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TOMSA

- 10.8 MGD (Rated) Activated Sludge WWTP located in the Belford section of Middletown, NJ
- 350 Miles of underground sewer pipes with over 7,000 manholes
- 14 Pumping Stations with 2 stations pumping over 3 MGD
- Treated effluent sent to the Bayshore Outfall Authority, where it will eventually discharge 1 mile into the Atlantic Ocean.

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Fats, Oils, Grease – What We Know

- FOG wastes are generated at food service establishments (FSEs) as byproducts from food preparation activities.
- FOG captured on-site is generally classified into two broad categories: yellow grease and grease trap waste.
- The annual production of collected grease trap waste and uncollected grease entering sewage treatment plants can be significant and ranges from **800 to 17,000 pounds/year per restaurant!**
- Stubbornly insoluble in water, FOG floats on water and quickly turns into soap in an alkaline medium.
- FOG accounts for 25-35% of total chemical oxygen demand (COD) in raw wastewater flowing into municipal wastewater treatment plants.
- **Each year, FOG is blamed for approximately 4.7% of the United States' 10,350–36,000 sanitary sewer overflows**
- Grease makes aerobic and anaerobic treatment less effective, and subsequently, the lower-quality effluent can threaten aquatic ecosystems and groundwater.
- Costs of maintaining/repairing/replacing all components in your collection system, pumping stations, and treatment plants.

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Typical Offenders

- Restaurants
- Malls
- Grocery Outlets
- Hospitals
- Hotels
- Prisons
- Apartment Complexes
- Private Residences



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National Pretreatment Program

40 CFR 403 – EPA – SUMMARY

- The National Pretreatment Program implements Clean Water Act requirements to control pollutants that are introduced into POTWs
- EPA has promoted General Pretreatment Regulations that require the establishment of State and local pretreatment programs to control pollutants which pass through or interfere with POTW treatment processes or may contaminate POTW sewage sludge.
- The Pretreatment Program regulations at 40 CFR 403.5(b)(3) prohibit "solid or viscous pollutants in amounts which will cause obstruction" in the POTW and its collection system.

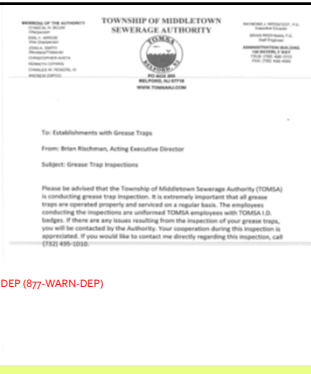
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TOMSA – Policies and Procedures

Grease Trap Inspections:

- Restaurants that have grease traps have their grease traps inspected on an, frequent "as needed", basis.
- Grease traps are opened, and the restaurant owners are asked for their records of pump out services.

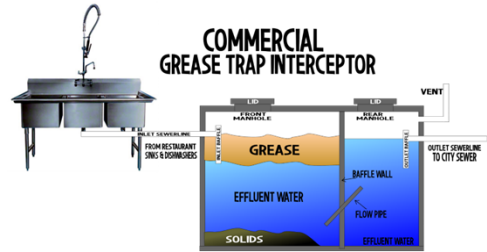
- Businesses that are non complaint are reported to NJDEP (877-WARN-DEP)
- Get a case number from the operator
- DOCUMENTATION IS HIGHLY IMPORTANT.



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COMMERCIAL GREASE TRAP INTERCEPTOR

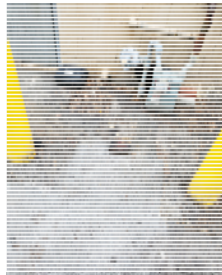


- Inspections
- Documentation
- Accountability

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Grease Trap? Never heard of him.



October 2021. TOMSA Employee witnesses local restaurant dumping food waste grease into catch basin adjacent their building.

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Grease also appeared to be dumped right outside of their back door.

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Heavy grease staining/residue

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Catch basin contents/flow will get to receiving waters.

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Adopt A Grease Control Program – Protect Your ASSETS!

- A program designed to control grease at its source through the use of grease interceptors
- It puts the burden on the generator
- Helps keep grease out of sewers
- Can aid in less frequent issues at pumping stations or treatment plant
- Keep operating costs down

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Routine Inspections

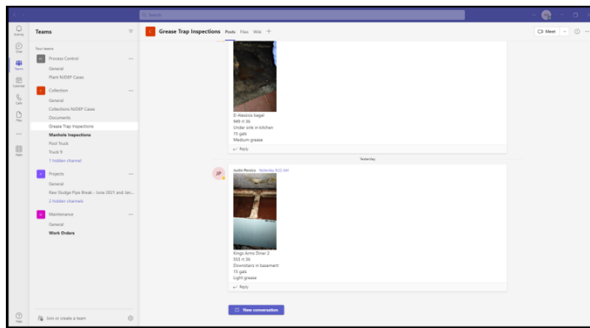
- Identify Problem Areas
- Frequency based on your system/issues
- Be as detailed as you can – Include ANY imperfection
- DOCUMENTATION!!!!!!

MANHOLE	Location	Date	Inspector	Quantity of Solids
1.00	Stop Station			
1.01	Manhole Station			
2.00	Manhole Station			
2.01	Manhole Station			
2.02	Manhole Station			
2.03	Manhole Station			
2.04	Manhole Station			
2.05	Manhole Station			
2.06	Manhole Station			
2.07	Manhole Station			
2.08	Manhole Station			
2.09	Manhole Station			
2.10	Manhole Station			
2.11	Manhole Station			
2.12	Manhole Station			
2.13	Manhole Station			
2.14	Manhole Station			
2.15	Manhole Station			
2.16	Manhole Station			
2.17	Manhole Station			
2.18	Manhole Station			
2.19	Manhole Station			
2.20	Manhole Station			
2.21	Manhole Station			
2.22	Manhole Station			
2.23	Manhole Station			
2.24	Manhole Station			
2.25	Manhole Station			
2.26	Manhole Station			
2.27	Manhole Station			
2.28	Manhole Station			
2.29	Manhole Station			
2.30	Manhole Station			

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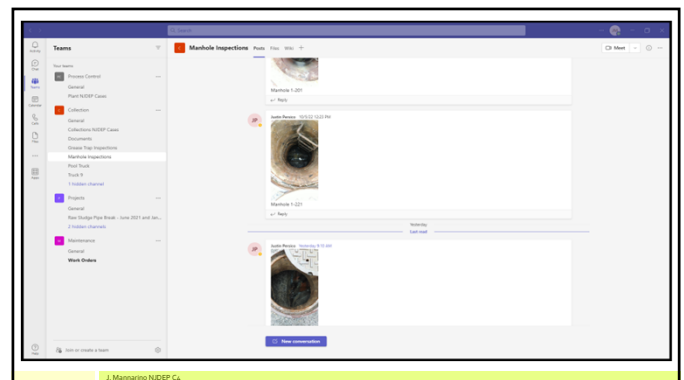
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Documentation



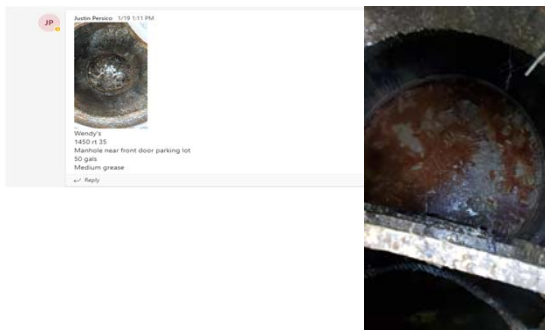
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CCTV



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CCTV Video courtesy of Oswald Sewer Enterprises CO TOMSA

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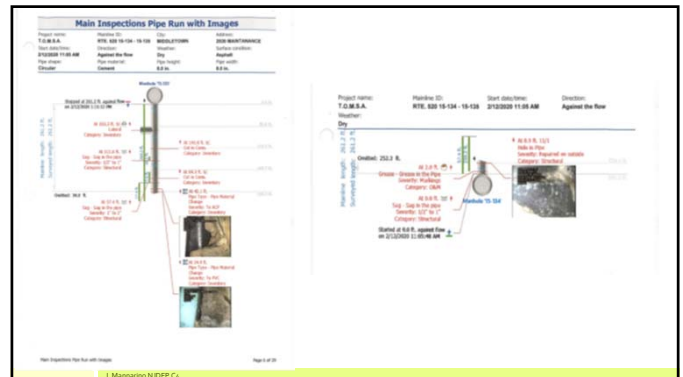
Maintenance

Main Inspections						
Handline ID:	City:	Address:	Project name:			
RTE 520 15-134 - 15-135	MIDDLETOWN	2020 MAINTENANCE	T.O.M.S.A.			
Upstream node:	Downstream node:	Start date/time:	End date/time:			
15.135	15-134	2/12/2020 11:55 AM	2/12/2020 1:11 PM			
Pipe shape:	Pipe material:	Pipe height:	Pipe width:			
Circular	Cement	8.9 in.	8.9 in.			
Asset length:	Surveyed distance:	Reason:	Work order no.:			
261.2 ft.	261.2 ft.					
Operator:	Weather:	Status:				
ANTHONY	Dry	Completed				
Comments:						
DVD 1 PAGE 6						
Observations						
Distance	Ln	Length	From To Code	Modifier/Severity	Rating	
8.9 ft.	U	87.4 ft.	/	Bag	10" to 1"	
2.6 ft.	U	250.2 ft.	/	Grease	Markings	
8.9 ft.	U	11 ft	/	Hole in Pipe	Repaired on outside	
34.9 ft.	U	0 ft	/	Pipe Type	To PVC	
42.1 ft.	U	0 ft	/	Pipe Type	To ACP	
87.4 ft.	U	27.6 ft.	/	Bag	1 1/2" to 2"	
68.3 ft.	U	0 ft	/	Call to Conn.		
115.0 ft.	U	10.3 ft.	/	Call to Conn.	10" to 1"	
145.8 ft.	U	0 ft	/	Call to Conn.		
193.3 ft.	U	0 ft	/	Lateral		

Observations					
Distance	Dr.	Length	From To	Code	Holder/Severity
8.9 ft.	U	97.4 ft.	/	Bag	12" to 1"
2.5 ft.	U	25.2 ft.	/	Grease	Marriage
8.9 ft.	U	11 ft.	/	Hole in Pipe	Repaired on outside
34.9 ft.	U	/	/	Pipe Type	To PVC
42.1 ft.	U	/	/	Pipe Type	To ACP
57.4 ft.	U	27.6 ft.	/	Bag	1" to 2"
65.3 ft.	U	10.3 ft.	/	Bag	12" to 1"
105.9 ft.	U	9 ft.	/	Cut in Conn.	
181.3 ft.	U	9 ft.	/	Latent	

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Repercussions



January 2023 – TOMSA customer basement flooded due to grease back up in main line

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Oil and Grease Removal Systems

FOG Disposal System

- Typically separates F.O.G. Hydraulically but is not required to have effluent quality of 100 mg/L or less with the disposal function active.
- Disposal can be accomplished by thermal, chemical, electrical or, biochemical means.
- "Point-source" installation
- Certified under PCI G-101 and ASME A112.14.6

UPC, Chapter 2 and ASME A112.14.6

208.0 FOG Disposal System - A type 1 or type 2 grease interceptor that reduces non-petroleum fats, oils, and grease (FOG) in effluent by separation, and mass and volume reduction.

FOG Disposal System

Pros vs. Cons

- Pros**
 - Remove solids from the waste stream either with the use of a separate solids interceptor or internally
 - Small relative to the size flow capable of being treated and can be located closer to the FOG source or as high as a small treatment plant.
- Cons**
 - More expensive than hydromechanical interceptors and GRI's.
 - Ongoing operation cost and risk of operating out of compliance.
 - Require attention to solids interceptors and neglect of the solids interceptor can affect performance.
 - If biological cultures are adopted, different concerns as some are not suitable for high loading rates and require regular maintenance.

Source: Grease Removal Systems, Inc.

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Oil and Grease Removal Systems

Grease Removal Device

- Typically separates F.O.G. Hydraulically
- Coalescing Media
- Include Solids Interceptors
- Maintain separation efficiency and reduces operation costs and eliminates pumping charges
- "Point-source" and "End-of-pipe" installations
- Certified under PCI G-101 and ASME A112.14.6 and A112.14.4

UPC, Chapter 2 and ASME A112.14.4

208.0 Grease Removal Device, (GRI) Any grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which may be either automatic or manually initiated.



Grease Removal Device

Pros vs. Cons

- Pros**
 - GRI's have installation versatility as conventional hydromechanical interceptors and can be located near the source (Point-Source) of FOG or with certain systems can be installed "End-of-Pipe".
 - Removes the separated FOG from the vessel and deposits it in a container for transfer and proper disposal.
 - Require less maintenance and operating costs are reduced accordingly.
 - Performance efficiency is not diminished by accumulating FOG.
- Cons**
 - Depending on application, can be more expensive than conventional Hydromechanical Interceptors.
 - Requires solids interception preceding the waste stream and neglect of the solids interceptors can affect functionality.



Source: Grease Removal Systems, Inc.

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Source Control Measures



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GREASY DO'S AND DON'TS

DO'S

- Collect cooking oil and grease in containers and dispose of it properly.
- You can bring used residential cooking oil to the City's Waste Disposal and Recycling Center at no cost.
- Keep grease out of wash water
- Place food scraps in a waste container for solid wastes
- Remove oil and grease from kitchen utensils, equipment, and food preparation areas with scraper/towels/broom

DON'TS

- Pour oil or grease down the drain
- Use hot water to rinse grease off surfaces
- Use the drain as a means to dispose of food scraps
- Wash fryers/griddles, pots/pans, and plates with water until oil and grease are removed

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Flushable, Yes. Biodegradable? Nope.*

Wipes do not break down in the wastewater collection system, as toilet paper does, leading to clogged wastewater pipes and equipment. Contrary to flushable labels on packaging, wipes are not dispersible within the collection system and associated appurtenances. According to the National Association of Clean Water Agencies, flushable wipes cost United States utilities up to \$1 billion annually. Wastewater treatment plants suffer when blockages occur and eventually cost utilities major operation and maintenance expenses.



Toilet Paper after 5 minutes

Wipes after 24 hours

* Until Now? – New Technology from Japan has wipes that breakdown almost as fast as toilet paper!

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There are only **three** things that should be flushed down your toilet:

Pee, Poop, (toilet) Paper.

Whether you call it the loo, the john, or the porcelain throne, keep in mind that it's a toilet, not a trashcan!

Use the **3 P's** to protect your pipes and help you flush smart and save money!



*Tip: Keep a trashcan in your bathroom to easily dispose of non-flushable materials.



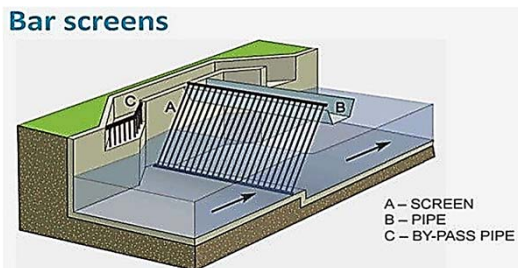
Source: <https://protectyourpipes.org/wipes>

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Dealing with Wipes

Bar screens



A – SCREEN
B – PIPE
C – BY-PASS PIPE

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Comminutors



- Located at TOMSA's 3 largest pumping stations.

- How effective are they?

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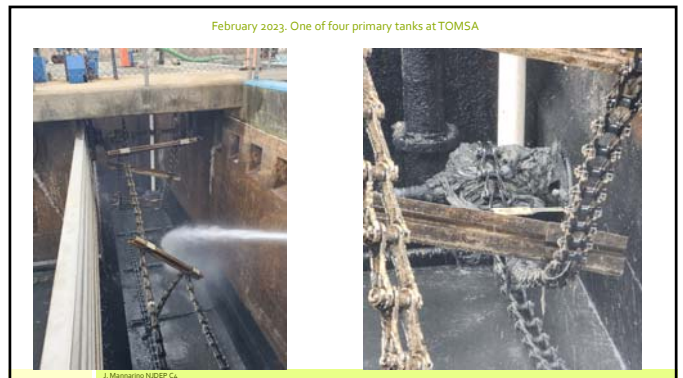
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Rag accumulation on sprockets inside primary tanks.

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February 2023. One of four primary tanks at TOMSA

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ABBA Parts & Service

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