey was then used for the FOG educational packet distribution.

C. FOG Packet: Between April and September 2019 a Stafford County Kitchen FOG Packet was hand delivered to every FSE and RFE connected to the county sewer system, and signed for delivery. The distribution was completed in 8 stages based on geographic areas. This packet included four items: 1. The business card of the Pretreatment Coordinator 2. A letter from the office of the Director of Public Works (Attachment B) 3. The Kitchen Best Management Practices (Attachment C) and 4. The FOG and GCD Questionnaire (Attachment D). The purpose of this packet is multifold with the objective to educate the business community of the issues FOG causes in the collection system, inform and remind them of ways around the kitchen to avoid FOG discharge and comply with county code, serve as a notification that the county was beginning to look into FOG related issues and to distribute and require the return of the FOG questionnaire.

D. FOG Questionnaire: The return of the FOG and GCD Questionnaire is the first step in the proposed formal program that is outlined below. The questionnaire includes basic contact information, questions regarding the type of kitchen, and information about the establishments' grease control device and oil recycling service if applicable. As of October 2019 the return rate was approximately 35%. Multiple follow-up mailings have been sent reminding the establishments that they are past due for the form submission and providing them with an additional copy of the questionnaire.

E. Chemical Trials: As a supplemental strategy to physical removal Stafford is continuing with several chemical treatment trials designed to reduce and prevent FOG buildup both within the collection system and sewer pump stations. The pump station trials have proven effective. Pictures from the most recent short term trial (08/2019 – 09/2019) at the Ebenezer Church pump station are included in Attachment E. The pump station can be seen to have almost 50% FOG blanket reduction with less then one month treatment. Stafford has one long term chemical treatment being performed at the Garrison Woods pump station with continued success keeping the FOG blanket minimal and liquefied (pictures in Attachment E). It is estimated that continuous treatment can reduce the necessary pumpout service interval by 50% or more. The treatment trials in the sewer system have been more difficult to quantify. Generally, the field crews have reported a FOG reduction in the treatment areas. However, without frequent visual inspection it is impossible to confirm the effectiveness. Therefore, long term commitment to sewer line treatment will be reevaluated when consistent CCTV crew time is available.

F. Sewer Survey: Field Operations crews are constantly performing CCTV video inspections of the sewer lines for various reasons. Several areas of concern for FOG buildup have been identified based on SSO history and commercial kitchen concentration. After identification, the locations of areas of concern were given to the field supervisors to be added into the CCTV schedule when crew availability permitted. These visual inspections are necessary to identify FOG buildups before they cause backups and SSOs. The inspections of these areas have consistently showed excessive and long term FOG buildup, with some specific incidents requiring additional action. Sewer line jetting is typically performed after inspection. A systematic survey of the collection system will be included as part of a formal Collection System Operation and Maintenance Program that is currently in development. The video survey frequency and CCTV crew availability will be increased with the arrival of a new CCTV truck with an expected delivery date of March 2020.

G. Notice of Violations: Through routine inspections, and SSO investigations there were several instances of egregious violations of Stafford County sewer ordinances discovered with specific regard to FOG discharge. Four Notice of Violation (NOV) letters have been issued in 2019 related to excessive FOG discharge. An NOV is issued when visual evidence has been recorded of excessive FOG buildup around a user's connection to the county sewer line and within the private lateral, and when that lateral belongs to an identifiable single user. Pictures of the violations are included as Attachment F. Stafford has received reasonably positive responses from the issued NOVs resulting in hardware upgrades, GCD service changes, and increased staff training. An example of an issued NOV can be seen in Attachment G.

H. Residential Outreach: Residential users are not subject to federal pretreatment standards and therefore cannot be monitored under the same regulations. Nevertheless FOG buildup in residential areas is of similar concern and requires the same preventative maintenance in some areas. Educational outreach is the county's primary recourse for reducing residential FOG contributions. A webpage has been created at www.StaffordCountyVA.gov/FOG where residents can go to learn basic information about FOG issues and prevention. Several efforts are underway to drive community web traffic to this site including a planned social media campaign, and an insert flyer that has been included in the Oct-Nov water bill cycle. This insert can be seen in Attachment H.

I. Legal Review: At the recommendation of the County Attorney the sewer use ordinance of the Stafford code was reviewed by an outside law firm. There were two purposes to the review. First was to evaluate the current code for discrepancies and updates with specific regard to pretreatment enforcement actions. Second was to advise on potential necessary changes for the adoption of several key proposed sections of a formal FOG program. This review was provided by Aqualaw, and some of the recommendations are included in the following sections.

# Commercial FOG Program Proposal

In order for Stafford County to effectively control the FOG discharge from sewer users with a commercial kitchen it is recommended that the county adopt a formal FOG program. The following is a detailed overview of the proposed program. In order to simplify the process the program has three main features. First is the requirement of the FOG and GCD questionnaire detailed above that has already been distributed throughout Stafford and is included as attachment D. Second is the determination of inclusion under a general permit based on the type of cooking that occurs in the kitchen. Third is the general permit that will streamline and uniformly apply regulations to the necessary establishments to ensure sewer discharge compliance. Violations of the general permit will be enforced by the proposed plan detailed below. With the adoption of the FOG program it will be necessary for Stafford to create a new position to administer the requirements of the program and general permit. (Items marked with ** require individual specific approval or action)

A. FOG and GCD Questionnaire: As previously stated this form has already been distributed to all FSEs and RFEs within the county with service connection to the county sewer system. The return of this questionnaire is mandatory for all establishments. The response to these questions will determine if it is necessary for the establishment to be included under the general permit, or if they can be exempted. It is recommended that failure to return this questionnaire will result in automatic inclusion under the general permit for at least 1 year, with reevaluation occurring before the annual mark if the questionnaire has been returned.

B. Permit Threshold: A criteria will be established for what users will need further regulation. The criteria will be based upon the kitchen use, style of food, and types of fixtures present. The intention of the criteria will be to exclude establishments that are "heat-and-serve" varieties. All commercial kitchens with food preparation that cook food on site will be required to adhere to additional regulations. Based on the information submitted on the FOG questionnaire a county representative will determine if the establishment has a reasonable expectation to produce and discharge grease from the kitchen based upon the established criteria. It is estimated that approximately 250 establishments will fit the criteria requiring inclusion under the general permit.

C. ** General Permit: It is recommended that Stafford County adopt a Wastewater Discharge General Permit for FOG Generators that all establishments meeting the criteria will uniformly be regulated under. Although individual permits are more common place a general permit will establish the same criteria, and be equally

enforceable while saving the county time and labor on administration. A general permit will be drafted with the review of legal counsel once all requirements are finalized. A detailed outline of the proposed Stafford County General Permit for Wastewater Discharges from FOG Generators with pending issues is discussed below. It was recommended during the legal review of the sewer ordinance that a specific authorization of general permit development be added to county code, but may not be necessary for permit development or enforcement depending on the included requirements.

1. **Fees: It is recommended that Stafford County adopt an annual permit fee structure to help recover the cost of program administration. Development of fees is allowed under Stafford County Code. A public hearing will need to be held, and board approval will be required before the adoption of fees. Several potential options are as follows with option B being recommended:

    a. Annual fee of $200, no inspection or reinspection fee. This option will generate an estimated $50,000 and will share the cost of the program equally among all FOG producing establishments.
    b. Annual fee of $100, reinspection fee of $50. This option will generate half the guaranteed revenue, but will recover additional costs from users when reinspection is necessary. (Recommended)
    c. Annual fee of $0, reinspection fee of $100. This option will further shift the cost burden to establishments violating the permit and requiring reinspection, and will eliminate fees to establishments without inspection violations.
    d. None. If the county decides to not collect any fee for the FOG permit the Department of Public Works will absorb the entirety of the program cost.

The following table (Table #2) is a summary of FOG program fees from other localities:

**Table #2**

| Location | Fee Summary |
|---|---|
| Washington Suburban Sanitary Commission | $537 Annual |
| Town of Culpeper | $250 / 5 year |
| Gloucester County | $40/ Annual and $25 for inspection |
| Prince William Service Authority | None |

2. BMP: All establishments regulated under the general permit will be required to implement best management practices to reduce their contribution of FOG to the collection system. These include, but are not limited to: Post "No Grease" signs, train kitchen staff, use sink strainers, and wipe pots and pans before washing.

3. **GCD: It is recommended that all FOG generating establishments included under the permit be required to have a grease control device installed. It is highly unlikely these establishments can achieve discharge compliance without such a device. Most establishments already have these devices installed but approximately 5% of the establishments in the county do not. The estimated cost of a retrofit installation is between $1500 - $8,000 depending on the size and location of the necessary device. Once installed the user will be required to maintain the GCD based on manufacturer recommendations and have it serviced by a registered Kitchen Waste Hauler on the necessary interval to avoid overfilling and passthrough. Copies of the GCD service receipts must be available for inspection or uploaded to the website.

4. Oil Recycling: All establishments that use yellow grease / fryer oil will be required to have access to an oil recycling bin that is regularly serviced by a recycling company.

5. Inspections: All establishments included under the GP will be inspected annually for permit compliance. Inspections will include BMP compliance, GCD and oil recycling container condition, and GCD service records. A copy of the digital inspection form from fogbmp.com is included as Attachment I.

6. Website: Stafford County has chosen fogbmp.com as a cloud management solution for the FOG program (not including permitting). Each permitted user will be encouraged to use the website for training and compliance, including uploading proof of GCD service, or having the service company use the online GCD inspection form. There is no additional cost to the user for access to the website, all service fees are paid by the county.

7. Testing: Stafford County will reserve the right to test the users discharge for any sewer ordinance violations when deemed necessary by a county representative. Lab costs for testing may be recovered from the user.

D. Violations: A FOG enforcement response plan will be developed and included in the general permit. The following table (Table #3) is the proposed FOG ERP.

**Table #3**

| Violation | Response |
|---|---|
| BMP with No Previous | Note on inspection, no further action |
| BMP with Previous | 1. Reinspection |
| GCD or Oil Recycling | Reinspection |
| Reinspection Violation New | Reinspection |
| Reinspection Violation Recurring | 2. **Fine, Reinspection |
| Severe Violation / Repeated Recurring | 3. NOV, Fine, Reinspection |
| Unpaid Fine | 4. Suspension of service |

1. Reinspection: A reinspection will take place within three to six months after a failed inspection or violation date, not to exceed four inspections annually. BMP violations will only require reinspection if the same specific violation appeared on the establishments previous inspection. Any violation regarding the GCD or oil recycling will result in a reinspection on the first violation. A reinspection (and any associated fees) for a single violation could be avoided if the user submits proof of corrective action before reinspection occurs.

2. ** Fine: Currently the only way for Stafford County to enforce a fine is to file a criminal action against the party in question. It is recommended that Stafford County adopt a "civil-summons ticket" authorization into the county code. This will allow a fine (similar to a traffic ticket) to be applied as an administrative penalty without the need for criminal proceedings. As shown in Table #3 a fine will only be administered after two or three failed inspections depending on the nature of the violation. If possible the fine will be included in the establishments' water and sewer bill after notification.

3. NOV: A notice of violation letter will be issued for severe violations of the sewer ordinance requiring more immediate action, or continued recurring permit inspection violations. An example would be excessive grease buildup being discovered coming from the establishment into the sewer main that could lead to a blockage. The NOV will require response with submission of a remediation plan and proof of service receipts if applicable.

4. Suspension of service: Sewer or water service will be suspended for an unpaid fine in accordance with the past-due bill cutoff SOP.

5. Cost Recovery: In the event that an establishment's violation requires action by the county directly attributable to the violation Stafford County reserves the right to recover the cost of remediation action. Costs can include county labor and equipment and/ or necessary contracted services. Cost recovery is currently authorized for in the county code.

E. FOG inspector: It will be necessary for Stafford County to create and staff the position of FOG inspector or technician. This position will report to the Pretreatment Coordinator and will be responsible for approximately 250 annual inspections plus necessary reinspections, and administration of the website and submitted records.

# Necessary Actions

In order to proceed with the development and implementation of the finalized FOG program several actions must be taken or decisions made.

1. Adoption of the general permit: The recommendation for the development of the general permit must be approved. A general permit is the most efficient way to uniformly administer all ordinance requirements to contributing users. Changes to the code may be necessary depending on the recommendations of further legal review.

2. Fees: A permit fee structure must be decided upon (if any) and approved. The development of fees is currently allowed for in Stafford code. A public hearing and board approval must take place before the adoption of any fees. Permit fees are recommended in order for the county to recover the costs associated with the administration of the general permit, and inspections.

3. GCD: It is necessary to decide if the county will choose to make installation of a grease control device a formal requirement for establishments. It is possible to retroactively require installation after a violation has occurred, but it is recommended to make GCDs a standard requirement as opposed to waiting for an potential incident. It is estimated that less than 5% of qualifying kitchens do not have a GCD.

4. Fines: In order to effectively and efficiently administer the general permit and sewer ordinances it is recommended that Stafford County adopt a "civil-summons ticket" that can be applied as an administrative penalty without the need for a criminal proceeding. The authorization for the development of these fines will need to be included in the county code.

   Legal review: The adoption of the FOG program, development of the general permit, and associated requirements, as well as corresponding changes to the county code will need to be reviewed and drafted with the help of legal counsel.

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment A.

Pump Station Pumpout Labor Breakdown

| | PUMP STATION | VAC SCHEDULE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 Weeks | | People | Time(Hr) | | 3 Months | | People | Time(Hr) |
| | | | | | | | | |
| AQUIA @ CRUISER | | 3 | 1 | | BOSUM COVE | | 2 | 1 |
| AQUIA @ DEWEY | | 3 | 2 | | CHANNEL COVE | | 2 | 1 |
| STONEBRIDGE | | 3 | 1 | | DENRICH ROAD | | 2 | 1 |
| CAMP BARRETT | | 3 | 2 | | HARBOUR DR | | 2 | 1 |
| PATRIOTS LANDING | | 2 | 1 | | NAUTICAL COVE | | 2 | 1 |
| ROWSER | | 2 | 1 | | PORTUGAL DR | | 2 | 1 |
| ROYAL CRESCENT | | 3 | 1.5 | | TITANIC DR | | 2 | 1 |
| VILLAGE PARKWAY | | 3 | 1.5 | | COUNTRY RIDGE | | 2 | 1 |
| | | | | | HICHORY RIDGE | | 2 | 1 |
| Monthly | | | | | PERRY FARMS | | 2 | 1 |
| | | | | | UPPER ACCOKEEK | | 4 | 2 |
| COURTHOUSE | | 3 | 1 | | WYCHE IND PARK | | 2 | 1 |
| EASTERN VIEW | | 2 | 1 | | ARGYLE GRINDERS | | 2 | 1 |
| EBENEZER CHURCH | | 2 | 1 | | CELEBRATE VA | | 4 | 2 |
| FRED CHRISTIAN SCH | | 3 | 1 | | CELEBRATE VA 5 | | 2 | 1 |
| GARRISON WOODS | | 2 | 1 | | CELEBRATE VA 8 | | 2 | 1 |
| HERITAGE OAKS #1 | | 2 | 1 | | DEACON RD EST | | 3 | 1 |
| HERITAGE OAKS # 2 | | 2 | 1 | | LEELAND STATION | | 3 | 1 |
| ARGYLE HILL | | 2 | 1 | | LEELAND SWITCHYARD | | 2 | 1 |
| CELEBRATE VA GRINDER | | 2 | 1 | | SMITH ST | | 2 | 1 |
| HILLCREST TERRACE | | 2 | 1 | | SWEETBRIAR WOODS | | 2 | 1 |
| OLD RT 3 | | 3 | 2 | | | | | |
| | | | | | 6 Months | | | |
| 2 Months | | | | | | | | |
| | | | | | ANCHOR COVE | | 2 | 1 |
| AQUIA @ GATE | | 2 | 1 | | AQUIA @ BRIDGE | | 4 | 1 |
| AQUIA @ STABLES | | 2 | 1 | | AQUIA @ CLIPPERSHIP | | 3 | 1 |
| DELEWARE DR | | 2 | 1 | | AQUIA @ CUTTER | | 3 | 1 |
| DEWEY DR | | 2 | 1 | | AQUIA @ LUSITANIA | | 3 | 1 |
| JOLLY ROGER | | 2 | 1 | | FORESAIL COVE | | 2 | 1 |
| POTOMAC DR | | 2 | 1 | | HILLDRUPS | | 3 | 2 |
| POTOMAC HILLS | | 2 | 1 | | NTH STAFFORD IND PK | | 3 | 1 |
| AUTUMN RIDGE | | 2 | 1 | | STAFFORD HOSPITAL | | 3 | 1 |
| AZALEA WOODS | | 2 | 1 | | GLENWOOD FOREST | | 2 | 1 |
| DEBRA DR | | 2 | 1 | | STAFFORD MID SCH | | 2 | 1 |
| DUN ROVIN | | 2 | 1 | | ARGYLE LAKESHORE | | 2 | 1 |
| OAKS OF STAFFORD | | 2 | 1 | | CANNON RIDGE | | 2 | 1 |
| SUMMERWOOD | | 2 | 1 | | HOOF & CLAW | | 2 | 1 |
| SUNNINGDALE MEADOWS | | 2 | 1 | | INGLESIDE | | 2 | 1 |
| BOSCOBEL WOODS | | 2 | 1 | | RIVER ROAD | | 2 | 1 |
| CLEARVIEW | | 2 | 1 | | STAFFORD LAKES | | 2 | 1 |
| DAYS INN | | 2 | 1 | | TRIDEX | | 2 | 1 |
| DEACON WOODS | | 2 | 1 | | LITTLE FALLS VILLAGE | | 2 | 1 |
| GEICO | | 3 | 1 | | | | | |
| STRATFORD PLACE | | 2 | 1 | | | | | |

| | PUMP STATION | VAC SCHEDULE | |
|---|---|---|---|
| 1 Year | | People | Time(Hr) |
| | | | |
| IRONSIDE COVE | | 2 | 1 |
| GARRISONVILLE | | 3 | 2 |
| POTOMAC CREEK | | 3 | 2 |
| CEDAR BLUFF | | 2 | 1 |
| FERRY FARM | | 2 | 1 |
| HERITAGE COMM CTR | | 3 | 1 |
| TYLERTON LEONARD | | 2 | 1 |
| TYLERTON RUMFORD | | 2 | 1 |
| | | | |
| As Needed | | | |
| | | | |
| AQUIA CREEK | | 5 | 3 |
| FALLS RUN | | 3 | 2 |
| CLAIBORNE RUN | | 3 | 2 |
| AUSTIN RUN | | 3 | 2 |
| | | | |

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment B.

FSE Letter

STAFFORD Virginia

**Board of Supervisors**



May 6, 2019

Dear Stafford County Food Service Owner / Manager,

Under Stafford County Code Chapter 25 Article X, all commercial contributors to the publicly owned treatment works (POTW) shall remain compliant with federal, state, and local laws, local limits, and national pretreatment standards. Stafford County has established the new office of Pretreatment Coordinator in the Department of Public Works to help manage all sewer discharges before they reach the waste water treatment plants (WWTP). Jon Brindle has been chosen to fill the coordinator position. Jon comes to Stafford with a background in industrial wastewater treatment, and is eager to work with local businesses to develop a comprehensive pretreatment program that will help keep Stafford in compliance with federal and state regulations, while maintaining a healthy sewer system, and reducing infrastructure failure.

Fats, oils, and grease (FOG) management is one of the largest challenges for POTWs and food service establishments alike. Recently there have been several sewer backups in the county that have been directly attributed to unnecessary FOG buildup. Backups can cost the county in excess of $20,000 per event, potentially resulting in private property damage and sewage discharge to the environment. These events pull resources from other projects and can lead to higher sewer rates and fines. FOG is also difficult to treat at the WWTP, and in high volumes or concentrations could cause the plant to fall out of permit compliance. The two enclosed documents will help Stafford County work with our local businesses to reduce and eliminate these backups, and maintain the health of the POTW.

The Best Management Practices (BMP) handout was developed from industry standards and will help you eliminate FOG discharge to the county's sewer system. **Stafford County is asking all food service establishments to implement applicable BMPs as soon as reasonably possible**. The grease control questionnaire will help the county identify high FOG volume focus areas for preemptive action against blockages. **Please return the questionnaire form to Jon Brindle at the address listed below within 30 days of receipt of this letter**. If you have any questions please call or email Mr. Brindle, and he will be happy to help. Thank you in advance for your cooperation.

Sincerely,

Jason D. Towery, PE
Director of Public Works

Jon C. Brindle
Stafford County Pretreatment Coordinator
71 Coal Landing Road, Stafford, VA 22554
(540)658-5123
JBrindle@StaffordCountyVA.gov

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment C.

Best Management Practices Handout

# Stafford County Department of Public Works

# Kitchen Best Management Practices
## Guidance for Food Service Establishments

**Introduction**

Food service establishments (FSEs) generate thousands of gallons of used cooking oil, grease, and food wastes each day. If this waste is not managed properly it can cause major problems for the FSE and the county. Nearly one half of all sanitary sewer overflows are caused by mismanagement of fats, oils and grease (FOG), leading to blockages of the sewer lines. Stafford County's utilities continue to have excessive blockages and FOG buildup in multiple areas. As a contributor to the Stafford County Publicly Owned Treatment Works (POTW) you are being requested to implement kitchen Best Management Practices (BMPs). This guidance is an introduction to the BMPs you will be expected to implement and suggestions for proper maintenance of your Grease Control Device (GCD). The grease trap/interceptor owner's manual should be consulted for additional information regarding the specific maintenance and flow restrictions of your device. This guide does not supersede manufacturer recommendations for GCD maintenance. If you believe the two to be in conflict please contact, Jon Brindle with Stafford County (contact info below).

**Best Management Practices**

These best management practices will minimize the amount of grease, and solids that are discharged from your FSE to the wastewater collection system. Following the BMPs may decrease the frequency the GCD needs to be cleaned, reduce or eliminate fines for discharging out of compliance waste into the POTW, and help prevent sanitary sewer overflows inside the establishment, and to the environment.

Best Management Practices include, but are not limited to:

1. Implement a training program to educate kitchen staff and other employees on the relevant best management practices and the impacts of grease on the sewer system.

2. Post "**NO GREASE**" signs above sinks and on the front of dishwashers.
3. Recycle all yellow grease (fryer oil); **DO NOT** dispose of in sanitary sewer.
4. Wipe and/or scrape excess grease and food materials from dishes into trash.
5. Wipe pots, pans and other kitchen utensils with disposable or off-site laundered towels. A cloth towel that is used and then cleaned on site does not prevent FOG from entering the sewer system.
6. Always use sink basket strainers to collect food wastes.
7. Eliminate the use of garbage disposals and food grinders.
8. Dispose of food waste by recycling and/or solid waste disposal. Food sediments in the water flow will quickly use up the space in a grease trap/interceptor and will require more frequent cleaning.
9. Use water temperatures of less than 140 °F in all sinks. Temperatures in excess of 140 °F will dissolve grease, but it will quickly solidify in the sewage collection line causing a blockage. Discharge in excess of 140 °F is a violation of Stafford Code.
10. Do not discharge caustics, acids, or any other concentrated bulk chemical, to the wastewater collection system.
11. Do not use chemical sewer line clog treatment.
12. Follow manufacturer recommendations for GCD cleaning and maintenance.

**Grease Traps**

A grease trap is a low flow device that is installed inside a building or under the sink to separate and retain grease and solid material from the waste stream. The balance of the water is then allowed to discharge to the collection system. Baffles in the system slow the flow and allow the grease and solids to separate and congeal on the surface. Traps generally have a removable lid on the top to facilitate inspection and cleaning of the device. Maintenance staff or other employees of the establishment are usually charged with performing grease trap maintenance. Grease traps should be cleaned at least weekly and sometimes daily. A record of the maintenance shall be kept for at least three years and produced upon request by a county representative. Grease traps may be considered adequate for light grease removal at existing establishments but are not allowed in new construction of heavy discharge FSEs. Any facility having issues with grease trap maintenance, cleaning frequency, or backups should consider installation of a high flow grease interceptor.

Maintenance Instructions:

1. Bail any water in the trap and discharge to the wastewater collection system.
2. Remove baffles if possible.
3. Collect the accumulated grease out of the trap and place in a watertight container.
4. Scrape the sides, lid and baffles with a putty knife to remove as much grease as possible and place in a water tight container.
5. Contact a hauler or recycler for grease pick-up or dispose of through solid waste procedures.
6. Replace the baffles and the lid

7. Record maintenance
    a) Date of maintenance
    b) Person performing maintenance
    c) Estimated volume of grease removed
    d) Disposal location/vendor
    e) Managers signature or initials for verification

**Grease Interceptors**

Grease interceptors are similar to grease traps in design but are larger for higher flow rate, and are installed outside the building. Grease interceptor maintenance is usually performed by a permitted grease pumper/hauler. The pumper's will empty the entire contents of the interceptor with the pumper truck and haul the grease and sludge to an approved disposal or recycling site. A record of the maintenance shall be kept for at least three years.

Maintenance Instructions:

1. Contact a grease hauler or recycler for cleaning.
2. Record maintenance including the following:
    a) Date of maintenance
    b) Company / Person performing maintenance
    c) Estimated volume or weight of grease removed
    d) Disposal location/vendor
    e) Managers signature or initials for verification
3. Retain receipt or manifest of grease pumper or recycler

**Inspections**

Your facility will be inspected periodically to ensure proper GCD maintenance and cleaning, and sewer discharge compliance. In order to assist with a quick inspection please maintain a file containing copies of the plumbing schematics, grease trap/ interceptor owner's manual, any permits issued and all invoices, bills, logs etc. related to the maintenance of the GCD. In general, with the exception of reasonable suspicion, a facility's discharge will be considered in compliance if adequate GCDs are properly maintained and proof of BMP compliance can be seen at time of inspection.

For Questions Please Contact:

Jon C. Brindle
Stafford County Pretreatment Coordinator
71 Coal Landing Road, Stafford, VA 22554
(540) 658-5123
JBrindle@StaffordCountyVA.gov

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment D.

FOG and GCD Questionnaire

# Stafford County Department of Public Works

## Fats, Oils, and Grease (FOG) and Grease Control Device (GCD) Questionnaire

1. Company Name: _____
2. Company Contact: _____
3. Mailing Address: _____
4. Telephone Number: _____
5. Email Address: _____
6. Facility Name: _____
7. Location Address: _____
8. Hours of Operation: _____
9. Facility Contact: _____
10. Facility Telephone #: _____
11. Email address: _____
12. Is there food preparation on the premises? _____Yes _____ No ( If No, please skip questions 13 - 21 and sign below.)
13. Primary Kitchen Use: (*Check all that apply*)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Coffee House | | Grocery / Catering | | Buffet | | Grill / Diner |
| | Ice Cream/Smoothies | | Day Care | | School Cafeteria | | Convenience Store |
| | Pizza | | Italian | | Corporate Cafeteria | | Steakhouse |
| | Fast Food | | Hotel/Motel | | Asian / Stir Fry | | Seafood |
| | Deli | | BBQ | | American | | Mexican / S. American |
| | Other: | | | | | | |

14. Number of Fixtures: (*Give number of each*)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Deep Fryers | | 3-Compartment Sinks | | Tilt Kettles | | Wok Ranges |
| | Grills | | 2-Compartment Sinks | | Garbage Disposals | | Pre-wash Sinks |
| | Ovens | | 1-Compartment Sinks | | Dishwashers | | Mop Sinks |
| | Stove | | Flat Top / Griddle | | Broiler | | Smoker |

15. Grease Control Device (GCD) Location/Type:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Exterior Grease Interceptor | | Interior Under Sink Trap | | Interior Floor Trap | | None |

16. GCD Size in gallons, lbs, or gallons per minute: _____
17. GCD Model (if unknown, leave blank): _____
18. GCD Service Company: _____
19. GCD Cleaning Frequency:

| | | | | | |
|---|---|---|---|---|---|
| | Daily | | Bi-Weekly | | Weekly |
| | Monthly | | Quarterly | | Annually |

20. Yellow/Fryer Grease Recycling Container on site? _____Yes _____No
21. Yellow/Fryer Grease Recycling Company: _____

I, _____, certify that to the best of my knowledge the above information is correct.
*(Print Name)*

_____ _____
*(Signature)* *(Date)*

**Please see directions for completing this form attached or on the reverse side.**

**Directions for completing FOG and Grease Control Device Questionnaire**

This Fats, Oils, and Grease (FOG) and Grease Control Device (GCD) Questionnaire is required to be completed and returned within 30 days after request by Stafford County.

Please follow the directions listed below. If you have any additional questions please contact Jon Brindle, Stafford County Pretreatment Coordinator, at (540)658-5123 or at JBrindle@StaffordCountyVA.gov.

Directions for Form Completion

1. ***Company Name***. This is the name of the company that owns the facility. It can be a parent company, a corporation, or an individual.
2. ***Company Contact***. Name the person to contact regarding the company.
3. ***Mailing Address***. Mailing address of the company.
4. ***Telephone Number***. The company contact's telephone number.
5. ***Email Address***. The email address of the company contact.
6. ***Facility Name***. The name of the facility.
7. ***Location Address***. The physical address of the facility (no PO boxes).
8. ***Hours of Operation:*** The hours the facility is open.
9. ***Facility Contact***. Name of the facility Manager or the onsite person who will be the main contact for interacting with Stafford County Department of Public Works staff.
10. ***Facility Telephone Number***: The telephone number of the facility and/or the phone number of the person listed in #9 above.
11. ***Email Address:*** The email address of the facility and/or the person listed in #9 above.
12. ***Food Preparation?*** Answer yes if any food preparation occurs at the facility.
13. ***Primary Kitchen Use***. Check the box next to the type(s) of food preparation or service most common in the facility. You may check as many boxes as necessary. If "other", please write in a simple description.
14. ***Number of Fixtures***. Please enter the number of each type of fixture used/installed.
15. ***GCD Location/Type***. A large, in-ground GCD located outside the facility should be denoted as an "exterior interceptor". If the GCD is indoors and under the sink, it should be denoted as "interior undersink trap". If the GCD is indoors and under the floor, it should be denoted as "interior floor trap".
16. ***GCD Size***. If the GCD is indoors and aboveground, the size can usually be found labeled on the device. In other cases, the GCD servicing company will be able to provide the approximate volume in gallons. Use an approximate volume if appropriate.
17. ***GCD Model***. If the GCD Model is known, enter here; if not, state unknown.
18. ***GCD Servicing Company***. If an outside company services the GCD, enter the name here.
19. ***GCD Cleaning Frequency***. Enter the frequency (or approximate frequency) that the GCD is cleaned.
20. ***Yellow/Fryer Grease Recycling Container onsite***. A recycling container is the container used to collect yellow grease (fryer oil or any grease that DOES NOT come into contact with wastewater) until it is picked up for rendering. If you have such a container on site, mark "Yes", otherwise, mark "No".
21. ***Yellow/Fryer Grease Recycling Company***. Enter the name of the company contracted to pick up yellow grease for recycling if you answered "Yes" to #20 above.

**Please complete this form and submit to:** (Scan and Email, Fax, Mail, and Delivery are all acceptable)

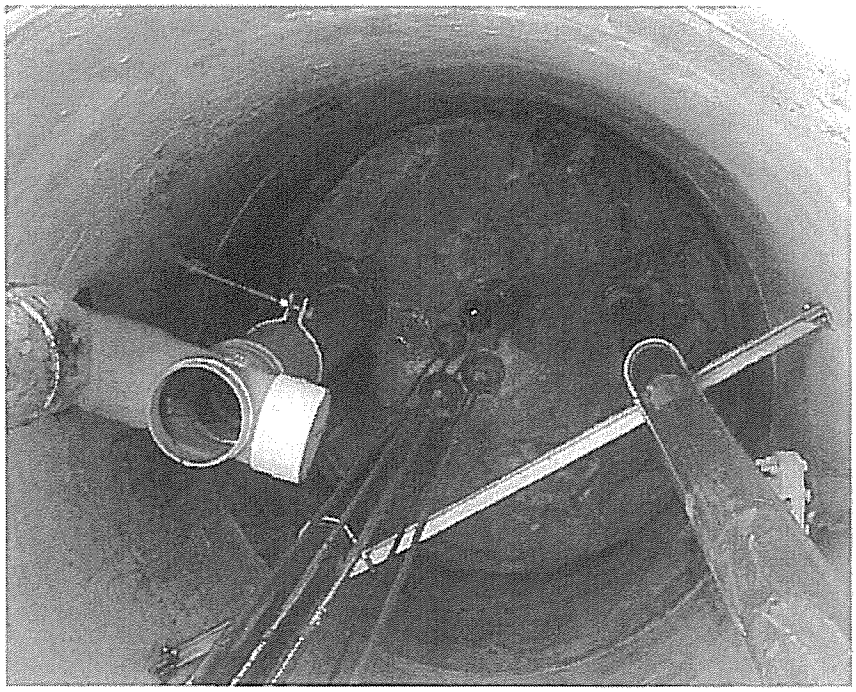
Jon C. Brindle
Stafford County Pretreatment Coordinator
71 Coal Landing Road
Stafford, VA 22554
T: (540)658-5123
F: (540)658-4825
JBrindle@StaffordCountyVA.gov

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment E.

Pump Station Chemical Trial Photos

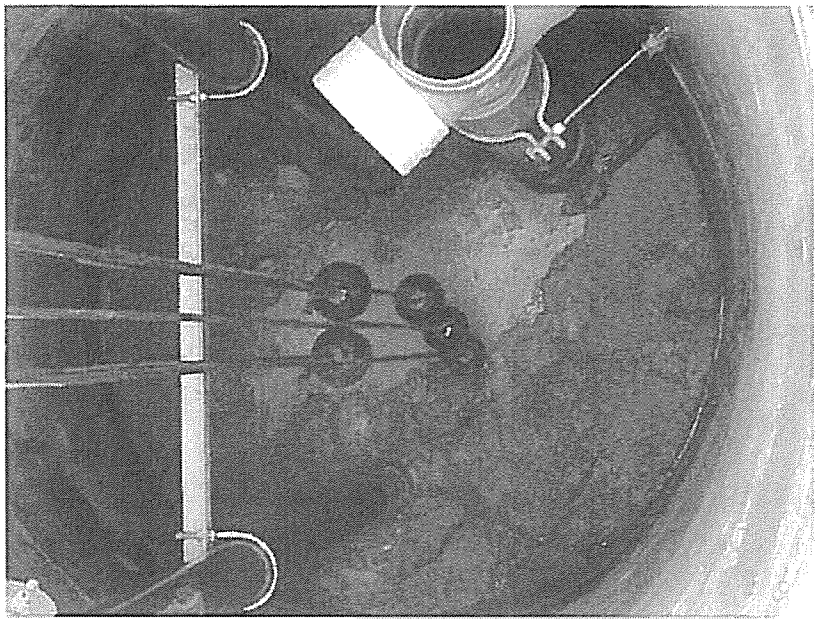
Ebenezer Church Pump Station Chemical Trial - Ecotabs



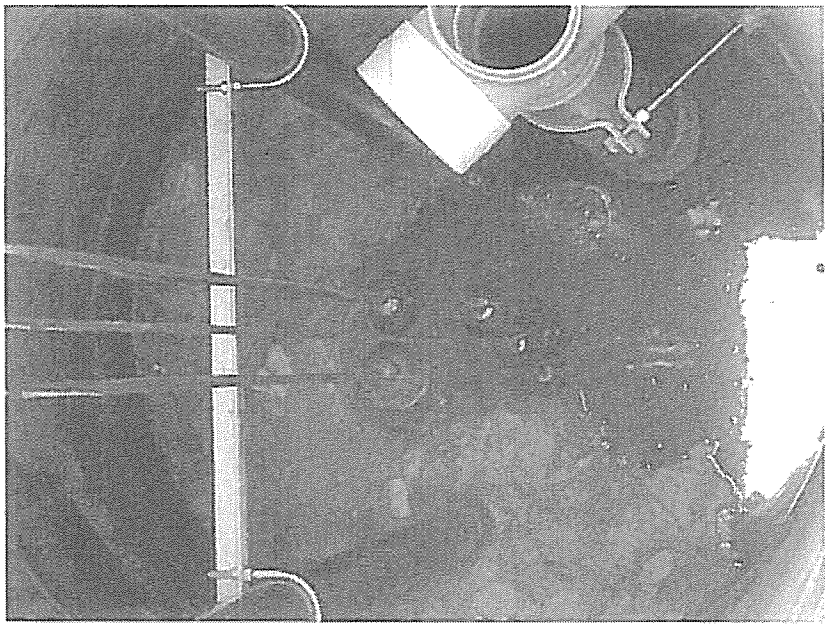
8/20 full coverage (95%)

8/22 – 90%

Ebenezer Church Pump Station Chemical Trial - Ecotabs

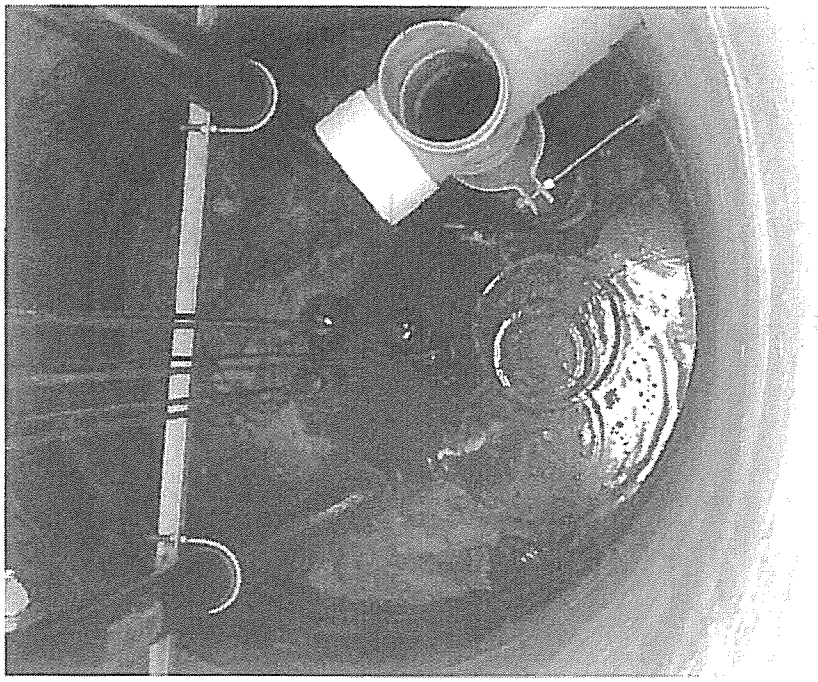


8/27 - 80%



9/6 – 75%

Ebenezer Church Pump Station Chemical Trial - Ecotabs

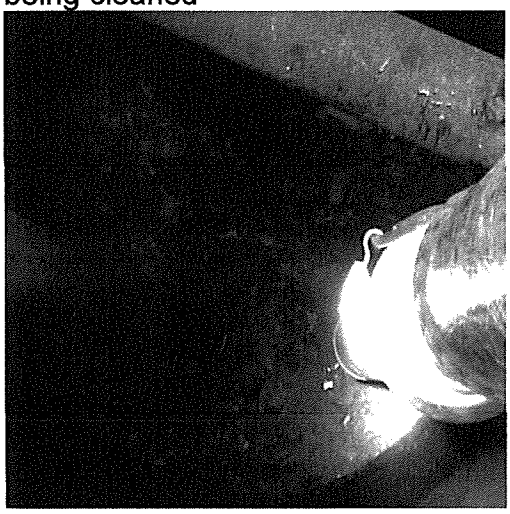


9/12 – 50%

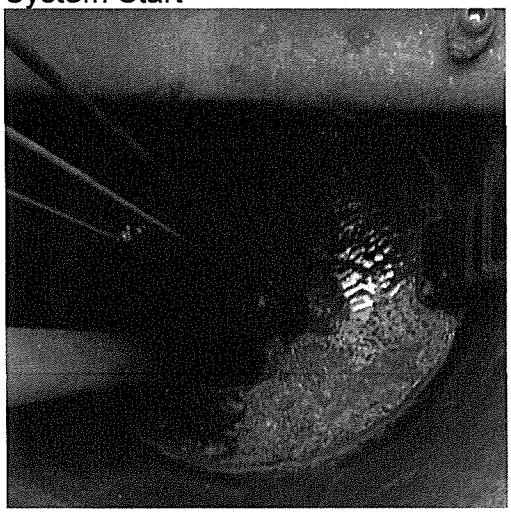
SOLEROX

The Following images are from a 10 week trial with Stafford County Utilities in Virginia. Garrison Woods PS is a particular problem for Stafford, needing to be cleaned ever 10 days. FOG often congealing into a mass 3 inches or thicker in that period of time.

Before Treatment- 2 weeks after being cleaned



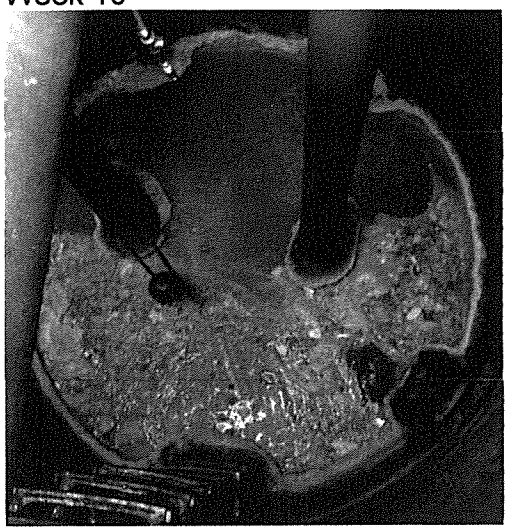
System Start



Week 1

Week 4

Week 10

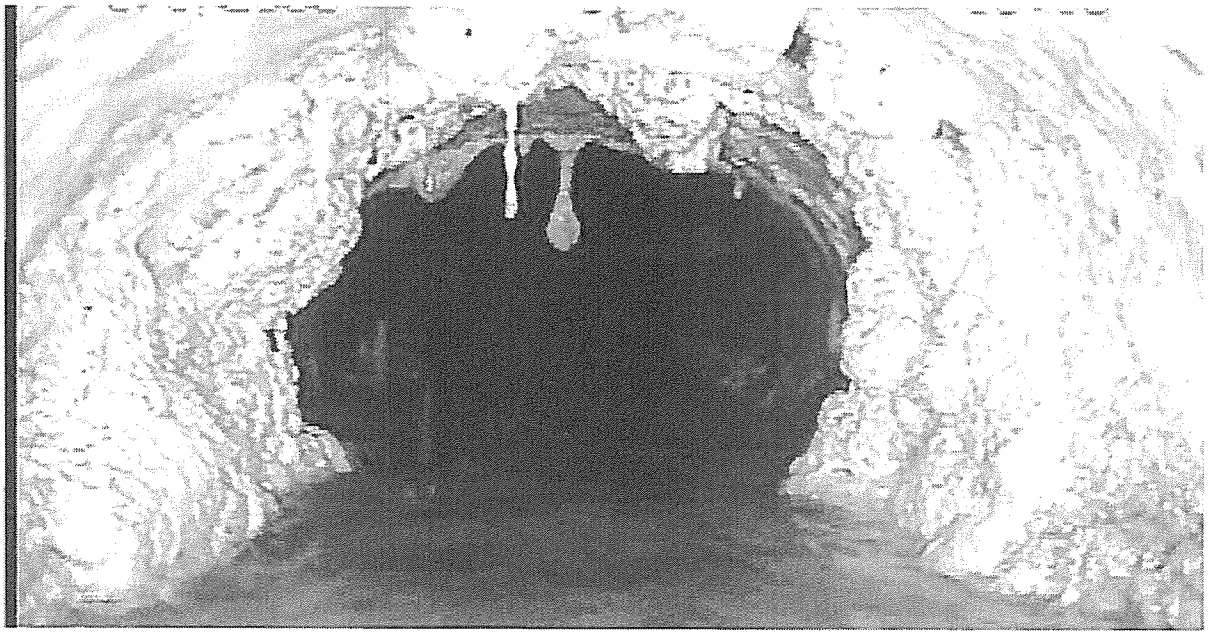


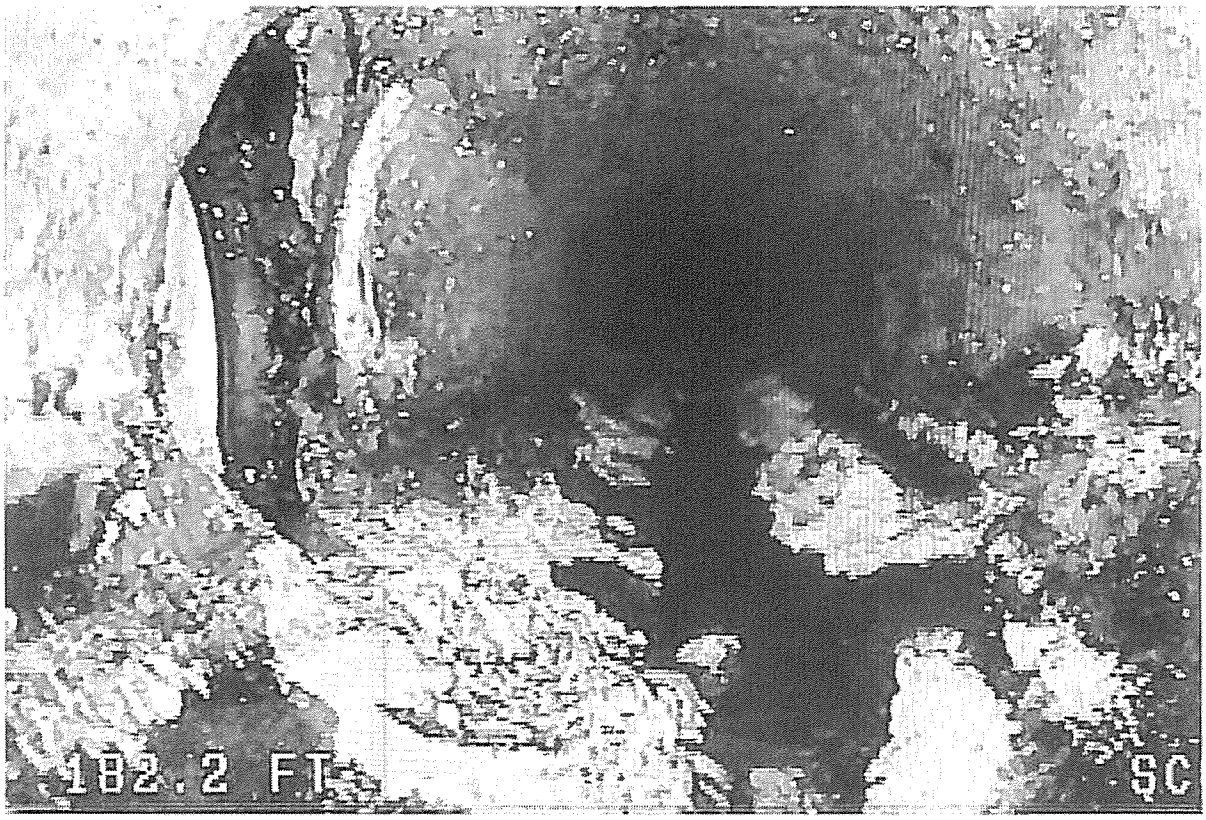
# Fats, Oils, and Grease Control Report and FOG Program Proposal

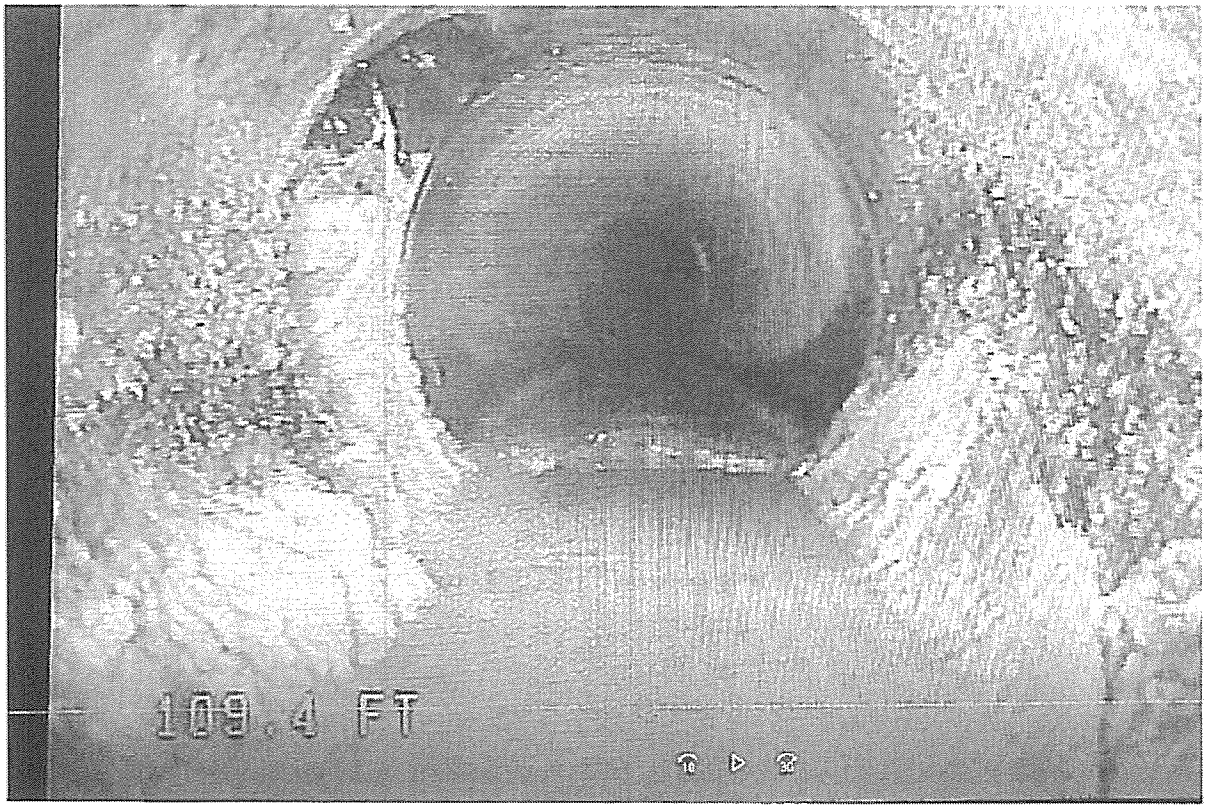
Attachment F.

NOV Pictures

NOV Pictures. 4 different establishments.




182.2 FT
SC


109.4 FT

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment G.

NOV Example

STAFFORD Virginia

**Board of Supervisors**



# Notice of Violation

May 7, 2019

[redacted]

Re: [redacted] Sewer Discharge Violation

Under Stafford County Code Chapter 25 Article X.199.b *Specific Prohibitions* "No user shall introduce or cause to be introduced into the POTW" (17) "Fats, oils, or greases of animal or vegetable origin in concentrations which may cause blockages in the POTW or which exceed the local limit established for oil and grease". On February 14th 2019 there was a sanitary sewer overflow directly downstream of your location ([redacted]) that resulted from a blockage caused by grease (see attached overflow report). On April 22nd, 2019 a crew was able to inspect the sewer line and found excessive fat, oil, and grease buildup around and inside the sewer connection coming from your business (see attached pictures).

The establishment must immediately implement all best management practices necessary to achieve sewer discharge compliance. A representative must submit an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to the Stafford County Pretreatment Coordinator, within 10 business days of receipt of this notice. With the submission of the corrective action plan please include at least 3 years (04/2016 – 04/2019) of invoices from your grease control device services. To prevent a backup inside the restaurant, it is also recommended that the establishment have a professional service clean the sewer line up to the junction with the county line.

Thank you in advance for your compliance. If you have any questions please contact me at (540) 658-5123, or via email at JBrindle@StaffordCountyVA.gov.

Sincerely,

Jon C. Brindle
Pretreatment Coordinator
Stafford County Public Works - Utilities Operations
71 Coal Landing Road, Stafford, VA 22554
(540) 658-5123
JBrindle@StaffordCountyVA.gov

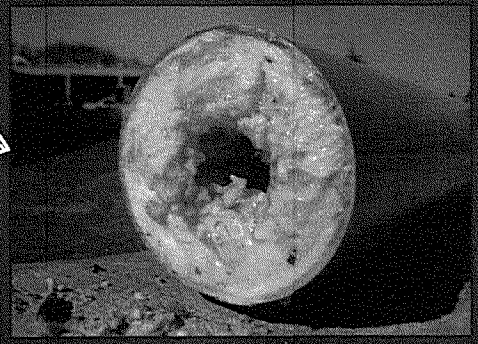
CC: Jason M. Pauly, Deputy Director of Public Works

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment H.

Residential Water Bill Insert

# KEEP FATS, OILS AND GREASE OUT OF YOUR DRAIN



**Grease found in turkey drippings, gravy, eggnog and other holiday favorites do not dissolve in water and stick to the walls of your pipes creating backups and odor problems**

STAFFORD

As you get ready for the holiday season, the Department of Public Works reminds you to

# CAN YOUR GREASE.

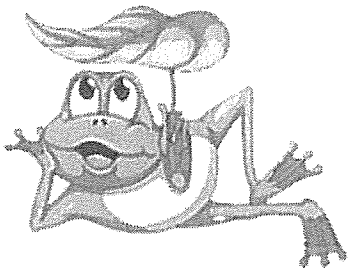
Pouring fats, oils and grease (FOG) down your sink creates blockages in your sewer system which can lead to raw sewage overflowing into your home, expensive repairs and health risks from exposure to contaminates found in sewage. Save your cash and put the grease in the trash.

To learn more visit: www.staffordcountyva.gov/FOG

# Fats, Oils, and Grease Control Report and FOG Program Proposal

Attachment I.

Inspection Form



FOGBMP™

Save. Comply. Sustain.

## FOG Inspection

Date Inspected

Inspector

Food Service Establishment
FOG Inspections -

Address

City

State

Zip

Telephone

Zurn (Internal) - -0.5 GPM / -1 lb

**Trap Inspection Items:**

- Unsecure lid(s)
- Seepage is visibly flowing from device

- [ ] Device is in need of repair
- [ ] Device needs to be replaced
- [ ] Facility does not have a grease separation device
- [ ] Unapproved grease separation device installed
- [ ] Device has excess FOG and or solids

Last Cleaning Record
Cleaned:

Oil Percentage:

Solids Percentage:

Total Percentage:

Condition Satisfactory:

**Please take a photo showing the condition of the Trap at the time of inspection.**

Add a Photo

Inspect/Add another GSD:

---

**Inspection Walkthrough**

- [ ] Perform a walkthrough?

Food Preparation Area

- [ ] Grease spills evident in kitchen
- [ ] Missing or broken floor drain covers
- [ ] FOG handling signage is not posted
- [ ] Hot water temperature is greater than 140 degrees F
- [ ] Screens are missing from drains

Used Cooking Oil Handling

Cooking Oil Recycling Company (optional)

- [ ] Evidence of oils spills
- [ ] Outdoor used oil container lid is open
- [ ] Outdoor grease containers located near storm drains

- [ ] No absorbent materials available in case of oils spills
- [ ] Outdoor used oil container is filled above allowable limit

Kitchen Exhaust Hood

Hood Cleaning Company (optional)

- [ ] Cleaning certification not up to date
- [ ] Evidence of grease on roof top
- [ ] Exhaust system not being cleaned properly to capture FOG

Best Management Practices

- [ ] Excessive food is being disposed of in sink
- [ ] BMPs are not available for employee review
- [ ] Facility does not have licensed waste hauler assigned
- [ ] Scrapers and or dry wiping tools are not available in dish washing area

Training

- [ ] No employee training records available

Other

- [ ] Evidence of floor drains clogged
- [ ] Evidence of prohibited microbial and or enzyme drain treatment found on site.
- [ ] Something not listed above

---

**Attached Files and Photos**

Add Files and Photos

---

Inspection Result

Total Fine Amount:

Issue a Notice of Non-Compliance

- [ ]

Issue a Notice of Violation

Actions taken with FSE

Notes

Inspector Name

Date

Signature

Click to sign above with your mouse/finger

Manager Name

Date

Signature

Click to sign above with your mouse/finger

Save/Submit