

# 50 Years of Plumbing Codes

- “...grease separators are required where commercial food is prepared, cooked, processed, ...” .
- “...oil separators shall be provided for service stations, repair shops, garages, or any establishment where motor vehicles are repaired, lubricated, or maintained...” .

***What About Service Life?***

***What About Effluent Discharge Quality?***

# .....Plumbing Code Approved

**PLUMBING  
CODE**



# .....Plumbing Code Approved

PLUMBING  
CODE

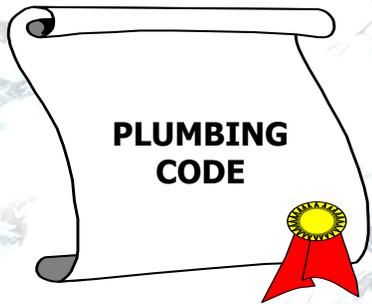


....Also Plumbing Code Approved

PLUMBING  
CODE



# ....Also Plumbing Code Approved



*Quick Service Restaurant  
Bottom completely gone in 8 years*



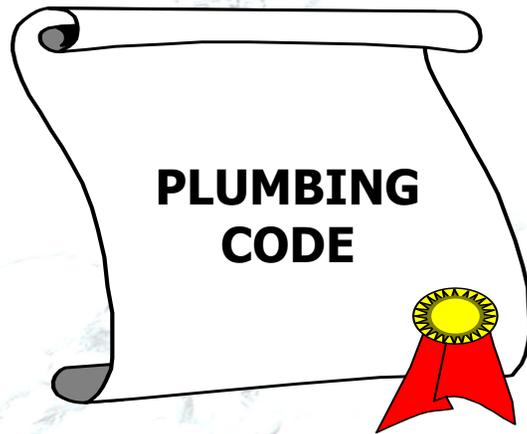
*Casual Dining Restaurant  
Severe corrosion in 6 years*



# ....A Word About Concrete

Chemical	Effect on Concrete
15% Hydrochloric Acid	At 10% rapid disintegration
25% Acetic Acid	30% Slow disintegration
5% Sodium Hydroxide	At 10% none, at 20% slow disintegration
10% Sodium Carbonate	None
Saturated Sodium Chloride	None, unless alternate wet and dry, then moderate to severe disintegration
5 ¼% Sodium Hypochlorite	Slow disintegration
Distilled Water	Soft water leaching of hydrated lime, causes disintegration
Hydrocarbon Oils and food fats	Moderate to severe disintegration

# Plumbing Fixture vs. Pollution Control Device



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***I am still not sure I understand.....***

# Federal EPA Guidance for Sewer Discharge:

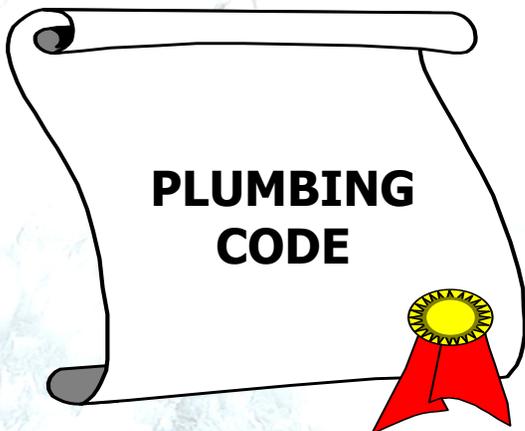
The Clean Water Act Pretreatment Program recommends discharge concentration of various pollutants

- *mineral oil to less than 100ppm*
- *food grease to less than 100ppm*
- *sediment to less than 350ppm*

Most counties have adopted these sewer use discharge limits **AS**  
**REGULATION**



# Case - Fried Seafood Restaurant Before...



# ....and After

*Enforced Sewer  
Discharge  
Regulation of  
100 ppm FOG*



# *.....Winds of Change*

## *Charlotte, North Carolina Code Change*

“Effective January 1, 2005 (Plumbing) Mecklenburg County will no longer allow the use of “modified” septic tanks used as a grease interceptor. All grease interceptors shall be a manufactured device, designed for grease interception, with manufacturer’s required sizing criteria.”\*

\*(<http://www.charmeck.org/Departments/LUESA/Code+Enforcement/Inside+the+Department/Services/Mechanical+and+Plumbing+Services/1-Customer+Alert.htm>)

# A Little History.....





**FLAMMABLE**

**CUYAHOGA  
RIVER**

## **FABLES OF THE CUYAHOGA: RECONSTRUCTING A HISTORY OF ENVIRONMENTAL PROTECTION**

*Jonathan H. Adler – Fordham Environmental Law Journal, 2002*

*City after city, state after state, had essentially failed in their efforts to protect their air and their water, the land, the health of their citizens. By 1970, our city skylines were so polluted that in many places it was all but impossible to see from one city skyscraper to another. . . . We had rivers that were fouled with raw sewage and toxic chemicals. One actually caught on fire. There was a very famous photograph from my teenage years of the Cuyahoga River burning. In fact, it was memorialized in a song at the time.*

- Former EPA Administrator Carol Browner

*Cleveland, even now I can remember  
'Cause the Cuyahoga River  
Goes smokin' through my dreams  
Burn on, big river, burn on.*

- Randy Newman, Burn On, Big River 1972



1972 – Federal Water Pollutions Control Act

1977 – Amended as Clean Water Act

- ***Basic structure for regulating the discharge of pollutants into U.S. waters***
- ***Gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry***
- ***Continued requirements to set water quality standards for contaminants in surface waters***



1972 – Federal Water Pollutions Control Act

1977 – Amended as Clean Water Act

- ***Unlawful for any person to discharge any pollutant from a point source into navigable waters unless permitted under CWA provisions***
- ***Funded construction of sewage treatment plants***
- ***Recognized need for planning to address problems posed by non-point source pollution***



# CWA National Enforcement Goals

- ❖ *Improve Nation's Waters*
- ❖ *Comprehensive framework of standards, technical tools, and financial assistance to address the many causes of pollution and poor water quality, including municipal and industrial wastewater discharges, polluted runoff from rural and urban areas, and habitat destruction.*



# CWA National Enforcement Goals

1. *Requires municipalities and major industrial dischargers to meet performance standards to ensure pollution control*
2. *Charges states and tribes with setting specific water quality criteria appropriate for their waters and creating the pollution control programs to meet them*
3. *Provides funding for states and communities to help them meet their clean water infrastructure needs*
4. *Protects valuable wetlands and other aquatic habitats through a permitting process that ensures development and other activities are conducted in an environmentally sound manner*



# CWA National Enforcement Programs

- ❖ *National Pollution Discharge Elimination System*
- ❖ *Pretreatment Program*
- ❖ *Oil and Hazardous Substance Spill Program*
- ❖ *Wet Weather Enforcement Programs*
- ❖ *Biosolid/Sludge Program*
- ❖ *Wetlands Dredged and Fill Material Program*



# CWA National Enforcement Programs

## National Pollution Discharge Elimination System

- **Protect public health and the environment by regulating point-source discharges into nation's waters**
  - ✓ ***Point Source - discrete conveyance such as a pipe, ditch, or spillway***
  - ✓ ***15,000 publicly owned treatment works (4000 major)***
  - ✓ ***85,000 industrial dischargers (2900 major)***
  - ✓ ***Issue permits***
  - ✓ ***Technology based or effluent water quality based limits***
  - ✓ ***Monitoring Discharges***
  - ✓ ***Reporting Compliances***



# CWA National Enforcement Programs

## Pretreatment Program

- ***Cooperative effort between Federal, State, and Local Environmental Agencies established to protect water quality***
  - ✓ ***Protect Publicly Owned Treatment Works (POTWs) from the introduction of pollutants that may interfere with plant operation or that may pass through untreated***
  - ✓ ***Improve opportunities for the POTW to reuse wastewater and sludge that is generated***



# CWA National Enforcement Programs

## *Oil and Hazardous Substances Spill Program*

- ***Cooperative effort between EPA and U.S. Coast Guard in preventing, preparing for, and responding to oil spills or hazardous substances that reach or may reach surface waters***
  - ✓ ***Civil Penalties of \$27,500 per day and/or \$1,100 per unit of oil or hazardous substance unlawfully discharged***



# CWA National Enforcement Programs

## Wet Weather Enforcement Programs\*

- ***Stormwater Program***
- ***Sanitary Sewer Overflow Program (SSO)***
- ***Combined Sewer Overflow Program (CSO)***
- ***Concentrated Animal Feeding Operations Program (CAFO)***

***\* Current EPA National Enforcement Priorities for CWA Compliance***





***SO WHAT ?!?!?!?!?***

# ***Sanitary Sewer Overflows are this Generation's Burning River***



# Sanitary Sewer Overflows Threaten:

- ❖ ***Human Health***
- ❖ ***Recreation-based Economies***
- ❖ ***Natural Resources***
- ❖ ***Property Damage***
- ❖ ***Property Value***
- ❖ ***Fishing Industries***
- ❖ ***Manufacturing Industries***



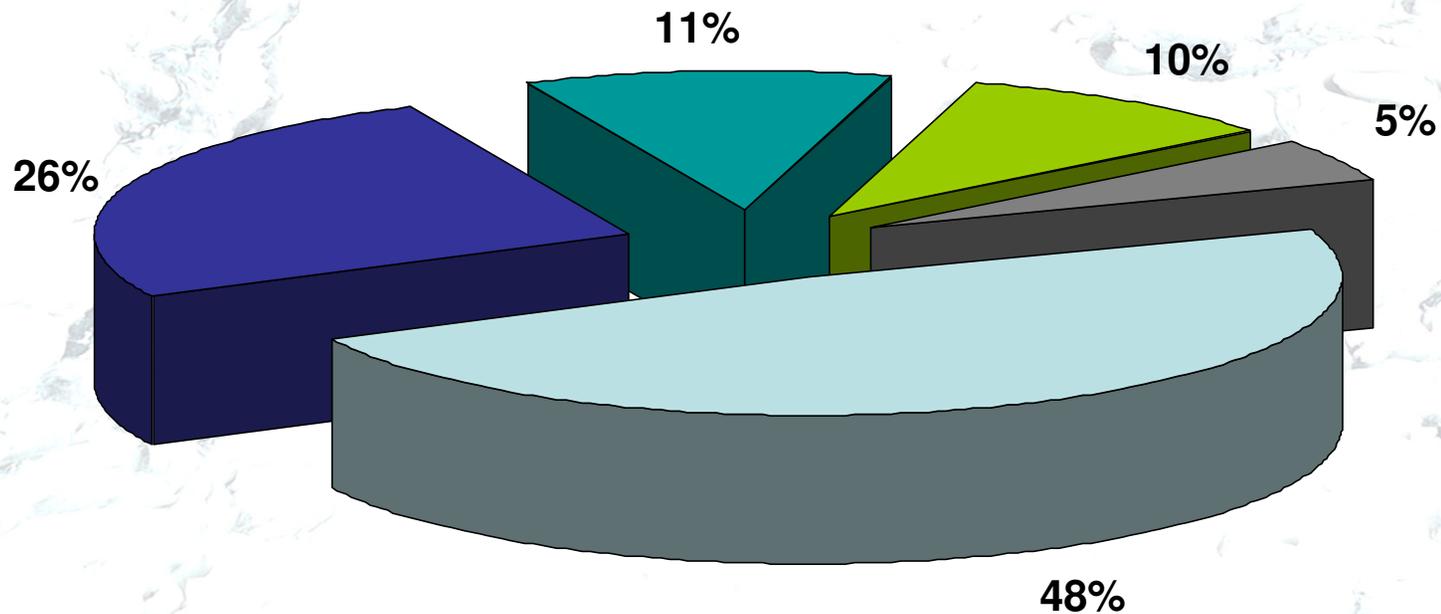
# Sanitary Sewer Overflows

## ***Stress on Sewer Infrastructure Takes it's Toll:***

- ❖ ***Years of wear and tear***
- ❖ ***Freeze/thaw cycles, groundwater movement, seismic activity***
- ❖ ***Deterioration of pipes and joints***
- ❖ ***Lack of maintenance***
- ❖ ***Hydraulic stress from collection system bottlenecks***
- ❖ ***Incorrect operational procedures***
- ❖ ***Rapid development/Increasing population density***

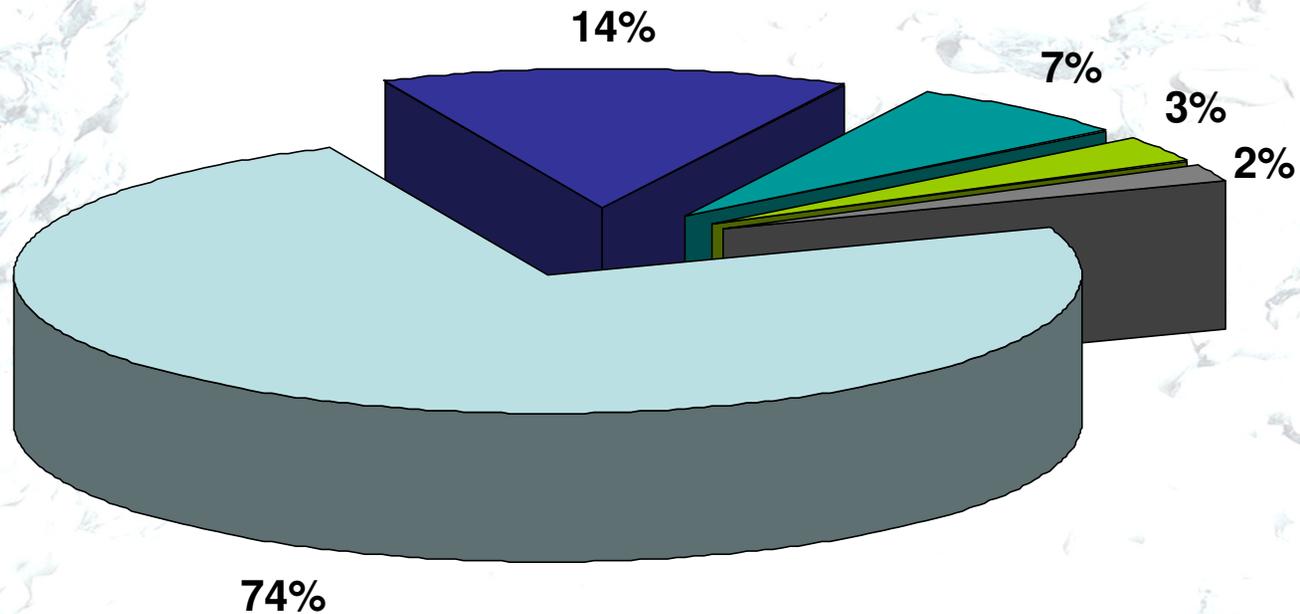
# Most Common SSO Reported Causes

23,000 to 75,000 SSO's per year in U.S.; 3-10 billion gallons

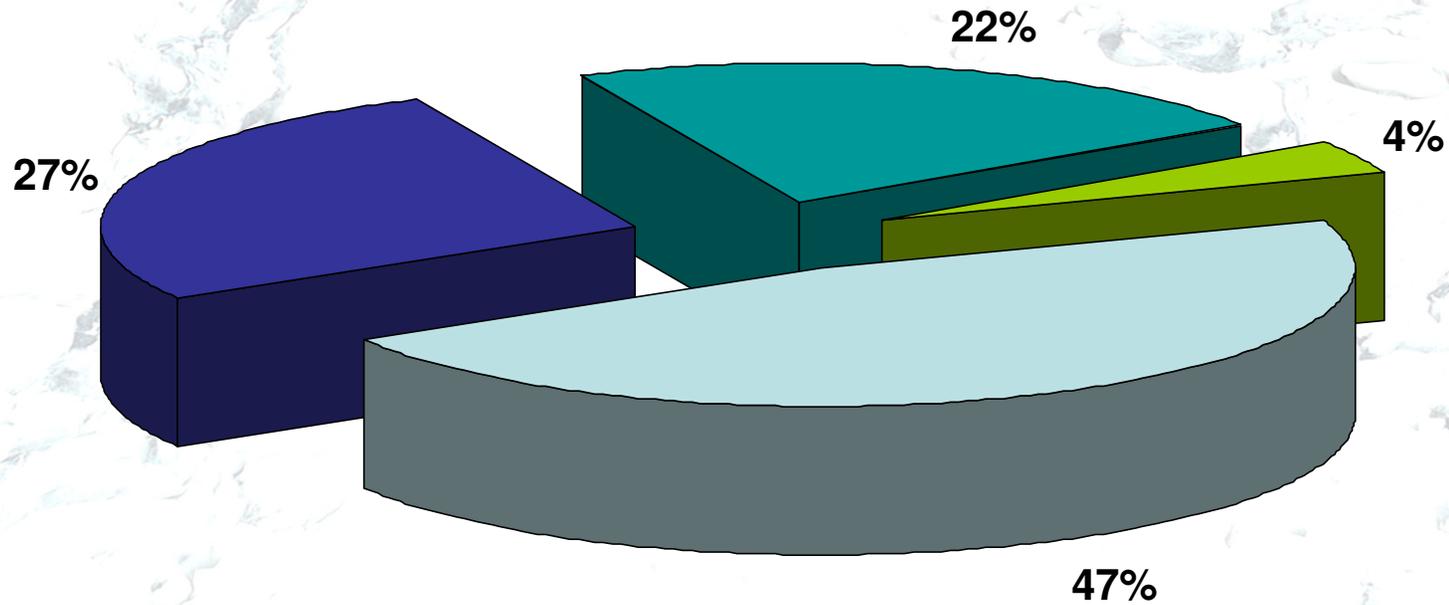


# Most Common SSO Reported Causes

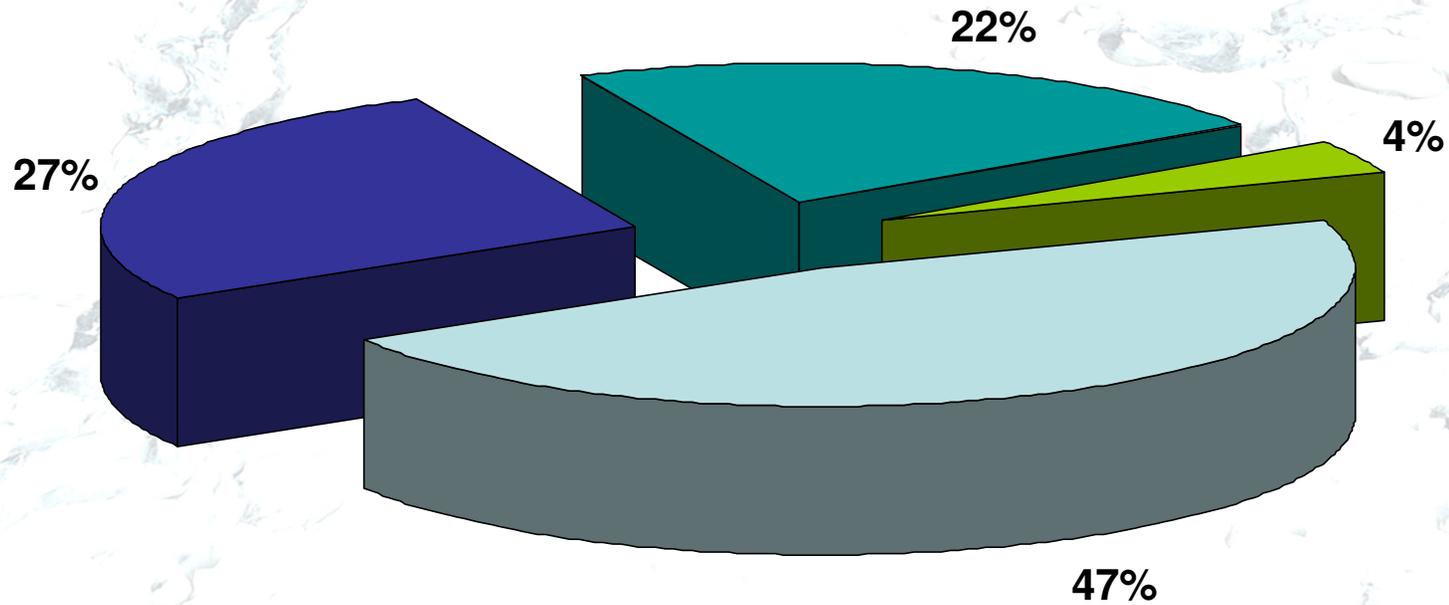
Communities with more than 100 SSO's per year



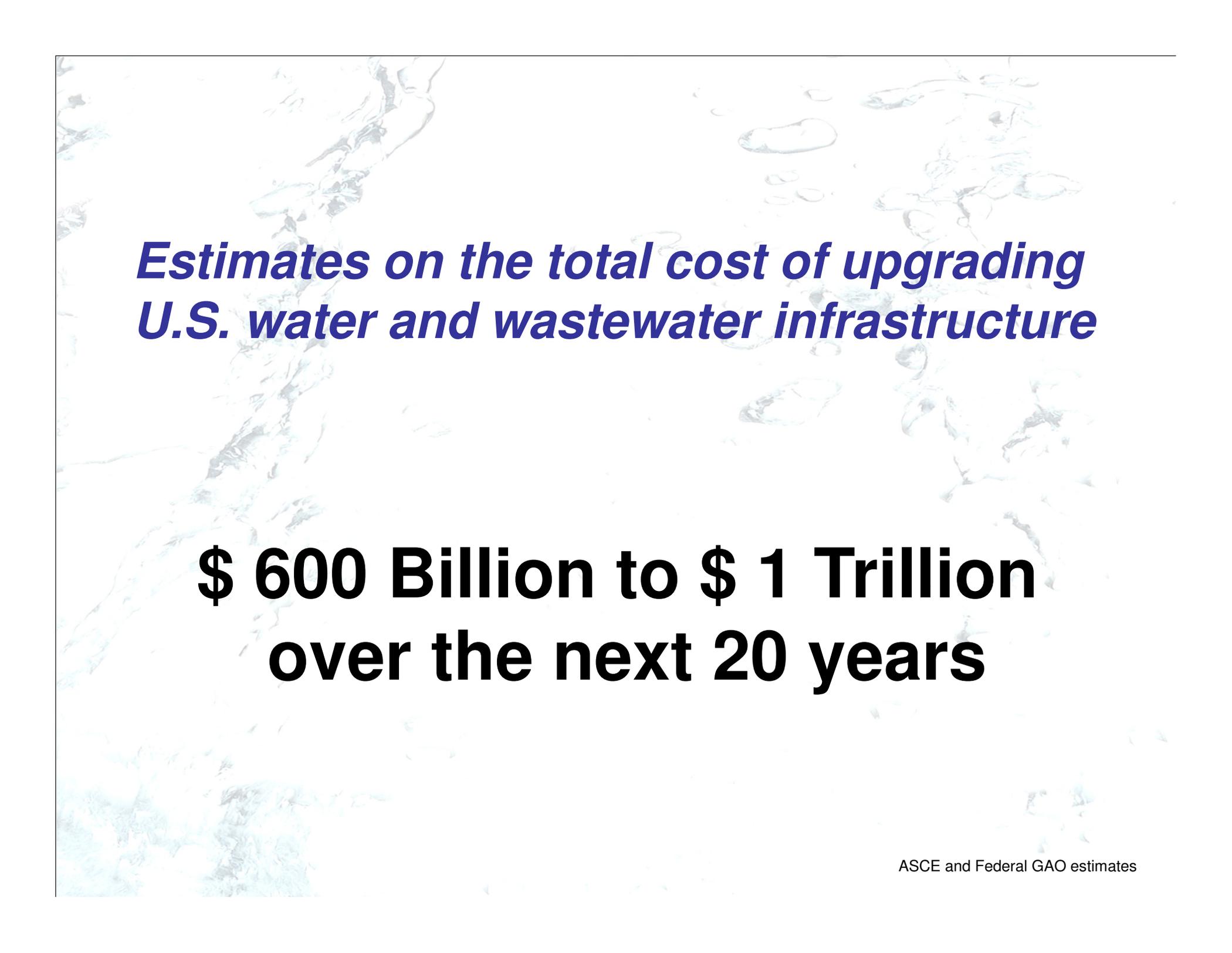
# Reported Cause of Blockage Events



# Reported Cause of Blockage Events



■ Grease   ■ Grit, Rock, Debris   ■ Roots   ■ Roots and Grease



***Estimates on the total cost of upgrading  
U.S. water and wastewater infrastructure***

**\$ 600 Billion to \$ 1 Trillion  
over the next 20 years**

# Recent EPA Consent Decree

## Clean Water Act Agreement Announced with the Sanitation District No. 1 of Northern Kentucky

(WASHINGTON, D.C. – October 7, 2005) – The U.S. Department of Justice and the U.S. Environmental Protection Agency today announced they have reached a comprehensive Clean Water Act settlement with the Sanitation District No. 1 of Northern Kentucky. At a cost of **at least \$880 million**, the District has agreed to make extensive improvements to its sewer systems to eliminate **unauthorized overflows of untreated raw sewage and to control overflows of combined sewage and stormwater**. Each year, the District has been **unlawfully discharging** untreated sewage and experiencing overflows of combined sewage into the Ohio River and its tributaries in amounts totaling almost a billion gallons.



# ***Northern Kentucky is not Alone***

Mobile  
Birmingham  
Knoxville  
Atlanta  
Miami  
New Orleans

Toledo  
Cincinnati  
Baltimore  
Los Angeles  
Louisville

***\$\$ BILLIONS.....all in the last 7 years***

## *What Does the Future Hold?*

- ❖ CSO, SSO, and Stormwater Pollution control are at the top of the Federal EPA's agenda for CWA compliance
- ❖ Municipalities that currently do not have issues with CSO, SSO, or Stormwater pollution are likely to avoid Federal EPA scrutiny and action.....*at least for now.....*

# *What Does the Future Hold?*

- ❖ Municipal POTW's that have issues with CSO, SSO, and Stormwater pollution are coming under deeper scrutiny from the EPA
  - civil penalties
  - supplemental environmental programs to preserve greenways
  - injunctive relief to improve POTW operations

***At a cost of \$ BILLIONS***

# *What Does the Future Hold?*

- ❖ Identified municipalities with issues will be forced to, as part of a comprehensive plan to mitigate SSOs and CSO's, implement a more stringent FOG Management Program that focuses on
  - Food prep Best Management Practices
  - Pollutant removal technologies that are performance-based and also reliable over the long haul
  - Maintenance programs that include active testing and enforcement of effluent quality



# ***Separator Considerations***

# Properties of Oil in Water

## **Free Oil**

- *In liquid form, and is available to float to the surface; represents the majority of oil from food service establishments*

## **Dissolved Oil**

- *Oil dissolved in water by virtue of a degreasing compound; will not separate*

## **Mechanically Emulsified Oil**

- *Free oil agitated in water to form small droplets; will separate given enough time*

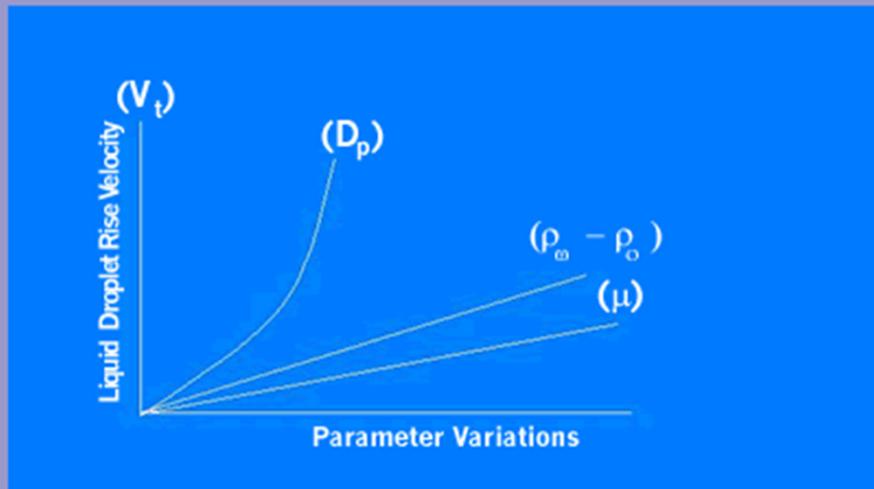
## **Chemically Emulsified Oil**

- *Oil broken down into very small particles via a detergent and will not float to the surface*

# Stoke's Law for Separation

Rise and Settle rates for a given system are dependent on:

1. Particle size
2. Difference in specific gravity vs. water
3. Temperature



where

$D_p$  = Fluid Particle Diameter; ft.

$g$  = Acceleration due to Gravity; ft/s<sup>2</sup>

$V_t$  = Terminal Velocity; ft/s

$\rho_w$  = Density of Water; lb/ft<sup>3</sup>

$\rho_o$  = Density of Oil; lb/ft<sup>3</sup>

$\mu$  = Fluid velocity; lb/ft - s

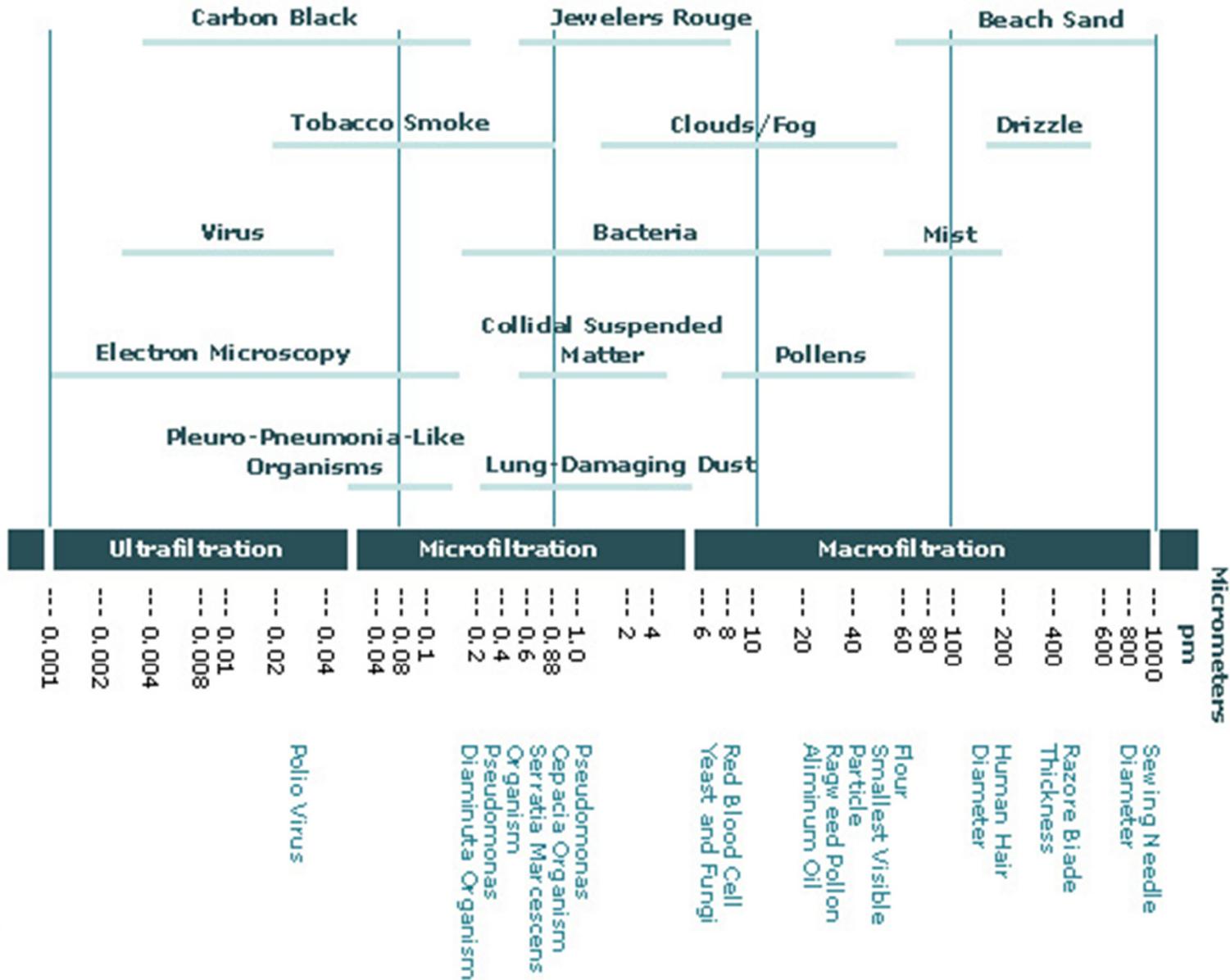
For Stoke's Law: 
$$V_t = \left( \frac{g}{18\mu} \right) (\rho_w - \rho_o) D_p^2$$

# Rise and Settle: 6 inch vertical travel time

Droplet Size (micron)	Sp. Gr.	Sp. Gr.	Sp. Gr.
	0.80	0.90	2.0
1000	0:00:01	0:00:03	0:00:00
500	0:00:06	0:00:11	0:00:01
300	0:00:16	0:00:32	0:00:03
100	0:02:21	0:04:43	0:00:28
80	0:03:40	0:07:24	0:00:44
60	0:06:32	0:13:10	0:01:17
40	0:14:41	0:29:37	0:02:54
20	0:58:43	1:58:30	0:11:37
10	3:54:56	7:54:00	0:46:30
5	15:39:43	31:35:58	3:06:00
1	391:32:50	789:59:16	77:29:53
0.5	1566:11:21	3159:57:05	309:59:32

Water at 68 degrees Fahrenheit; Hr:Min:Sec

# What Does 100 Microns Look Like?



# Considerations

- ❖ Sewer Discharge Regulations
- ❖ Nature of Pollutants from all Sources
- ❖ Pollutant Concentration
- ❖ Pollutant Specific Gravity
- ❖ Flow Management (volume, path, and pattern)
- ❖ Batch vs. Continuous
- ❖ Detention Time
- ❖ Temperature
- ❖ Pollutant Storage Capacity
- ❖ Resiliency and Reliability of Design

# Components of a Properly Designed Separator

## ✓ *Incoming Flow Management*

- Gentle introduction into separation chamber
- Laminar rather than turbulent flow
- No scouring of existing oil, grease, or sediment
- Effective baffling configuration

## ✓ *Appropriate Residence Time*

- Unit sized appropriately for peak kitchen fixture output
- Effluent flowrate, pollutant load, composition, and temperature

## ✓ *Resilient Materials of Construction*

- Corrosion proof for corrosive interceptor environment
- Smooth, non-porous materials
- Material and Structural warranties for extended periods

# Components of a Properly Designed Separator

## ✓ *Easy to Clean*

- Smooth inner walls
- Cleanout ports and proper venting
- Easy wash-down with central collection point at bottom for pumper access

## ✓ *Performance*

- Ability to consistently remove pollutants to levels at or below that recommended by local discharge regulations
  - ✓ 100 ppm Food Grease
  - ✓ 100 ppm Mineral Oil
  - ✓ 350 ppm Sediment
- Ease of sampling to insure that effluent test is representative of separator performance

## ***The Whole Package For Discharge Compliance***

- ✓ *Engineered Separator sized correctly for the application to deliver effluent quality within sewer discharge regulations over the long haul*
- ✓ *An operations staff that follows Best Management Practices for keeping grease and oil out of the sinks and drains*
- ✓ *A consistent maintenance program to monitor and remove collected pollutants from the separator on a periodic basis so the separator continues to operate at maximum efficiency*



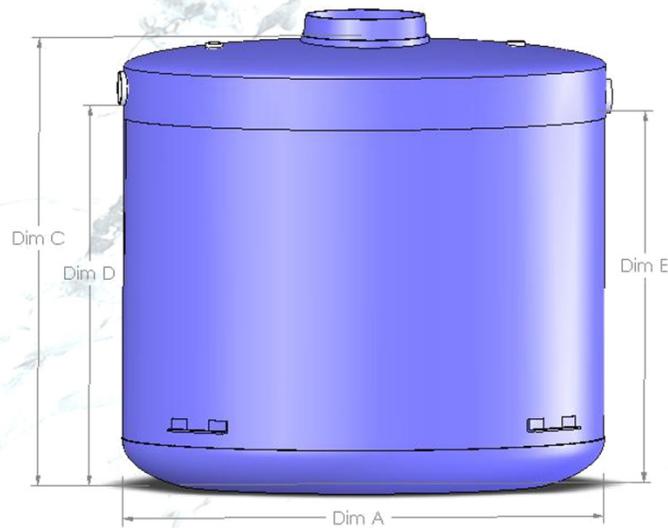
***QUESTIONS?***

# ***Grease Interceptors Oil Separators***

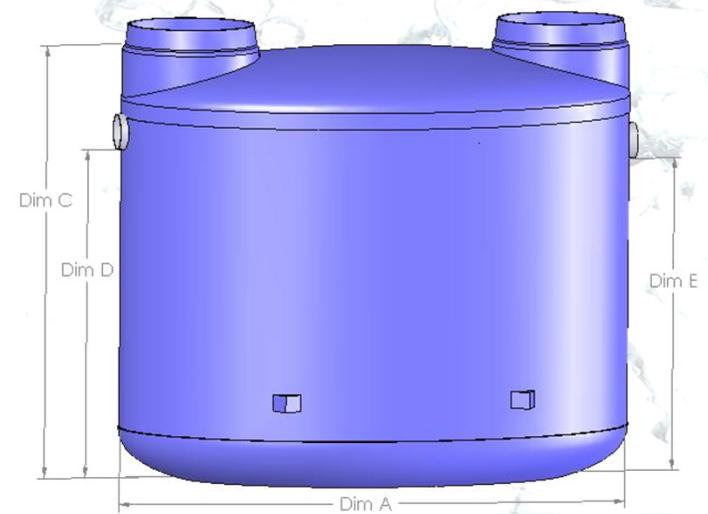
  
**Proceptor™**



# Proceptor™ Product Line



**International Plumbing Code System**



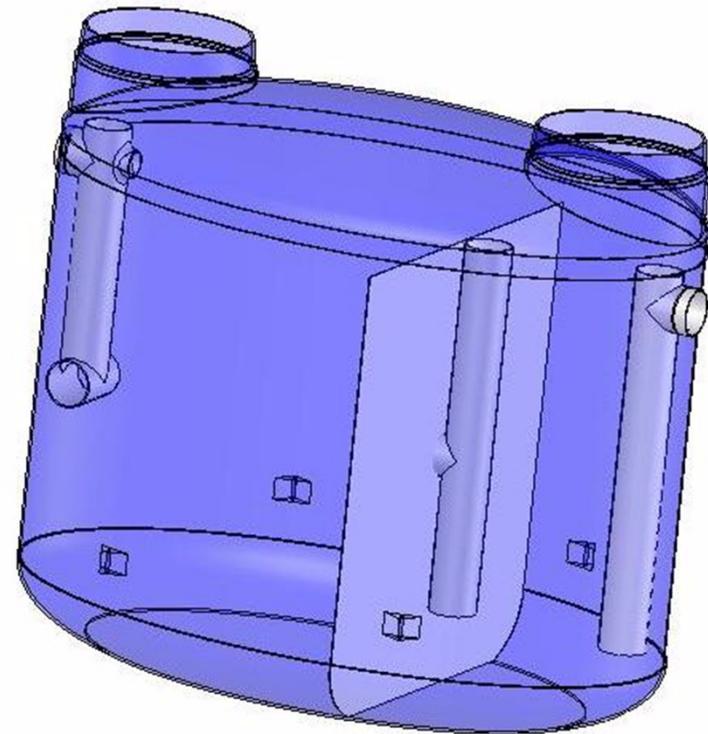
**Uniform Plumbing Code System**

Patented systems - US Patent #5,746,912; CDN Patent #2,195,822

# Proceptor™ Benefits



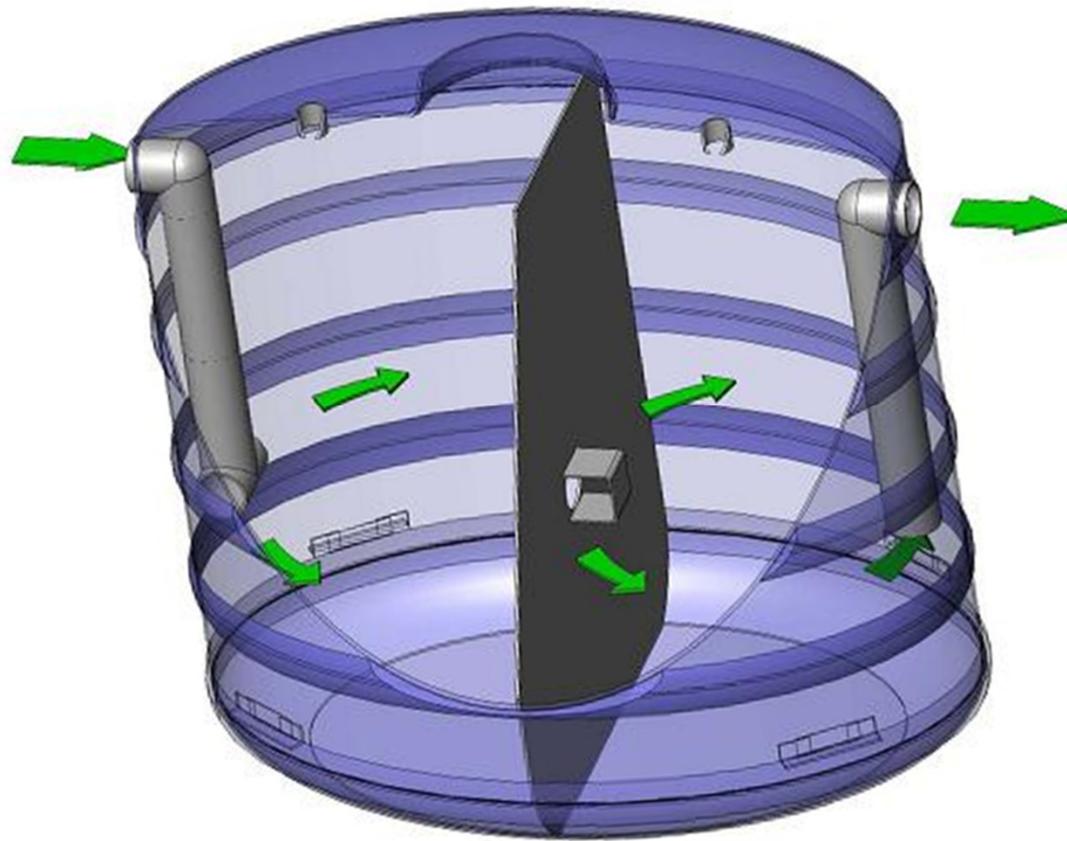
- ❖ Fiberglass construction prevents soil and groundwater contamination
- ❖ Designed to better manage effluent flow and pollutant separation
- ❖ Engineered to meet EPA guidance for sewer discharge limits (100 ppm FOG, 350 ppm sediment)
- ❖ Ease of maintenance prevents drain backups and sewer blockages
- ❖ Capacities from 50 to 10,000 gallons plus
- ❖ Easy to install and service



**30 YEAR WARRANTY against cracks, corrosion,  
and structural failure!**

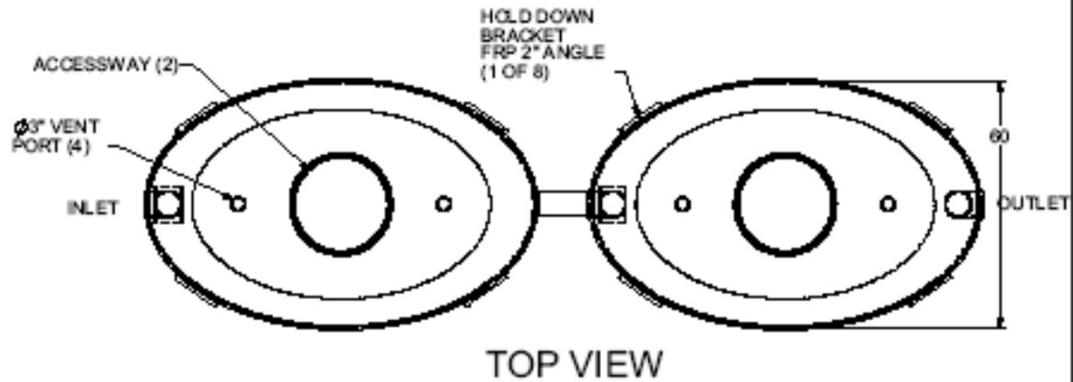
# Patented Flow Management

U.S. Patent # 5746912

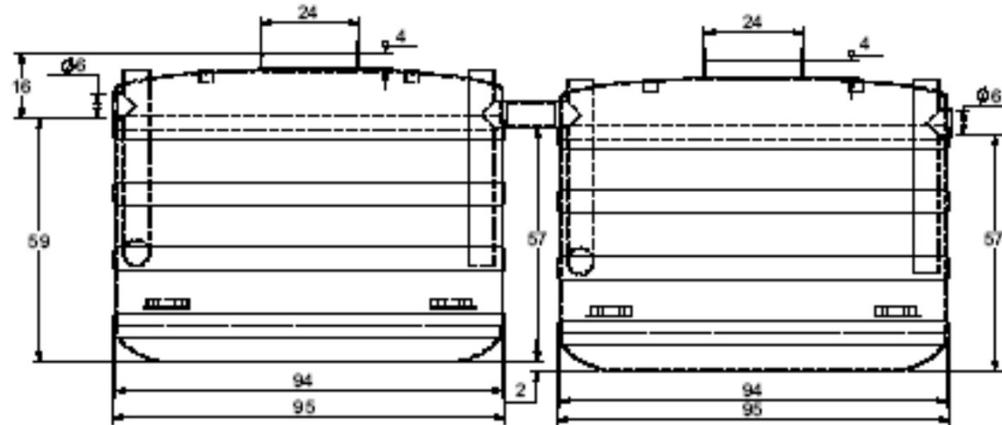


**NOTES:**

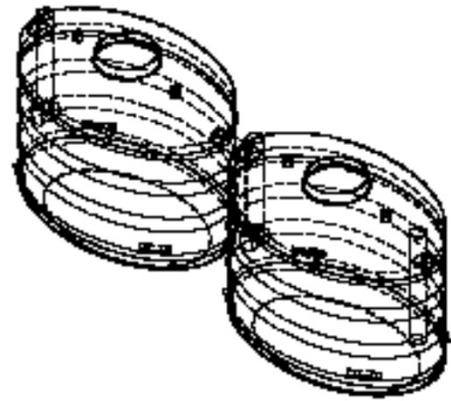
1. FOR GRAVITY APPLICATIONS ONLY. FOR PRESSURE APPLICATIONS CONTACT GREEN TURTLE.
2. ALL PROCEPTOR UNITS ARE MANUFACTURED WITH FIBERGLASS REINFORCED PLASTICS. PHYSICAL CHARACTERISTICS AND THICKNESS: EPOXYALIC POLYESTER RESIN AND E-Glass ASTM D 63-LLC THIRD PARTY TESTED. MINIMUM THICKNESS 1/4" WALL AND 3/16" TOP AND BOTTOM BOWLS. MINIMUM ULTIMATE TENSILE STRENGTH, 120,000PSI. MINIMUM FLEXURAL STRENGTH, 19,000PSI. MINIMUM FLEXURAL MODULUS, 9000,000PSI. MINIMUM BURIAL DEPTH = 18" FOR NON TRAFFIC RATED AND MINIMUM BURIAL DEPTH = 30" FOR TRAFFIC RATED (GRADE TO INVERT OF INLET). MAXIMUM BURIAL DEPTH = 6FEET (FOR DEEPER INSTALLATIONS CALL PROCEPTOR FOR CUSTOM REINFORCEMENT).
3. ALL PROCEPTOR UNITS ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTION.
4. SEE MANUFACTURER'S INSTALLATION INSTRUCTION FOR HD0 TRAFFIC LOADING.
5. ALL PIPE STUBS ARE SDR35 PVC SEWER MATERIAL WITH SCHEDULE 40 ADAPTORS FOR ALL PROCEPTS LOCATED IN THE US.
6. ALL PROCEPTOR UNITS COME STANDARD WITH 6" INLET AND OUTLET (OTHER CUSTOM SIZES AVAILABLE AT EXTRA CHARGE).
7. EXTENSION COLLAR TO BE ORDERED TO FINISHED GRADE. CUT ON SITE FOR FINAL ADJUSTMENT AND CAULKED WITH GRAKLEK BY CONTRACTOR.
8. COVERS AVAILABLE FOR HD0 TRAFFIC LOADING, PEDESTRIAN LOADING OR ABOVE GROUND INSTALLATION.
9. UNLIMITED CAPACITY AVAILABLE. CONSULT PROCEPTOR FOR OTHER SIZES.
10. ALL PROCEPTOR ARE FACTORY TESTED.
11. 30 YEAR WARRANTY AGAINST LEAKS, AND STRUCTURAL FAILURE.
12. U.S. PATENT #6,746,912; CAN PATENT #2,195,622



TOP VIEW



FRONT VIEW

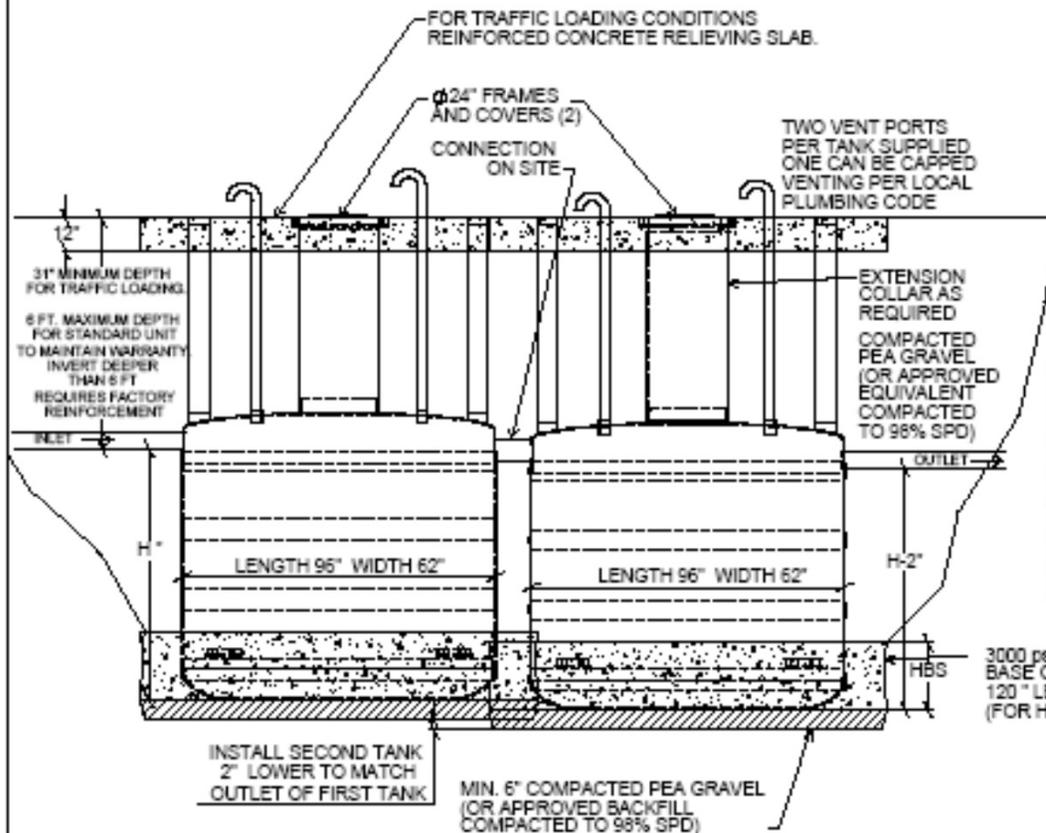


ISOMETRIC VIEW

TOTAL WET VOLUME	2000 GAL
MAX. GREASE CAPACITY	1025 GAL
MAX SOLIDS CAPACITY	850 GAL
PEAK FLOW RATES	
POE PERFORMANCE:	57.5 GPM
CAUTION: EXCESS FLOW MAY CAUSE OVERFLOWING. OVERFLOWING CAPACITY LESS THAN 100 MGAL FOR FREE FAT, OIL, GREASE.	400 GPM
*CONSULT LOCAL AUTHORITIES FOR MINIMUM SIZE OF SEPARATORS	

TITLE: PROCEPTOR F.O.G. SEPARATOR		REV. DATE	DRAWN
GMC 2000 GALLON INTERCEPTOR		1	
6" INLET & OUTLET		2	
24" MANWAY		3	
ALL DIMENSIONS IN INCHES		4	
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# GMC 1000(2), 1500(2), 2000, 2600 AND 3000 INSTALLATION PROCEDURE



## NOTES:

- EXCAVATE TO THE REQUIRED DEPTH, LENGTH AND WIDTH IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) PRACTICES. PROVIDE 12" OF FREE SPACE AROUND THE UNIT AT THE BOTTOM.
- INSTALL A LEVEL 8" LAYER OF COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT) BACKFILL COMPACTED TO 98% STANDARD PROCTOR DENSITY (SPD).
- FOR INSTALLATIONS WHERE THE SUBSURFACE WATER LEVEL MAY RISE ABOVE THE BOTTOM OF THE TANK AT ANY TIME, CONTINUE TO STEP 4. OTHERWISE, INSTALL AND LEVEL TANK AND GO TO STEP 5.
- IF USING APPROVED BACKFILL MATERIAL INSTEAD OF PEA GRAVEL, INSTALL GEOTEXTILE FILTER FABRIC TO PREVENT MIGRATION AND COMPACT BACKFILL IN 6" TO 8" LAYERS TO 98% SPD.
- LEVEL TANK ON BACKFILL.
- FILL THE SEPARATOR WITH WATER UP TO THE REQUIRED HEIGHT OF THE BUOYANCY SLAB (HBS) - SEE TABLE BELOW.
- POUR CONCRETE READY MIX ANTI-BUOYANCY SLAB 12" ALL AROUND THE SEPARATOR CELLS TO HEIGHT REQUIRED.
- ENSURE THAT ANCHOR BRACKETS ON SIDE OF TANK ARE COVERED.
- FILL SEPARATOR WITH WATER UP TO THE INLET/OUTLET PIPES.
- BACKFILL UP TO INLET/OUTLET PIPES WITH COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT) COMPACTED TO 98% S.P.D.) IN 6" TO 8" LAYERS.
- CONNECT THE INLET, OUTLET, AND VENT PIPING. USE ONE VENT PORT AND CAP OTHER FOR BASE OF INSTALLATION. VENT PER LOCAL PLUMBING CODE.
- INSTALL EXTENSION COLLAR. USE FIBERGLASS SHAPLEX CALLINGS FOR WATER TIGHT SEAL. IF DESIRED, EXTEND CLEANOUT EXTENSIONS.
- BACKFILL WITH COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT) COMPACTED TO 98% SPD.) TO MINIMUM 6" ABOVE BASE OF EXTENSION COLLAR.
- FOR TRAFFIC LOADING CONDITIONS, POUR REINFORCED BEARING SLAB AT SURFACE GRADE WITH TRAFFIC LOADING FRAME AND COVER EMBEDDED IN SLAB AND CENTRED OVER EXTENSION COLLAR.
- FOR TRAFFIC LOADING SLAB, CONSULT WITH STRUCTURAL ENGINEER. (U.S. PATENT # 5,748,912; CAN. PATENT # 2,195,622)

PROCEPTOR F.O.G. SEPARATOR MODEL	INLET INVERT TO TANK BOTTOM (H")	HEIGHT OF BUOYANCY SLAB (HBS)	DRY WEIGHT OF UNIT *
GMC 1000(2)	32"	18"	1000 lbs
GMC 1500(2)	45"	19"	1150 lbs
GMC 2000	59"	26"	1300 lbs
GMC 2600	74"	35"	1490 lbs
GMC 3000	85"	41"	1610 lbs

\* Weight includes both tanks without covers and collars

3000 psi CONCRETE READY MIX POUR 12" ALL AROUND BASE OF TANKS TO HEIGHT OF BUOYANCY SLAB  
120" LENGTH X 64" WIDTH X HBS (SEE TABLE)  
(FOR HIGH WATER CONDITIONS ONLY)

(PROCEPTOR SEPARATORS MUST BE INSTALLED IN ACCORDANCE WITH ALL RELEVANT FEDERAL, PROVINCIAL/STATE, AND LOCAL CODES INCLUDING LOCAL PLUMBING CODE)

\* ACTUAL HEIGHT MAY VARY SLIGHTLY.

TITLE: PROCEPTOR F.O.G. SEPARATOR  
INSTALLATION PROCEDURE  
FOR GMC MODELS 1000(2) - 3000

ALL DIMENSIONS IN INCHES  
PROJECT: WO:

DATE:

DRAWN BY: F. CHANDLER  
DRAWN DATE: 9/14/04

REV.	DATE	DRAWN
1		
2		
3		
4	MAY 27, 2005	L. SMITH
5	JUNE 14, 2005	L. SMITH
6	MARCH 9, 2005	L. SMITH
7	SEPTEMBER 7, 2005	L. SMITH
8		
9		
10		

  
**Proceptor™**  
MANUFACTURER: GREEN TURTLE

877-428-8187 US 877-956-9444 CAN  
GREENTURTLETECH.COM/PROCEPTOR

SCALE: 1:40  
A INSTALL GMC 1000(2)-3000  
REV. 7

SCALE: 1:40 DO NOT SCALE DRAWING SHEET 1 OF 1

**NOTES:**

1. ALL PROCEPTOR UNITS ARE MANUFACTURED WITH FIBERGLASS REINFORCED PLASTICS. PHYSICAL CHARACTERISTICS AND THICKNESS: ISOTHALIC POLYESTER RESIN AND E GLASS. ASTM D 638-LC, THIRD PARTY TESTED. MINIMUM THICKNESS 1/4" WALL AND 3/8" TOP AND BOTTOM BOWLS.
2. MINIMUM ULTIMATE TENSILE STRENGTH, 12000PSI. MINIMUM FLEXURAL STRENGTH, 19,000PSI. MINIMUM FLEXURAL MODULUS, 80000PSI.
3. MINIMUM BURIAL DEPTH = 2'4" FOR NON TRAFFIC RATED AND MINIMUM BURIAL DEPTH = 3'6" FOR TRAFFIC RATED GRADE TO INVERT OF INLET.
4. MAXIMUM BURIAL DEPTH = 6 FEET (FOR DEEPER INSTALLATIONS CALL PROCEPTOR FOR CUSTOM REINFORCEMENT).
5. ALL PROCEPTOR UNITS ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTION.
6. SEE MANUFACTURERS INSTALLATION INSTRUCTION FOR H2O TRAFFIC LOADING.
7. ALL PIPE STUBS ARE PVC SEWER MATERIAL UNLESS OTHERWISE SPECIFIED.
8. ALL PROCEPTOR UNITS COME STANDARD WITH 6" INLET OR OUTLET (OTHER CUSTOM SIZES AVAILABLE AT EXTRA CHARGE).
9. EXTENSION COLLAR TO BE ORDERED TO FINISHED GRADE, CUT ON SITE FOR FINAL ADJUSTMENT AND CALLED WITH SNAPELIX BY CONTRACTOR.
10. COVERS AVAILABLE FOR H2O TRAFFIC LOADING, PEDESTRIAN LOADING OR ABOVE GROUND INSTALLATION.
11. UNLIMITED CAPACITY AVAILABLE. CONSULT PROCEPTOR FOR OTHER SIZES.
12. ALL PROCEPTOR ARE FACTORY TESTED.
13. IAPMO PS 610-95, UL C5896 FOR 1000PPM DISCHARGE AT 150 GPM.
14. 30 YEAR WARRANTY AGAINST LEAKS, AND STRUCTURAL FAILURE.
15. U.S. PATENT #5746,912; CAN. PATENT #2195,622.
16. WHERE BAFFLE MEETS TANK BODY IS STRUCTURALLY AND INTEGRALLY FIBER GLASSED STRAPPED ALL AROUND.

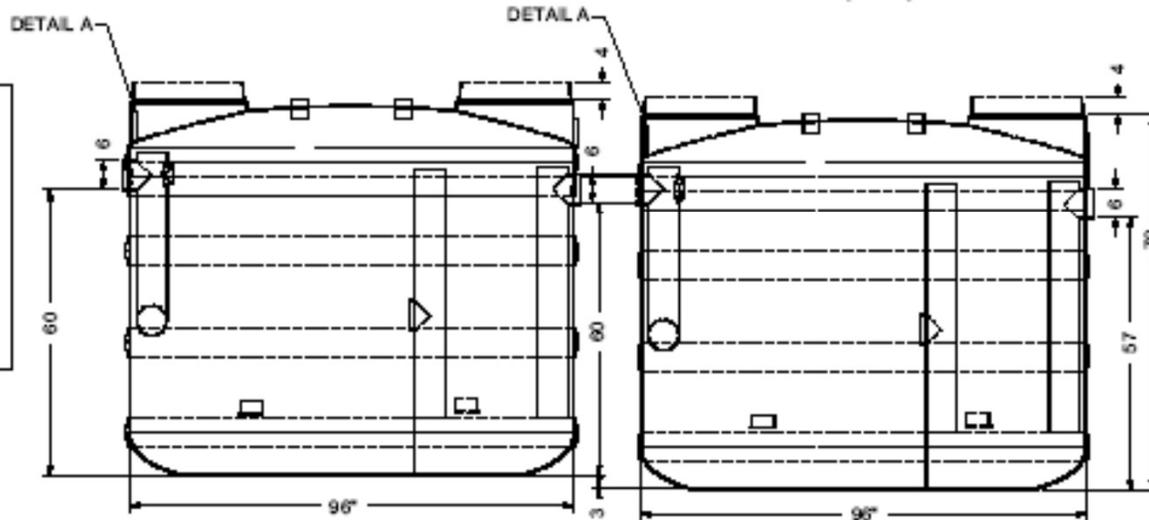
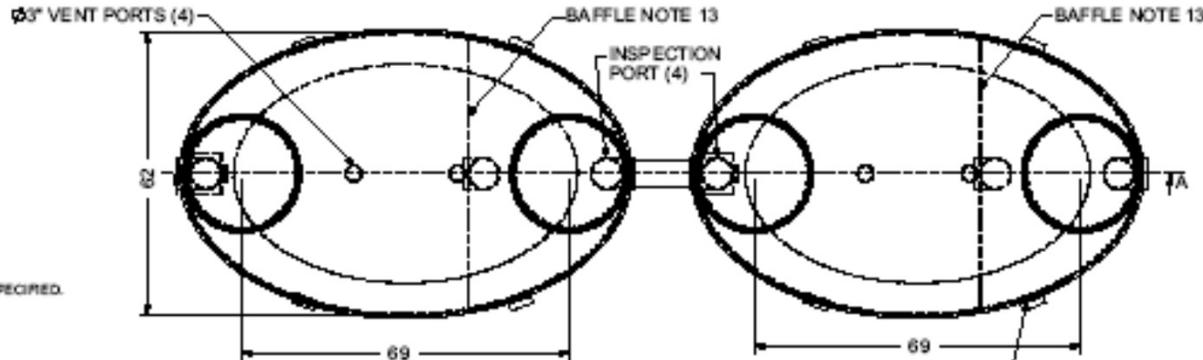
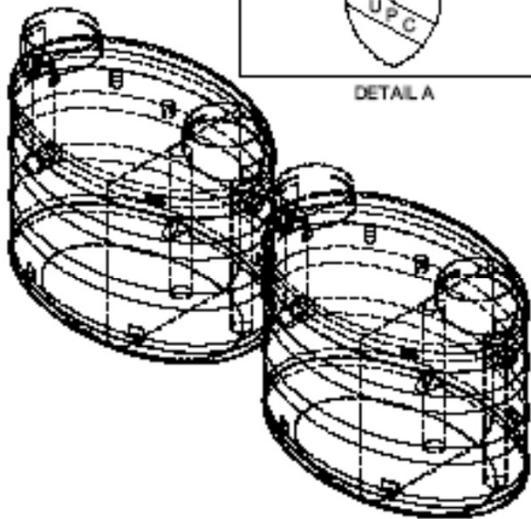
MANUFACTURER:  
GREEN TURTLE



MODEL NUMBER: 2000 GMC UPC  
CAPACITY: 2000 GALLONS



DETAIL A



SECTION A-A SCALE 1 : 35 FOR UPC/IAPMO INSTALLATIONS

TITLE: PROCEPTOR F.O.G. SEPARATOR		REV	DATE	BY
GMC 2000 UPC GALLON INTERCEPTOR		1		
6" INLET & OUTLET		2		
24" MANWAY		3		
PROJECT: WO:		4		
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<input type="checkbox"/> OR DRAIN PIPES TO CONNECT TO EXTERNAL OR		6		
INDICATING TANK		7		
<input type="checkbox"/> SECTION PIPES FOR UNDER INSTALLATION		8		
<input type="checkbox"/> OR GROUND SURFACE ALARM		9		
<input type="checkbox"/> COME PIPES FOR 100ppm TREATMENT		10		

SCALE: 1:35	DWG. NO. A	REV 2
DATE: 4/20/04	BY: F. CHANDLER	

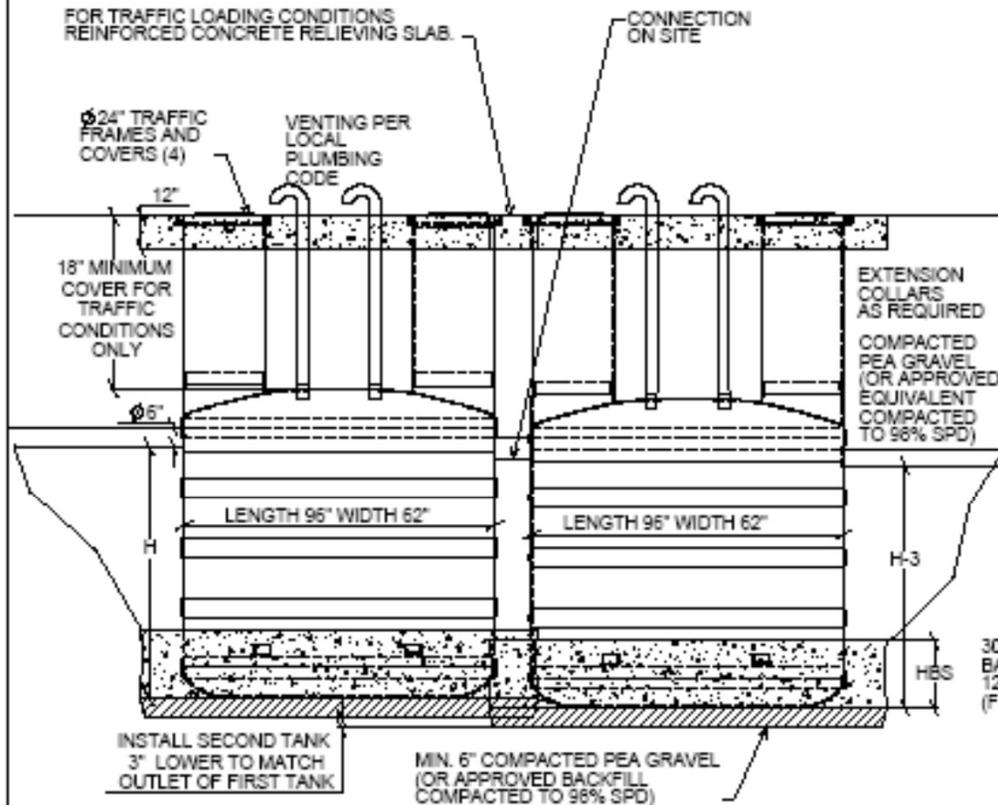


MANUFACTURER: GREEN TURTLE

877-428-8187 US 877-966-9444 CAN  
[GREENTURTLETECH.COM/PROCEPTOR](http://GREENTURTLETECH.COM/PROCEPTOR)

SCALE: 1:35 DO NOT SCALE DRAWING SHEET 1 OF 1

# GMC 2000 AND 2600 UPC FOR UPC/IAPMO INSTALLATION PROCEDURE



## NOTES:

- EXCAVATE TO THE REQUIRED DEPTH, LENGTH AND WIDTH IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) PRACTICES. PROVIDE 12" OF FREE SPACE AROUND THE UNIT AT THE BOTTOM.
- INSTALL & LEVEL 6" LAYER OF COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT BACKFILL COMPACTED TO 98% STANDARD PROCTOR DENSITY (SPD)).
- FOR INSTALLATIONS WHERE THE SUBSURFACE WATER LEVEL MAY RISE ABOVE THE BOTTOM OF THE TANK AT ANY TIME, CONTINUE TO STEP 4. OTHERWISE, INSTALL AND LEVEL TANK AND GO TO STEP 9.
- IF USING APPROVED BACKFILL MATERIAL INSTEAD OF PEA GRAVEL, INSTALL GEOTEXTILE FILTER FABRIC TO PREVENT MIGRATION AND COMPACT BACKFILL IN 6" TO 8" LAYERS TO 98% SPD.
- LEVEL TANK ON BACKFILL.
- FILL THE SEPARATOR WITH WATER UP TO THE REQUIRED HEIGHT OF THE BUOYANCY SLAB (HBS) - SEE TABLE BELOW.
- POUR CONCRETE READY MIX ANTI-BUOYANCY SLAB 12" ALL AROUND THE SEPARATOR CELLS TO HEIGHT REQUIRED. ENSURE THAT ANCHOR BRACKETS ON SIDE OF TANK ARE COVERED.
- FILL SEPARATOR WITH WATER UP TO THE INLET/OUTLET PIPES.
- BACKFILL UP TO INLET/OUTLET PIPES WITH COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT) COMPACTED TO 98% S.P.D.) IN 6" TO 8" LAYERS.
- CONNECT THE INLET, OUTLET, AND VENT PERING. VENT PER LOCAL PLUMBING CODE.
- INSTALL EXTENSION COLLAR. USE FRIBERGLASS SKAFLEX CALCUING FOR WATERTIGHT SEAL IF DESIRED.
- BACKFILL WITH COMPACTED PEA GRAVEL (OR APPROVED EQUIVALENT COMPACTED TO 98% SPD) TO MINIMUM 6" ABOVE THE BASE OF THE EXTENSION COLLAR.
- FOR TRAFFIC LOADING CONDITIONS, POUR REINFORCED BEARING SLAB AT SURFACE GRADE WITH TRAFFIC LOADING FRAME AND COVER EMBEDDED IN SLAB AND CENTRED OVER EXTENSION COLLAR. FOR TRAFFIC LOADING SLAB, CONSULT WITH STRUCTURAL ENGINEER.
- US PATENT # 5,748,912; CDN PATENT # 2,195,822.

PROCEPTOR F.O.G. SEPARATOR MODEL	INLET INVERT TO TANK BOTTOM (H")	HEIGHT OF BUOYANCY SLAB (HBS)	DRY WEIGHT OF UNIT
GMC 2000 UPC	80"	16"	1350 lbs
GMC 2600 UPC	75"	22"	1550 lbs

3000 psi CONCRETE READY MIX POUR 12" AROUND BASE OF UNIT TO HEIGHT OF BUOYANCY SLAB 120" LENGTH X 84" WIDE X HBS (SEE TABLE) (FOR HIGH WATER CONDITIONS ONLY)

BURIAL DEPTH TO INVERT NOT TO EXCEED 6 FT. BELOW GRADE WITHOUT FACTORY REINFORCEMENT.

(PROCEPTOR SEPARATORS MUST BE INSTALLED IN ACCORDANCE WITH ALL RELEVANT FEDERAL, PROVINCIAL/STATE, AND LOCAL CODES INCLUDING LOCAL PLUMBING CODE

\* ACTUAL HEIGHT MAY VARY SLIGHTLY. MEASURE OR CONTACT PROCEPTOR TO CONFIRM DIMENSION

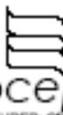
TITLE: PROCEPTOR F.O.G. SEPARATOR INSTALLATION FOR GMC 2000 AND 2600 UPC

PROJECT: \_\_\_\_\_ WO: \_\_\_\_\_

OPTIONS:

REV.	DATE	BY	DESCRIPTION
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2			
3	JUNE 1, 2005	J. SMITH	
4	SEPTEMBER 20, 2005	J. SMITH	
5			
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DRAWN BY: F. CHANDLER  
DRAWN DATE: 6/15/04

  
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GREENTURTLETECH.COM/PROCEPTOR

SIZE: A  
DRAWG. NO.: INSTALL GMC 2000-2600 UPC  
SCALE: 1:100  
DO NOT SCALE DRAWING

REV. 4

SHEET 1 OF 1

***THANK YOU!!***

