
PLUMBING AND DRAINAGE
PDI
CERTIFIED
INSTITUTE
®

GREASE INTERCEPTORS

- New Awareness
- Clean Water Act
- Regulations
- Research
- Technology available
- Design considerations

New Awareness

New Awareness

What problems it cause ?

SSO Sanitary Sewer overflows

"SSO", are a violation of the Federal Clean Water Act. These SSO's have resulted in millions of dollars in fines by the EPA

SSO

Sanitary Sewer overflows

SSO

Sanitary Sewer overflows

- These overflows are a direct violation of the Clean Water Act.

- The enforcement arm of the Federal government is the EPA

SSO

Sanitary Sewer overflows

In Orange County, CA, 252 orders have been issued, closing beaches for more than 2000 days (from 1987 through 2000). The majority of these closures were the result of bacterial contamination from sewage spills flowing into the ocean, usually originating from sewer lines clogged with grease. This is almost 6 years of closure.

SSO

Sanitary Sewer overflows

SSO Sanitary Sewer overflows 2006

EPA has reported in monitoring 35 States there were 40,000 beach day closings in the year 2006, due to contamination.

SSO

Sanitary Sewer overflows

Los Angeles County Sanitation Districts are fined $4.6 million for January 2006 sewage spill. Agreed to a $2.5 million settlement and released from liability for 93 sewage spill over the previous five years.

SSO Sanitary Sewer overflows

- Connecticut
- 1999-2003
- 2200 SSO's

SSO

Sanitary Sewer overflows

- Studies
- Orange County FOG Control 2005
- NC State Project FROG 2007

SSO

Sanitary Sewer overflows

The sewer line upstream of Bar an eating and drinking establishment

SSO

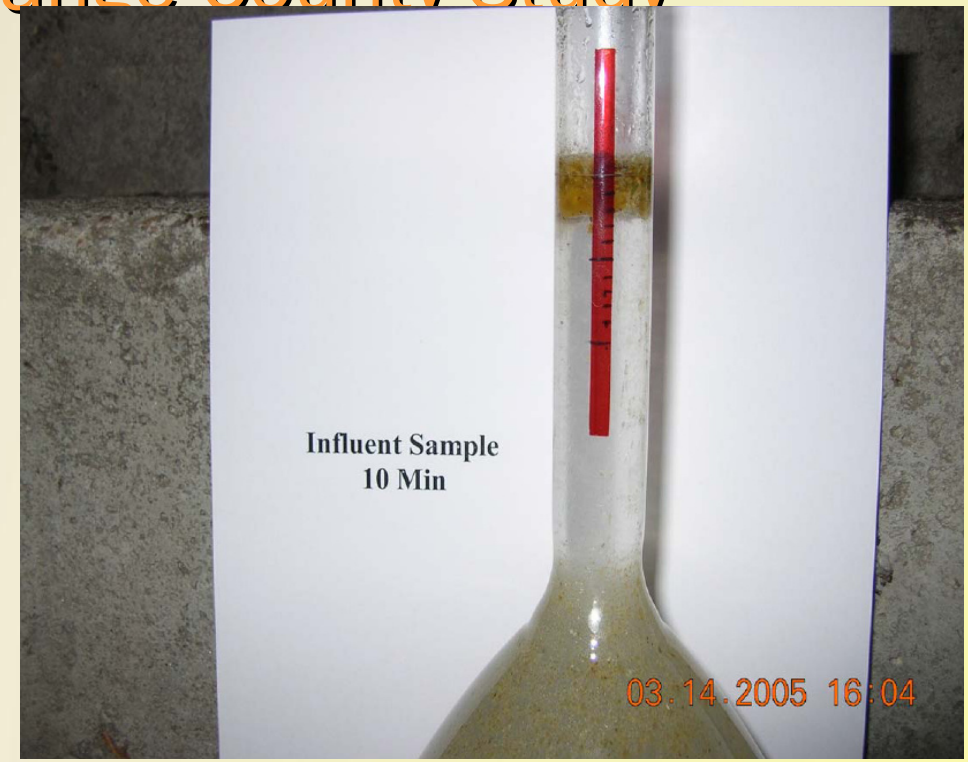
Sanitary Sewer overflows

The main sewer line where the service connection from Bar an eating and drinking establishment connects.

SSO

Sanitary Sewer overflows

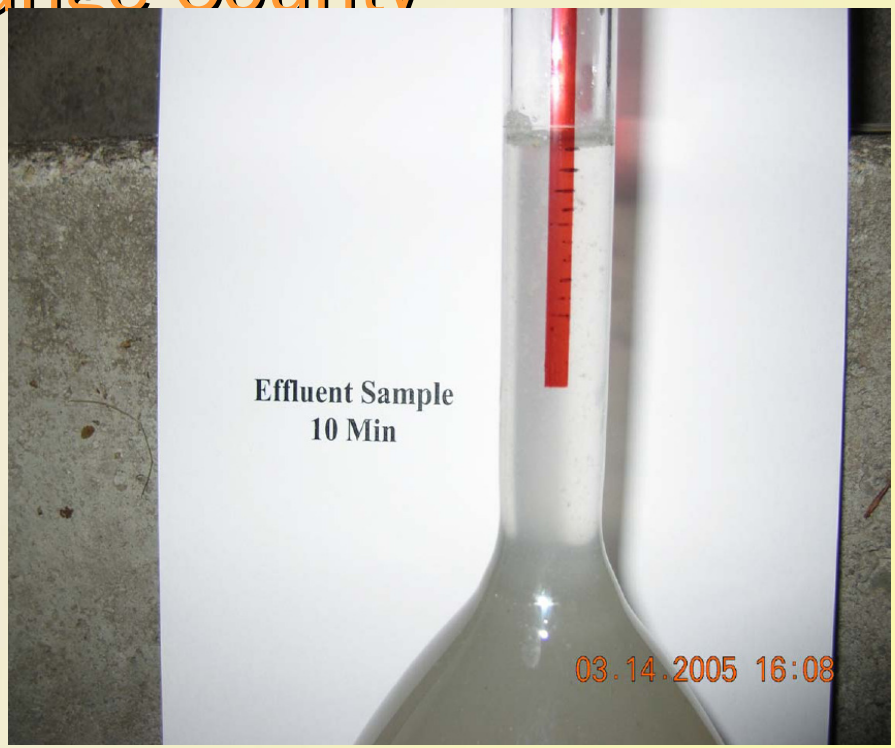
Orange County Study



SSO

Sanitary Sewer overflows

Orange County



SSO

Sanitary Sewer overflows

- NC State Project FROG 2007

FOG blockages are the primary cause in 40% to 50% of all SSO's (Southerland,2002)

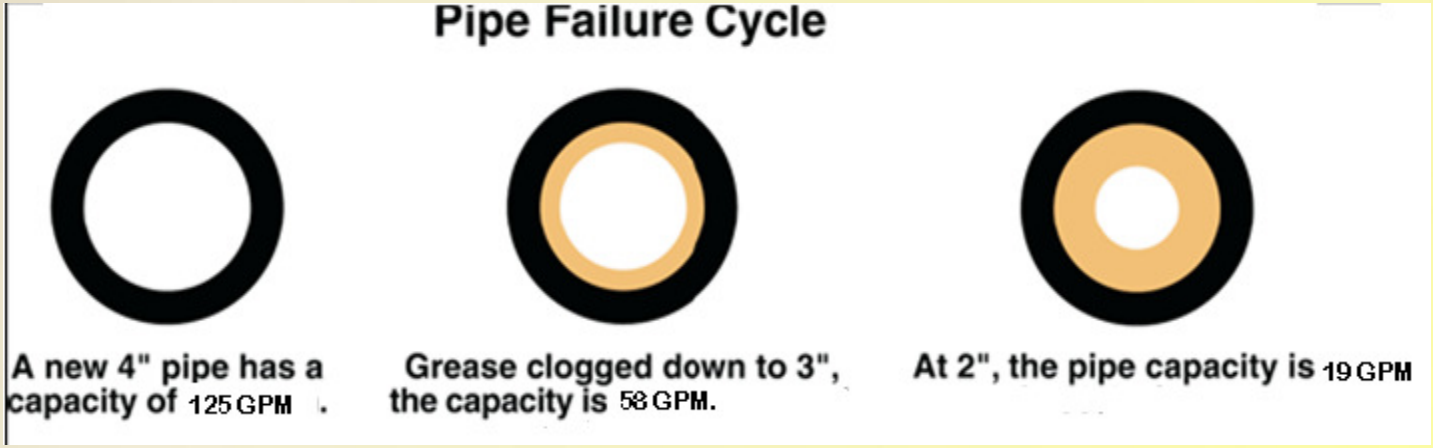
Another 10% to 25% are roots and grease

SSO

Sanitary Sewer overflows

- NC State Project FROG 2007

50% to 75%



GREASE

Were does it come from

- Food preparation and clean up
- Schools
- Assisted Living
- Nursing homes
- Hospitals
- Amusement Parks
- Malls
- Restaurants

GREASE

How much?

- Cafeteria 4,500 mg/L
- Chinese 1,900 mg/L
- Italian 1,000 mg/L
- American 950 mg/L

Technology available

Grease Interceptor is a generic term representing a family of devices

Technology available

Grease Interceptor:

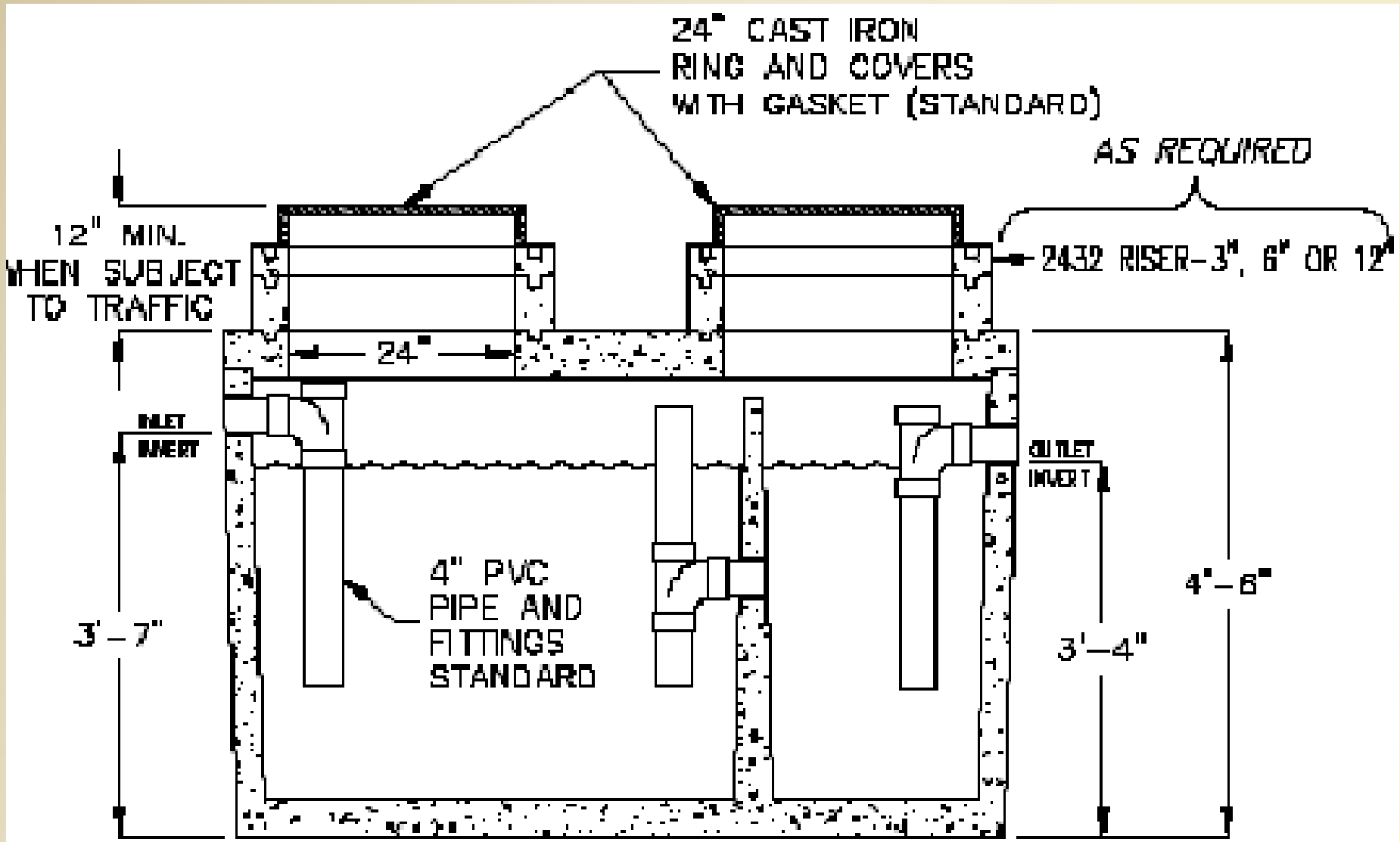
A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept non petroleum fats, oil, and greases (FOG) from a wastewater discharge.

Technology available

- Gravity Interceptors
- Hydro Mechanical
- Grease Removal Device GRD
- FOG Disposal Systems

GRAVITY / INTERCEPTOR

GRAVITY / INTERCEPTOR



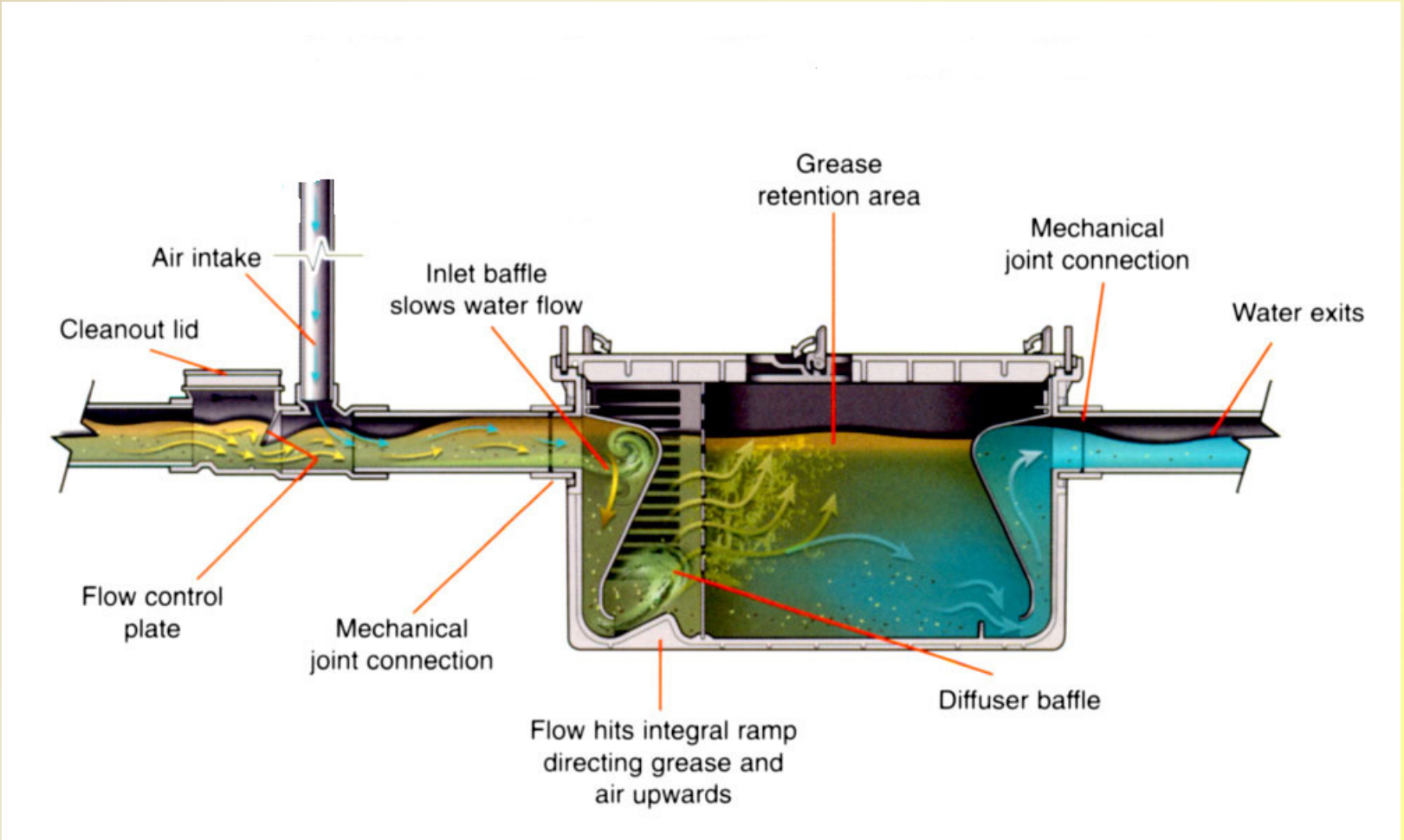
SIDE SECTION VIEW

GRAVITY / INTERCEPTOR

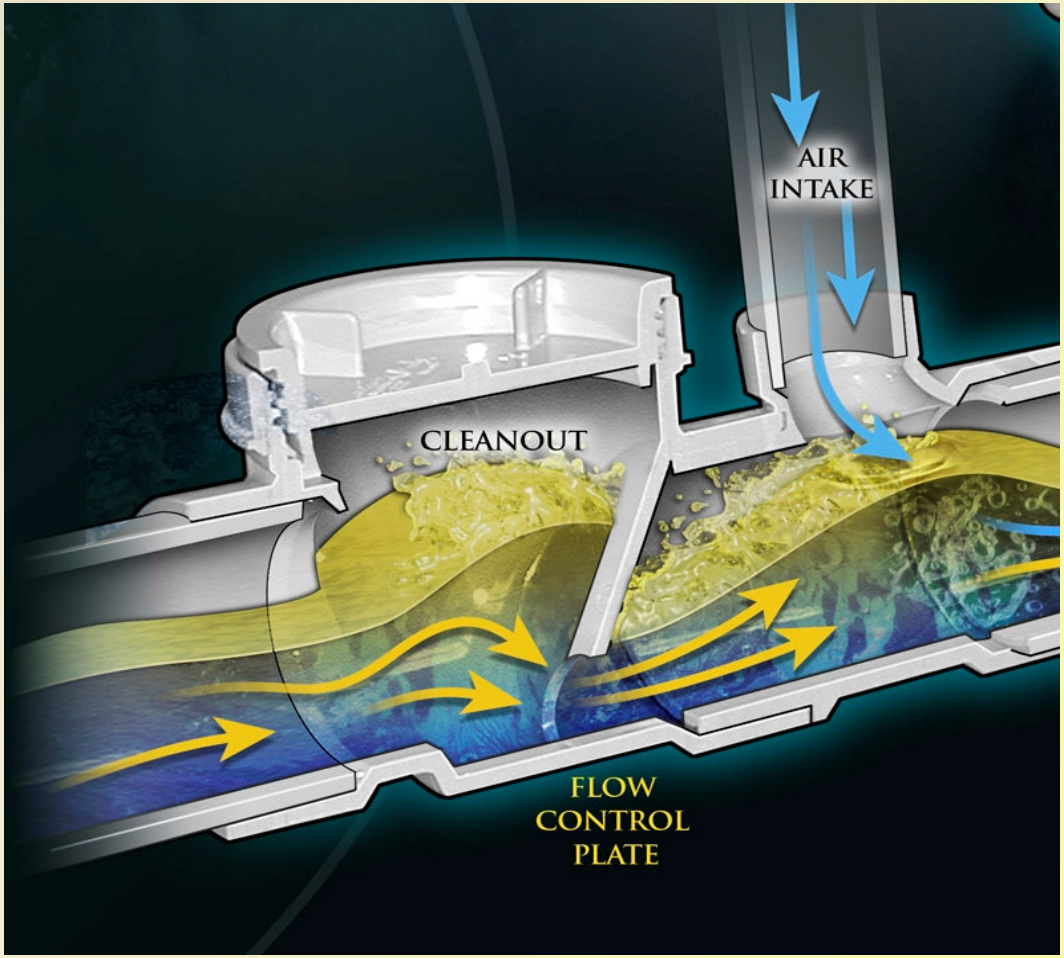
Design criteria for Hydro Mechanical interceptor PDI G101

- PDI G101 performance standard
- External vented flow control
- Removable cover
- Rated for GPM flow
- Grease retention capacity of
- twice rated flow
- Efficiency 90%-95% range

Hydro Mechanical Grease Interceptor



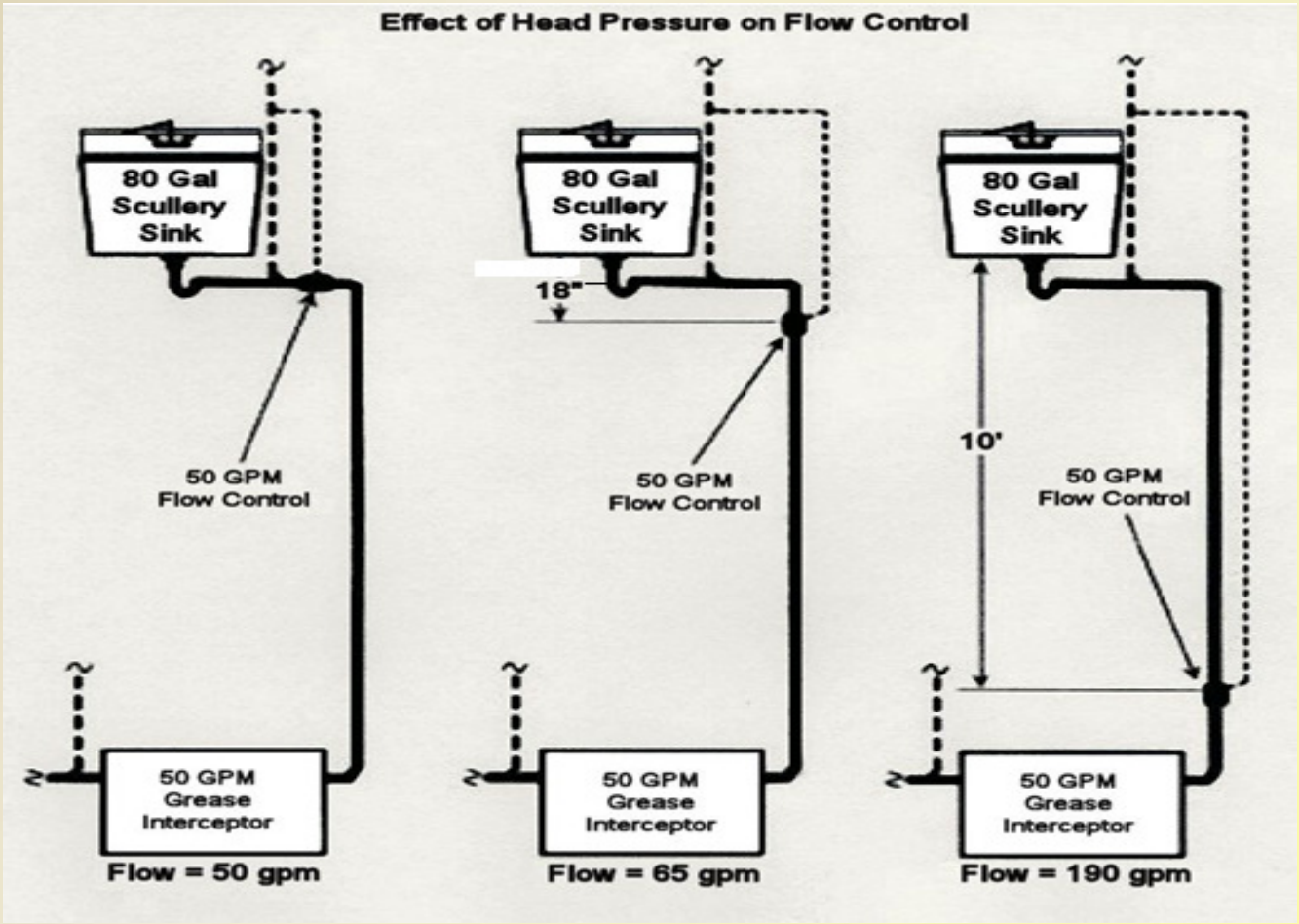
Hydro Mechanical Grease Interceptor



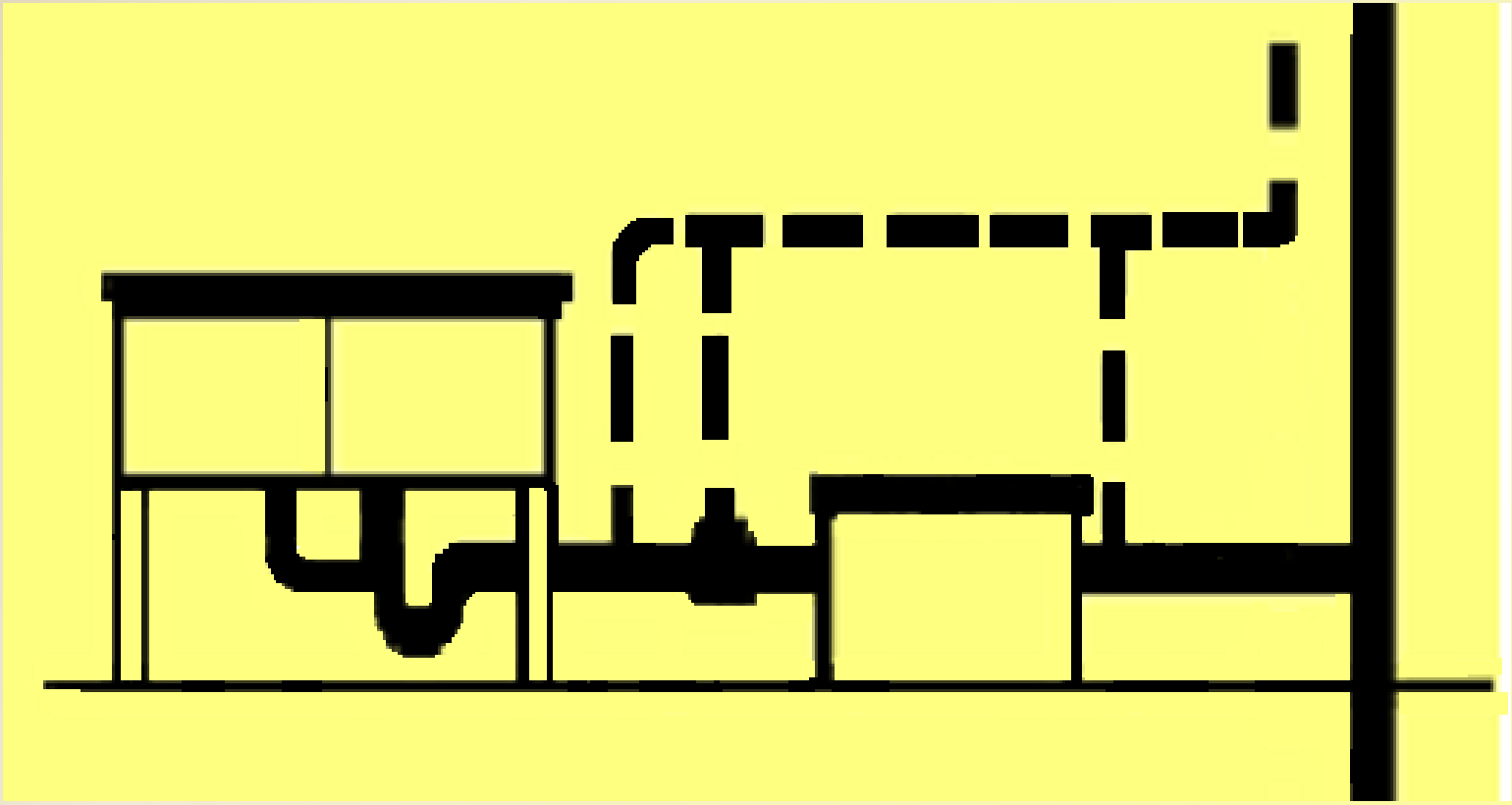
FLOW CONTROL

- At the level of the fixture.
- Between the fixture and Grease Interceptor
- One flow control per Grease Interceptor

FLOW CONTROL LOCATION



LOCATION OF GREASE INTERCEPTORS



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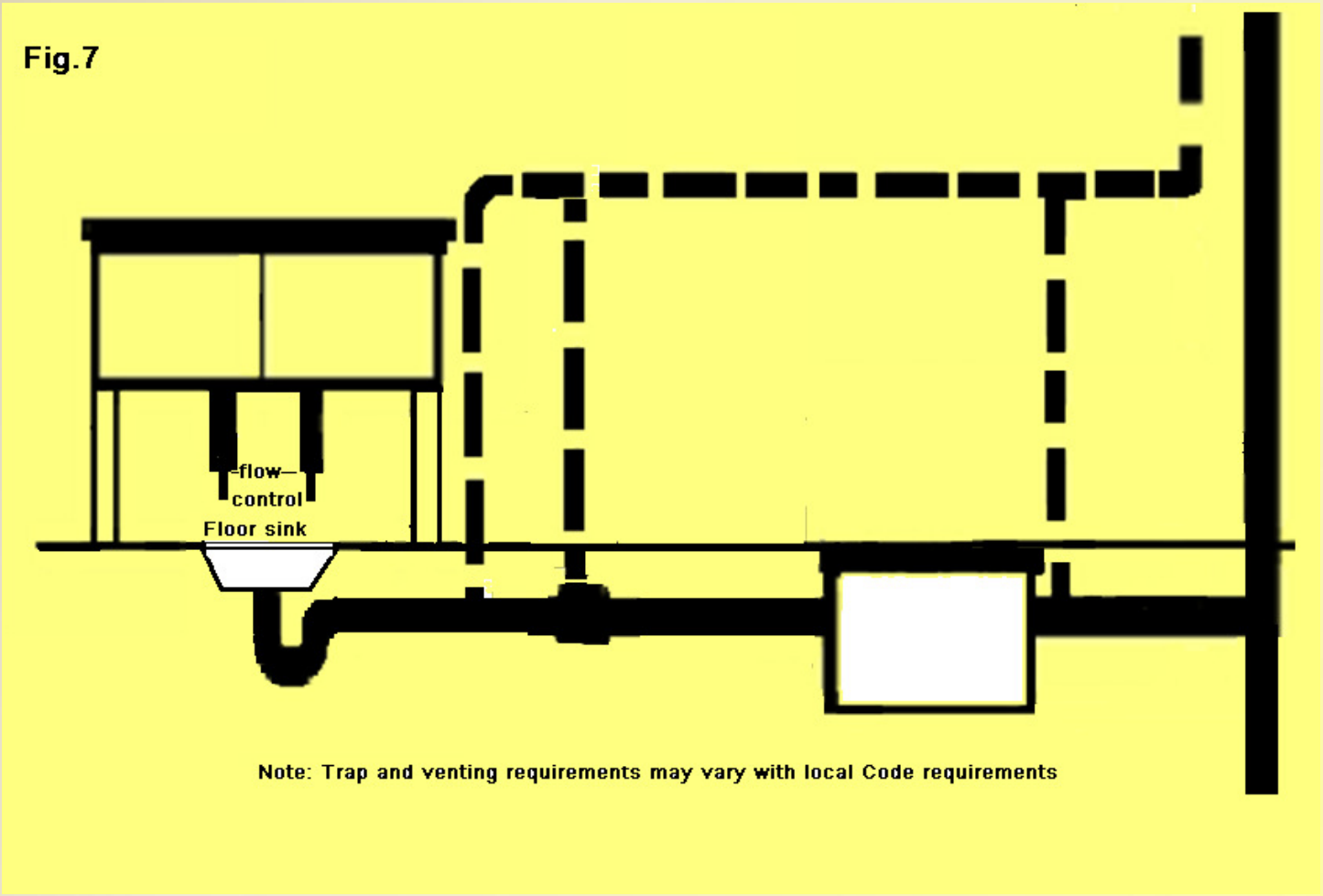


LOCATION OF GREASE INTERCEPTORS

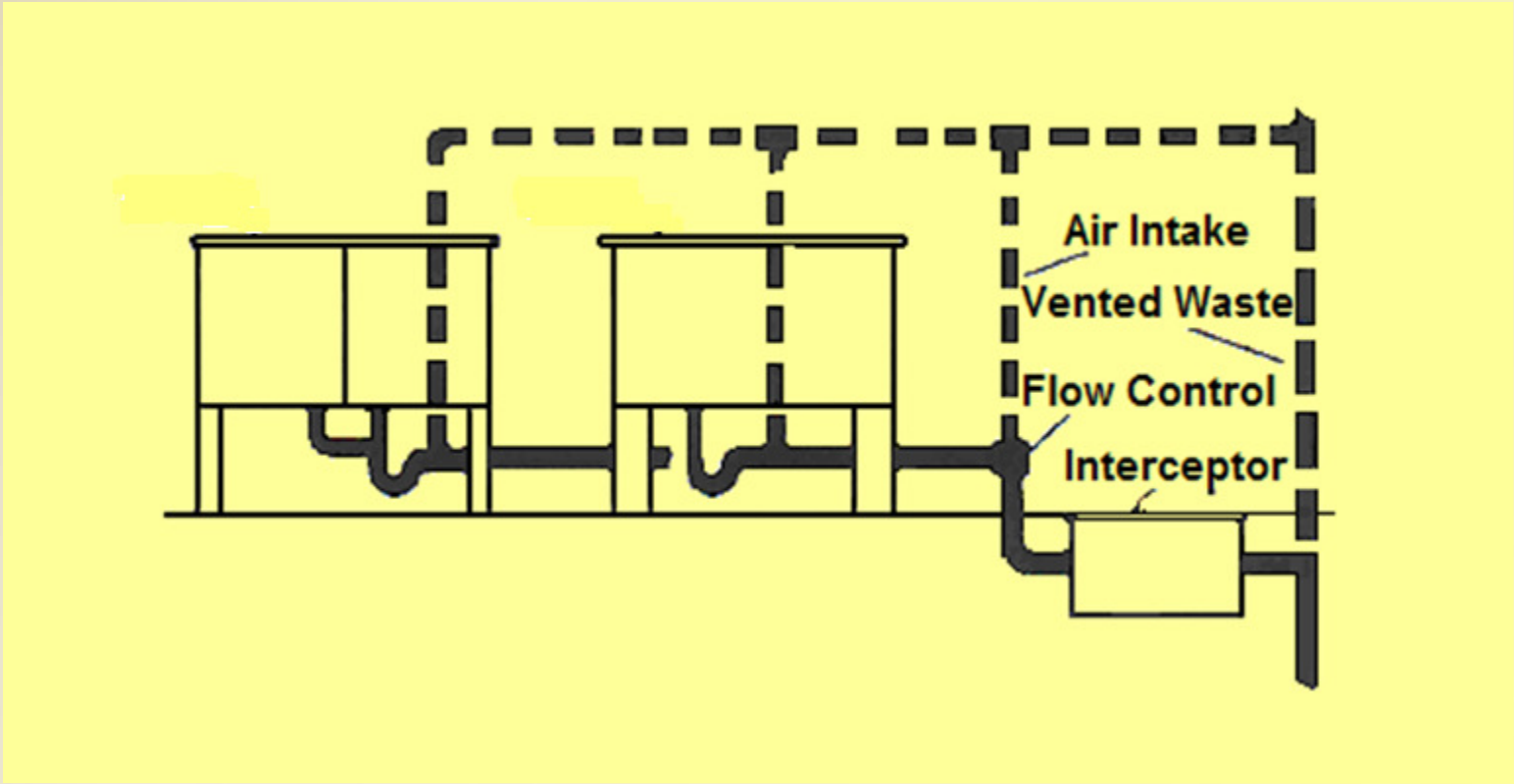
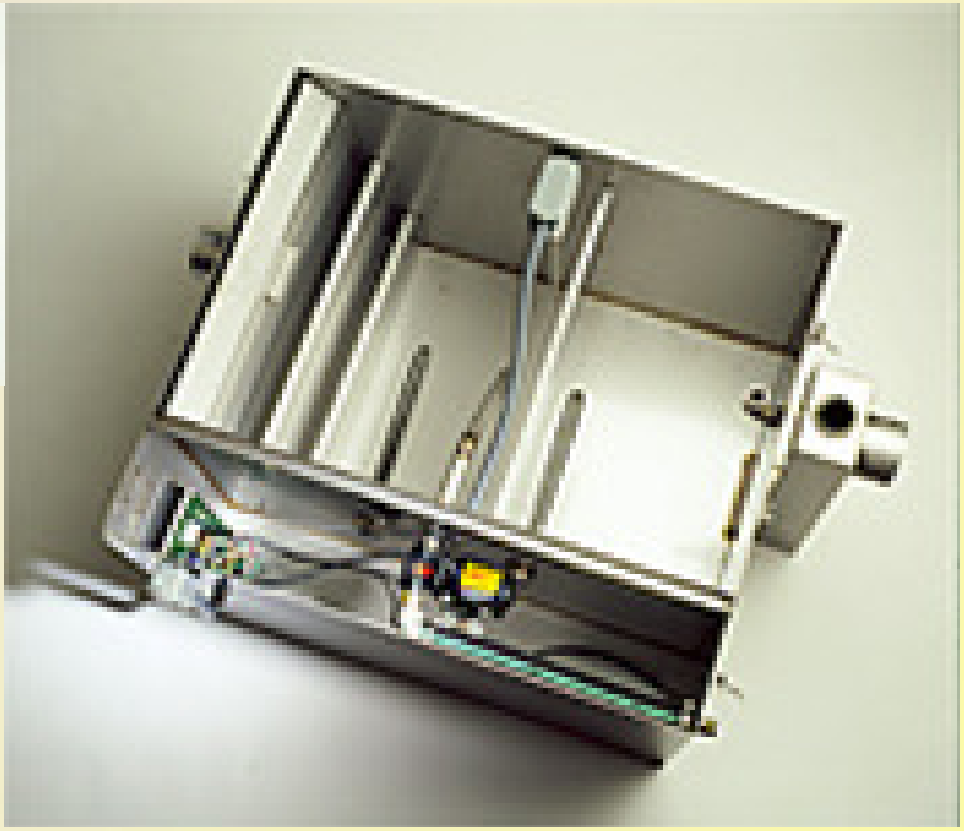


Figure A1.5.4-
Interceptor Serving Two Individually Trapped & Vented Sinks-Flow Control Air Intake Intersects Vent

HYDRO MECHANICAL
PDI G102



Automatic Sensor

Grease Interceptor

Grease Removal Device (GRD)

Any hydro mechanical grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which are either automatic or manually initiated.

ASME A112.14.4

GREASE REMOVAL DEVICE
GRD

- Hydro mechanical grease interceptor
- External grease collection
- Timer actuated
- Sensor operated
- Skim off grease
    - Disc
    - Belt
    - Hydraulic
    - Pump

GREASE REMOVAL DEVICE
GRD

GREASE REMOVAL DEVICE
GRD

Skimmer / Timer

GREASE REMOVAL DEVICE
GRD

GREASE REMOVAL DEVICE
GRD

GREASE REMOVAL DEVICE
GRD

Grease Interceptor

FOG Disposal System –

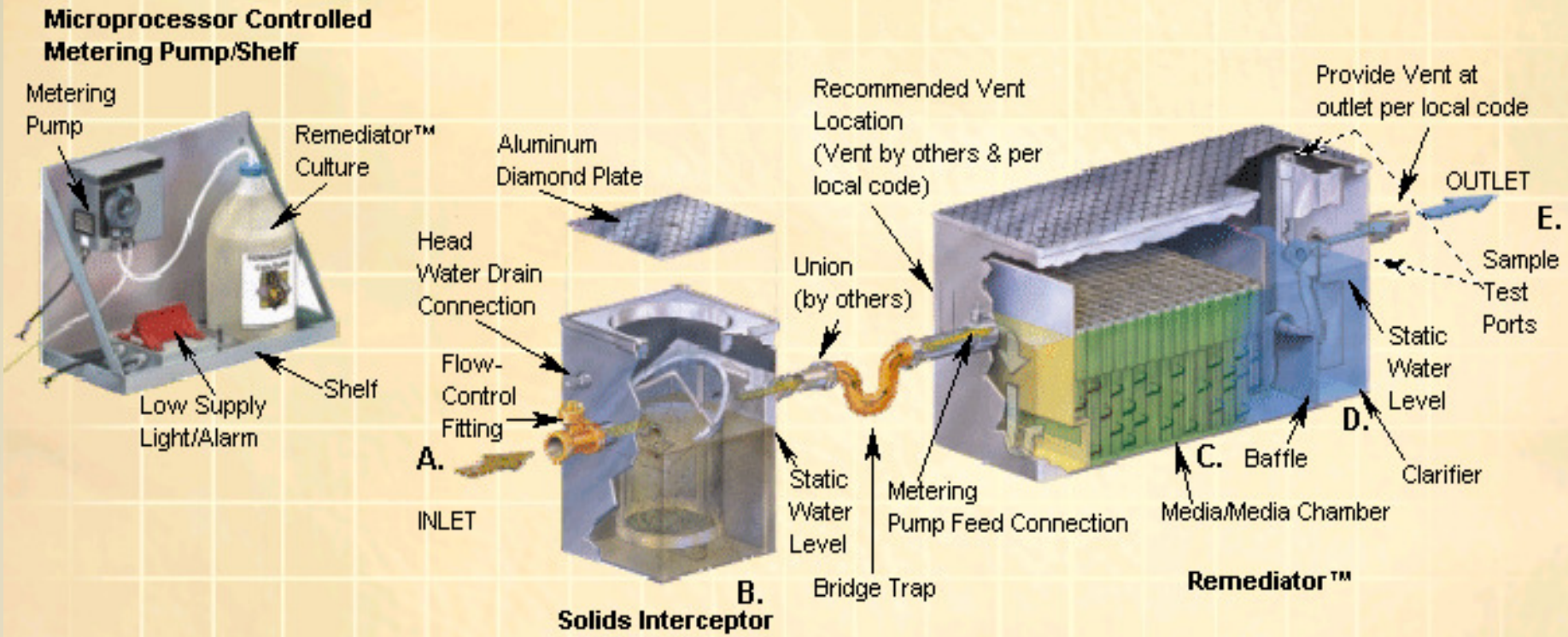
A grease interceptor that reduces non petroleum fats, oils, and grease (FOG) in effluent by separation, and mass and volume reduction.

ASME A112.14.6

FOG DISPOSAL SYSTEM

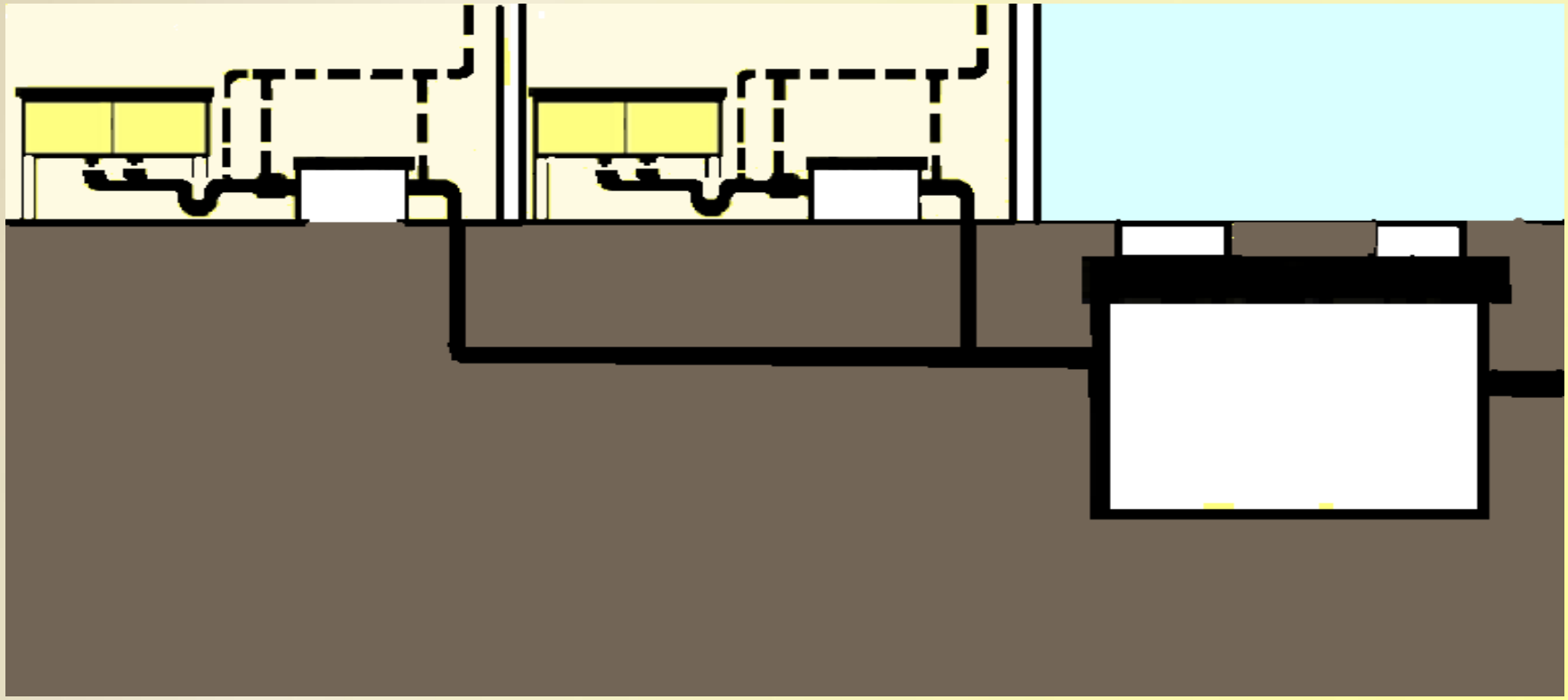
Grease Interception

How the Remediator™ Grease Treatment System Works



LOCATION OF GREASE INTERCEPTORS

- Avoid distances of greater than 25 ft



Size Ranges of GREASE INTERCEPTORS

Hydro Mechanical --- GPM flow

7 to 100 GPM

Gravity Interceptor Gallons cap.

300 Gallons and larger

Sizing
GREASE INTERCEPTORS

For all type of Grease interceptor drain line flow in GPM must be determined

Sizing Grease Interceptors

- Drain pipe capacity
- Actual flow

SIZING GREASE INTERCEPTORS

Over sizing can be a problem

GREASE

Polar Hydrocarbon

- Free fatty acids.
- Glycerin

GREASE

FOG breaks down into Fatty acids and Glycerin

- Hydrolisis
- Microbes
- Chemicals

GREASE

Fatty acids

- Harden with Iron oxide
- Chemically bond to pipes
- Fatty acids are corrosive
- Saturated fatty acids reacting with Calcium forming a solid tacky substance, SOAP

GREASE

- Saturated fatty acids reacting with Calcium forming a solid tacky substance

GREASE

FOG breaks down

Fog breaks down

- Sulfur reducing anaerobic bacteria
- Hydrogen sulfide
- Symbiotic aerobic bacteria
- Sulfuric acid

GREASE

GREASE

Over sizing VS Efficiency

- Over sizing by a factor of 3 results in only a 10% increase with the increased risk of FOG breakdown
- Over sizing encourages less frequent cleaning

Grease interceptor Review

You are helping the Food Service Establishment!

Seven week closure

Soup's back on at The Stockpot

SCOTT YATES/SYATES@SEACOASTONLINE.COM

With a pitcher of freshly prepared lemonade in the foreground, The Stockpot line cook Mike Bourque chops vegetables in the renovated kitchen before the reopening of the restaurant on Friday night.

After emergency closure, eatery reopens

BY RACHEL FORREST
rforrest@seacoastonline.com

PORTSMOUTH — The chalkboard sign outside The Stockpot Restaurant said it would open at 4 p.m. Friday, which became 4:30, then 5; finally, at 5:30, the Bow Street restaurant was back in business after a seven-week closure for restoration and repairs.

Owner Meredith Stolper closed the restaurant on June 17 after a grease clog caused a sewer system failure and extensive repairs had to be completed. Now, city health inspector Kim McNamara has cleared the harborside restaurant to open, and activity was bustling as employees got the place ready for customers. One of the first customers was Stolper's insurance agent, Wendy Tapley of Tapley's Insurance in York, Maine.

"I had a couple of serious claims like this when business have been closed down, and the owners can't keep their heads. But not Meredith. She was amazing. She saw what she needed to do and did it," said Tapley.

See STOCKPOT, Page A2

WHEN IT'S OPEN

Address: 53 Bow St., Portsmouth

Summer hours: Restaurant open Sunday-Saturday, 11 a.m.-11 p.m. Tavern open Sunday-Saturday, 11 a.m.-last call. Deck bar open Sunday-Saturday, 11 a.m.-midnight.

– www.thestockpotrestaurant.com

New Awareness

Reference / Information

Water Environment Research Foundation

www.WERF.org

Orange County FOG Study II

www.calfog.org

Plumbing and Drainage Institute

www.PDIonLine.org

New Awareness

WWW.PDIonLINE.ORG

THANK YOU