

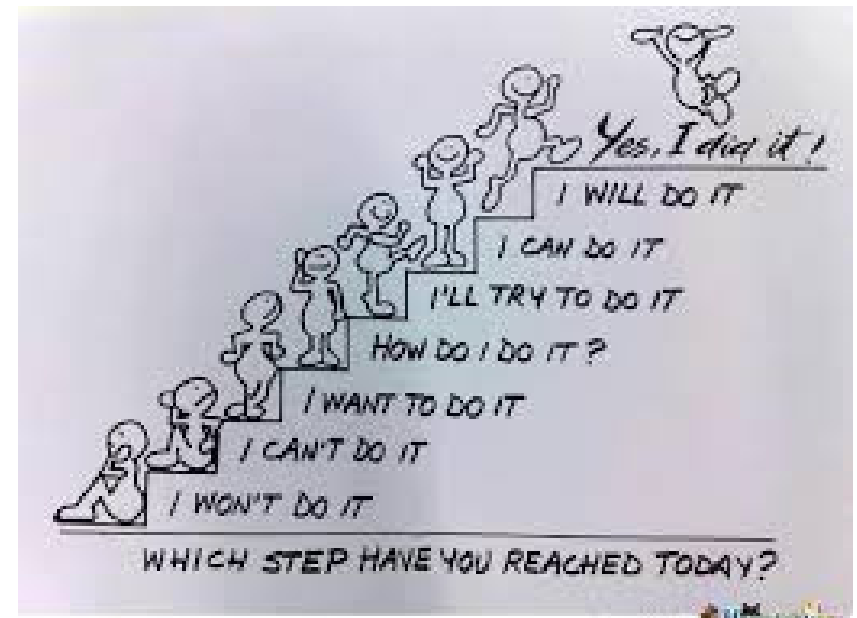


Welcome!

Today's Workshop is The Dirt on Biosolids & Yellow Grease

Why are you here?

- Required by law and NH Solid Waste Rules.
- Build your resume



Why this Workshop?

Biosolids & Yellow Grease

- Tie together the concepts you learned in Basic Training including waste diversion.
- Manage these wastes without disposing of it into a landfill.
- Determining what is best for your customers & residents.





Today's Agenda

- **Definitions: What the heck are we talking about?**
- **Secret Life of Septage**
- **What's Flushable?**
- **Grease to Gold: How to make energy from a problem.**

Wastewater Engineering Bureau



Ray Gordon, Administrator Residuals Management

Wastewater Facility

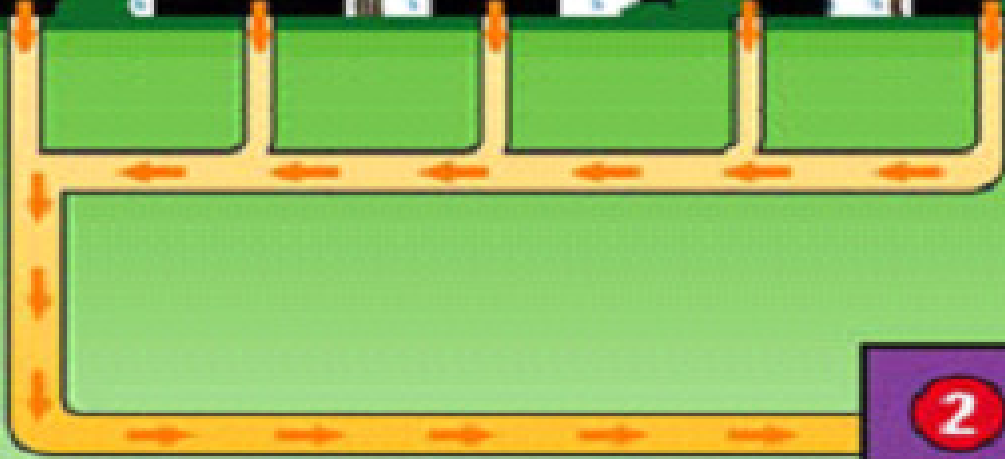


Wastewater Facility

Separate Sewer System

sanitary sewer

1



2

wastewater treatment plant

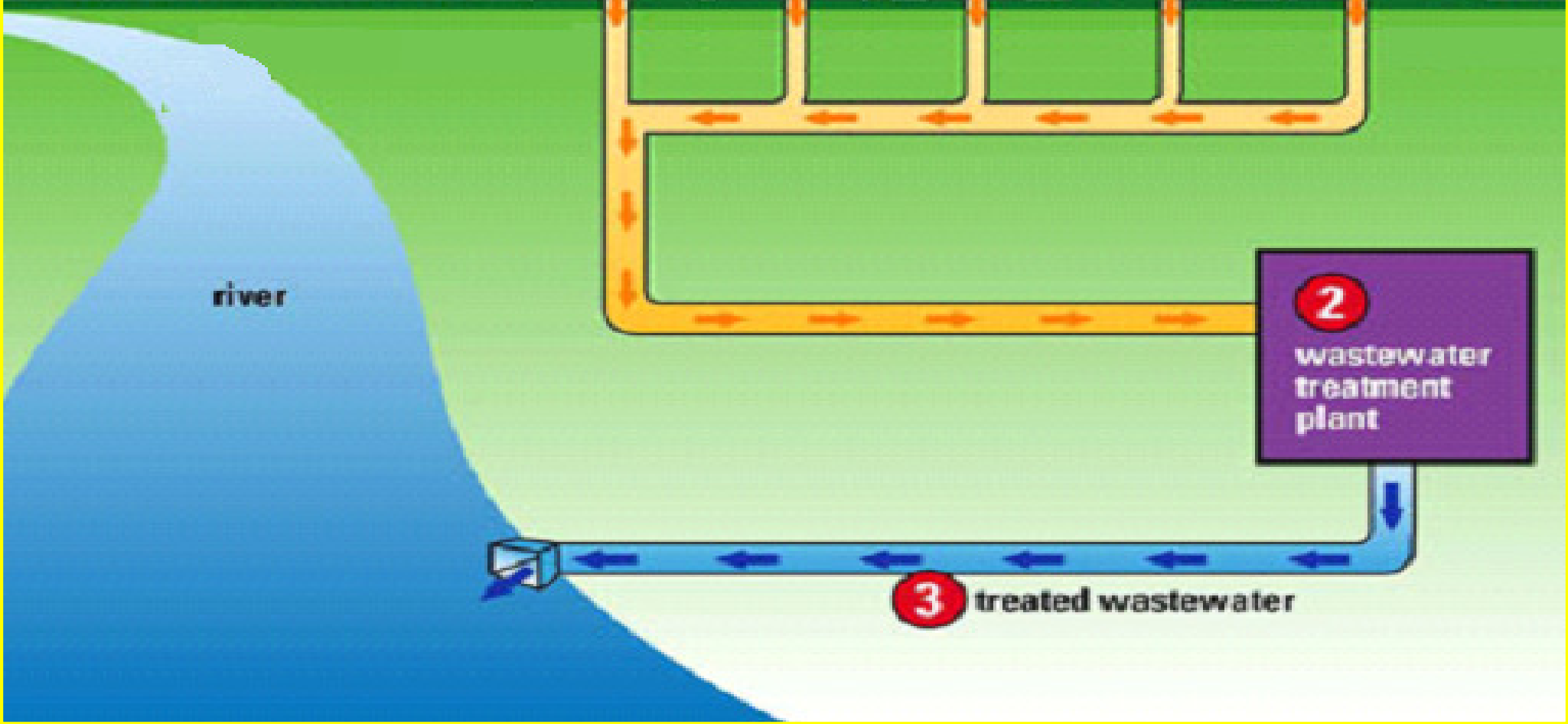


3

treated wastewater

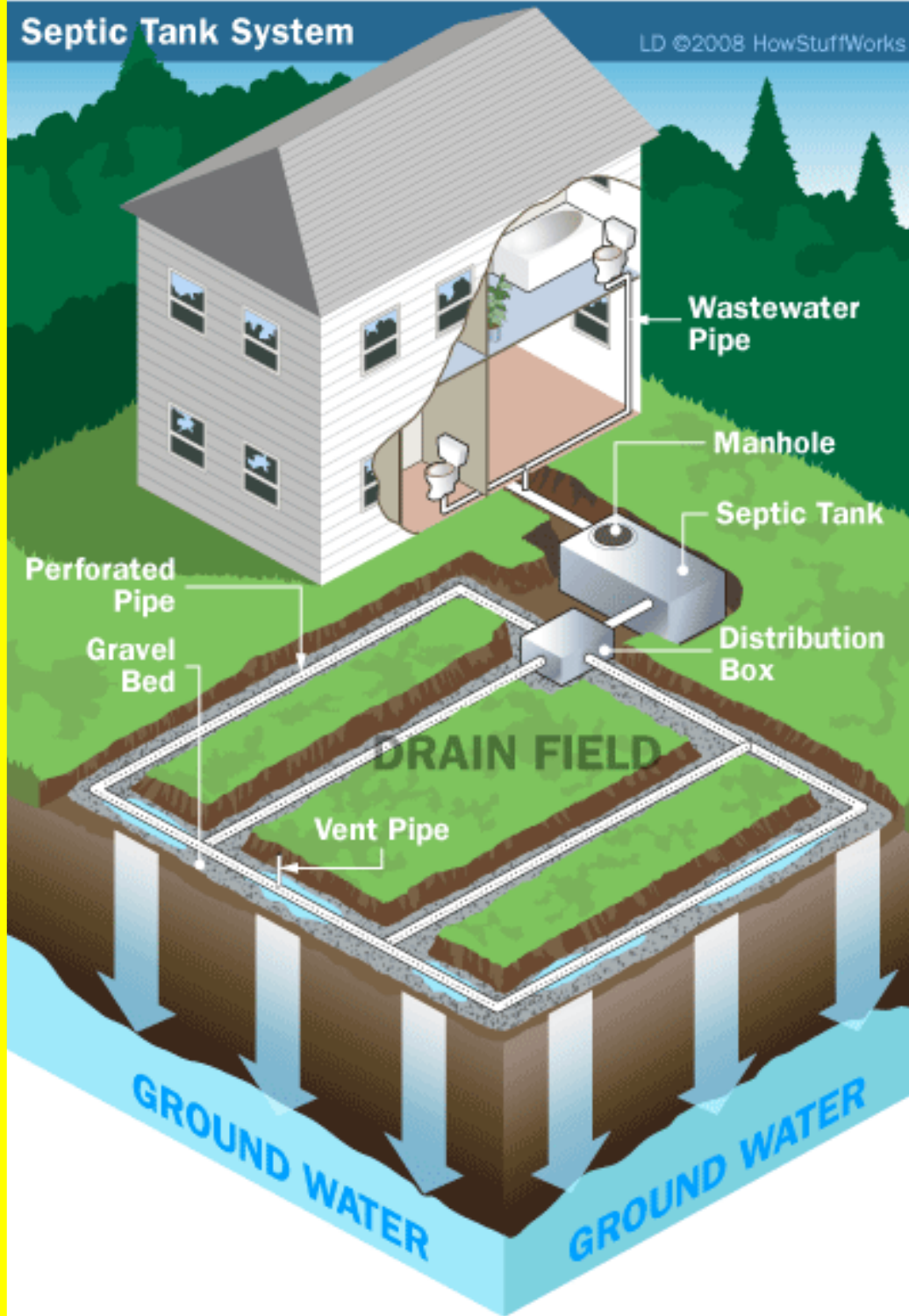


river



Septic Tank System

LD ©2008 HowStuffWorks



SEPTAGE





Solids
Sludge



Clean Water



Sludge vs. Biosolids



- Not treated
- No Testing
- NO Beneficial Reuse



- Treated for Pathogens
- Tested and Certified
- Beneficial Reuse

FATS

Solid at room temperature

Butter, shortening, margarine
Peanut butter
Meat trimmings
Uncooked poultry skin
Dairy: Cheeses, milk, cream,
sour cream, Ice cream

OILS

Liquid at room temperature

Vegetable oil
Canola oil
Olive oil
Corn oil
Salad dressings
Cooking oils

GREASE

Turns to liquid during cooking, but solidifies when cooled

Gravy
Mayonnaise
Melted meat fat
Bacon and sausage
Boiled poultry skin
Salad dressing

Basic Types of Waste Grease



Brown Grease



Yellow Grease



Brown Grease

Food grade (French fry) grease, no wastewater or waste contact, good for fuel
Regulated as Solid Waste



Yellow Grease

THE SECRET LIFE OF SEPTAGE



Ray Gordon
Administrator
Residual
Management



THE SECRET LIFE OF SEPTAGE



Ray Gordon
Administrator
Residual
Management



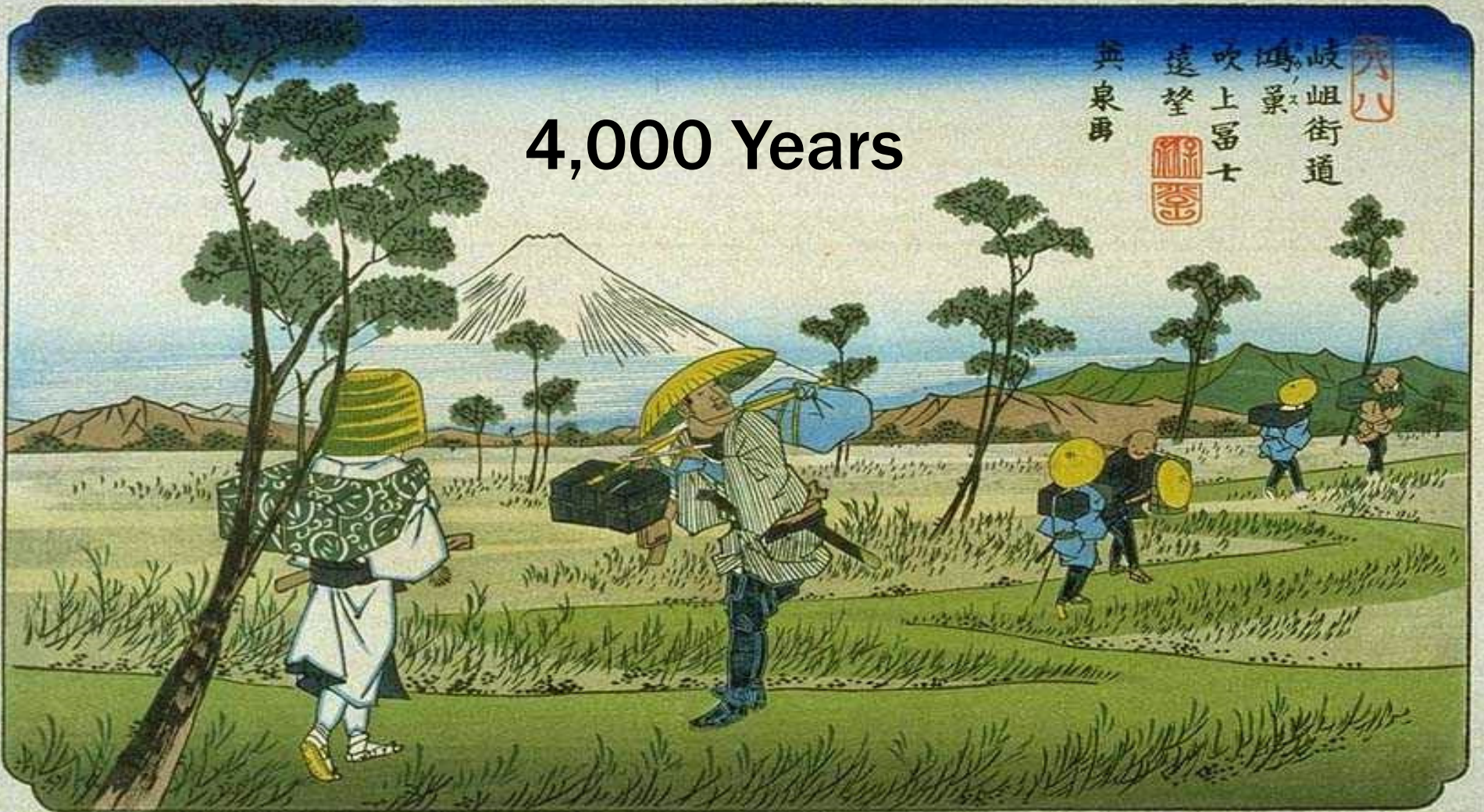
HISTORY

- Chinese
- Romans
- Medieval Times
- Modern History
- Need for Regulation
- Septage & Sludge Management



CHINESE

4,000 Years



Discovered human "waste" was a good fertilizer



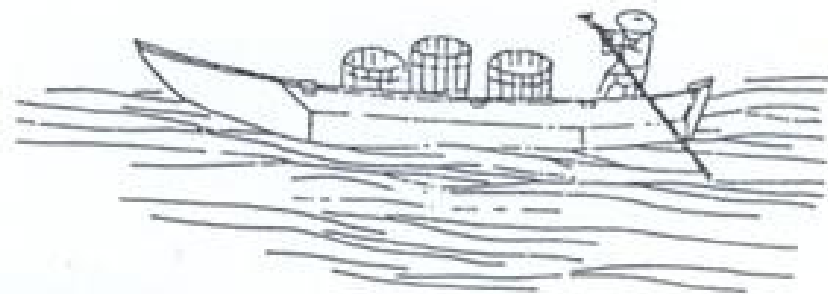
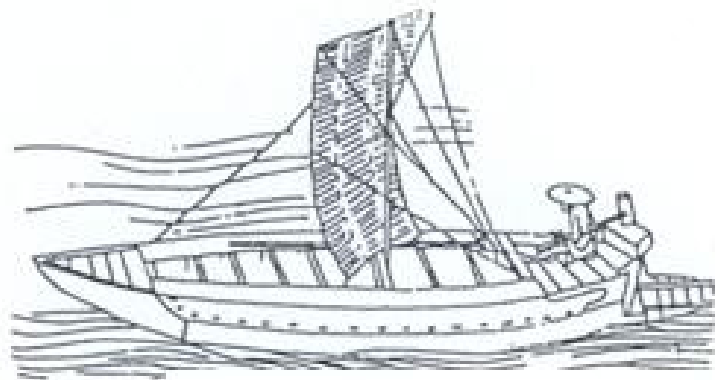


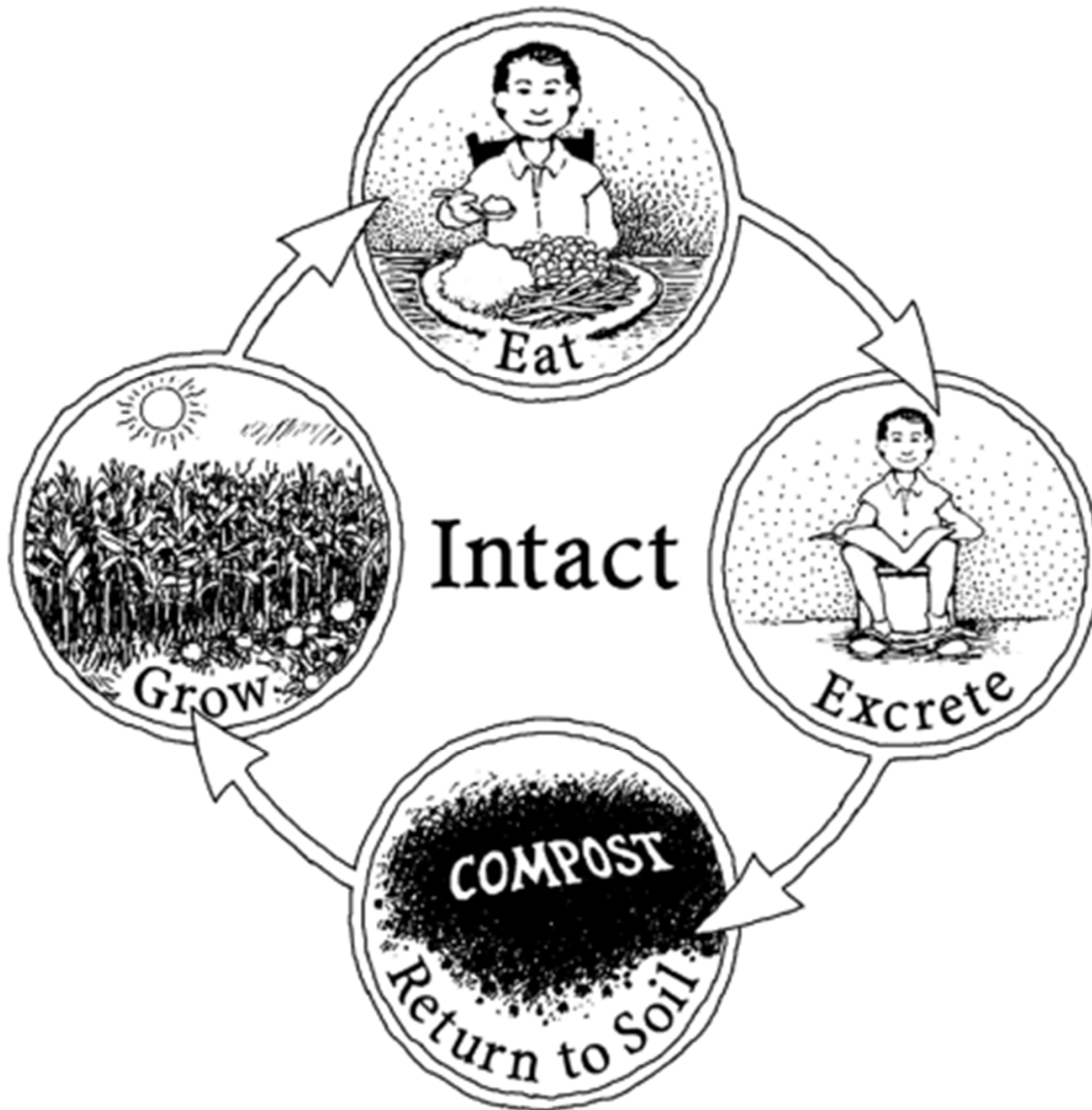
1871

Golden Fertilizer (Night soil) Barge



1989





CITY OF
SHANGHAI

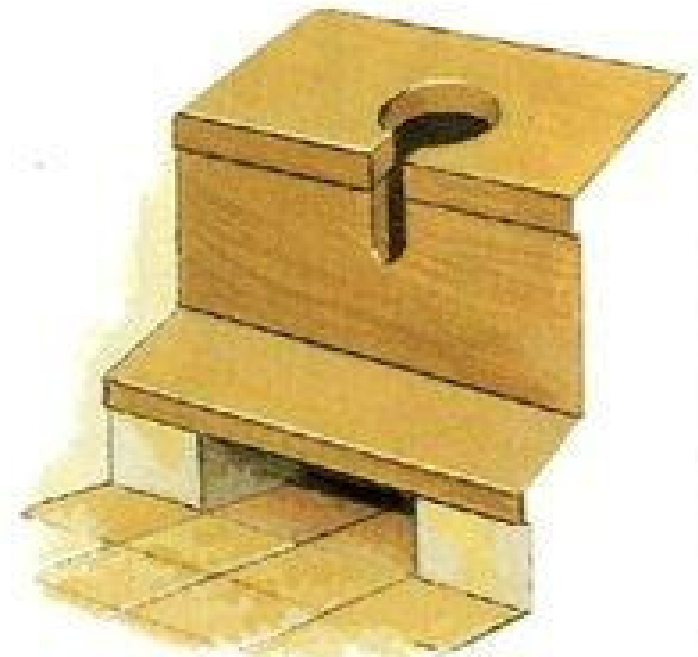
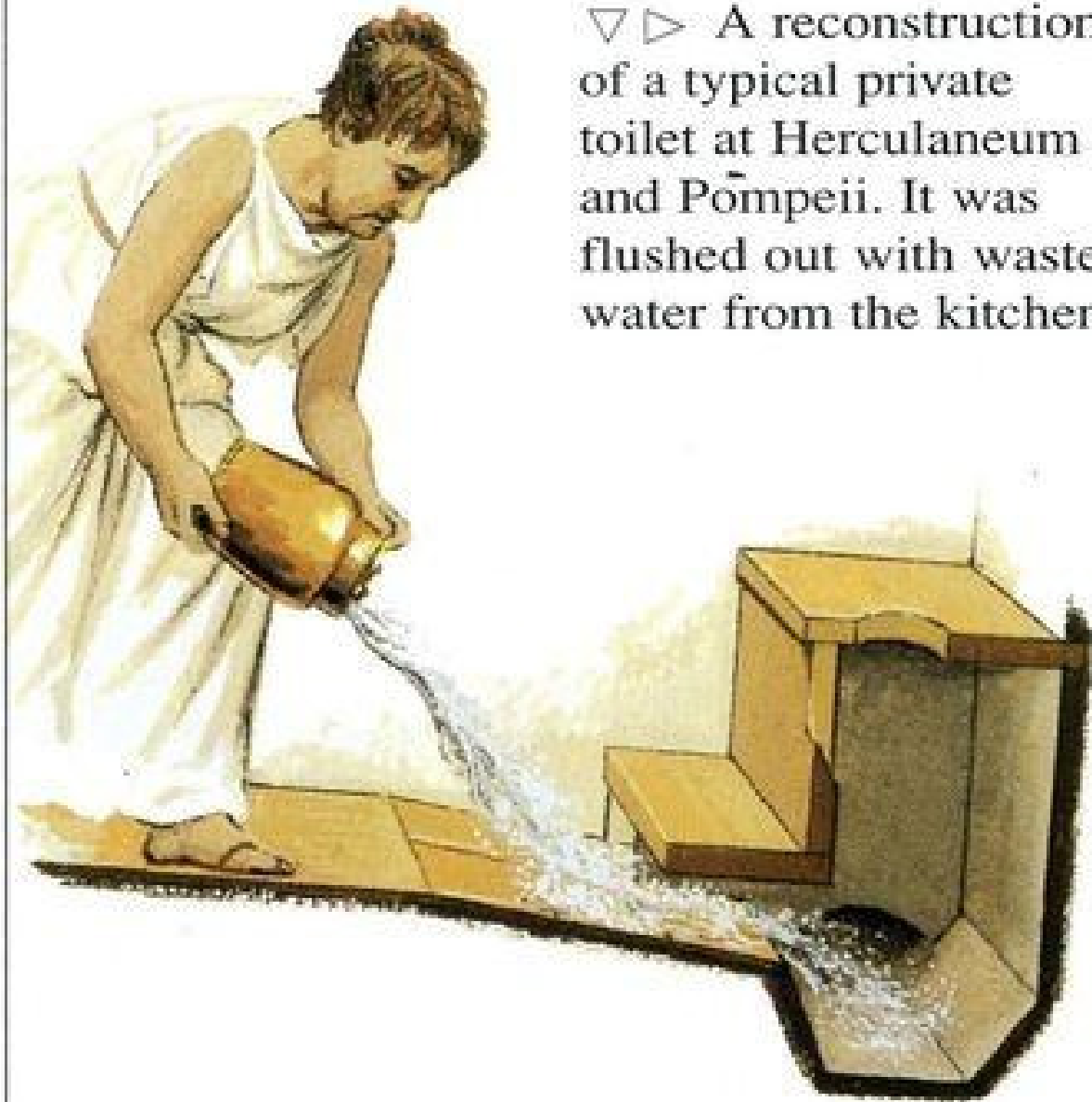
\$31,000 gold

Privilege of
collecting
78,000 tons

ROMANS



▽▷ A reconstruction of a typical private toilet at Herculaneum and Pompeii. It was flushed out with waste water from the kitchen.



△ A sponge stick, the ancient equivalent of toilet paper, well known from literary sources.



URINE WAS USED
IN ANCIENT ROME
TO WASH CLOTHES

ittzy.com

....for tanning leather...



...and in the making of “saltpetre”!



Used it to cure meat as early as 160 BCE



ANCIENT ROMANS IMPORTED PORTUGUESE URINE TO USE AS A MOUTHWASH. URINE WAS USED WELL INTO THE 18TH CENTURY TO FIGHT BAD BREATH.

I KNOW IT'S PEE BUT
IT HAS TO SMELL BETTER
THAN YOUR BREATH.



MEDIEVAL TIMES











The Black Death

The World's Most Devastating Plague

Professor Dorsey Armstrong
Purdue University



- Bubonic Plague 75%
- Pneumonic Plague 90%
- Septicemic Plague 99%

Wiped out

50%

Of a City's Population

MODERN HISTORY





NIGHT MEN

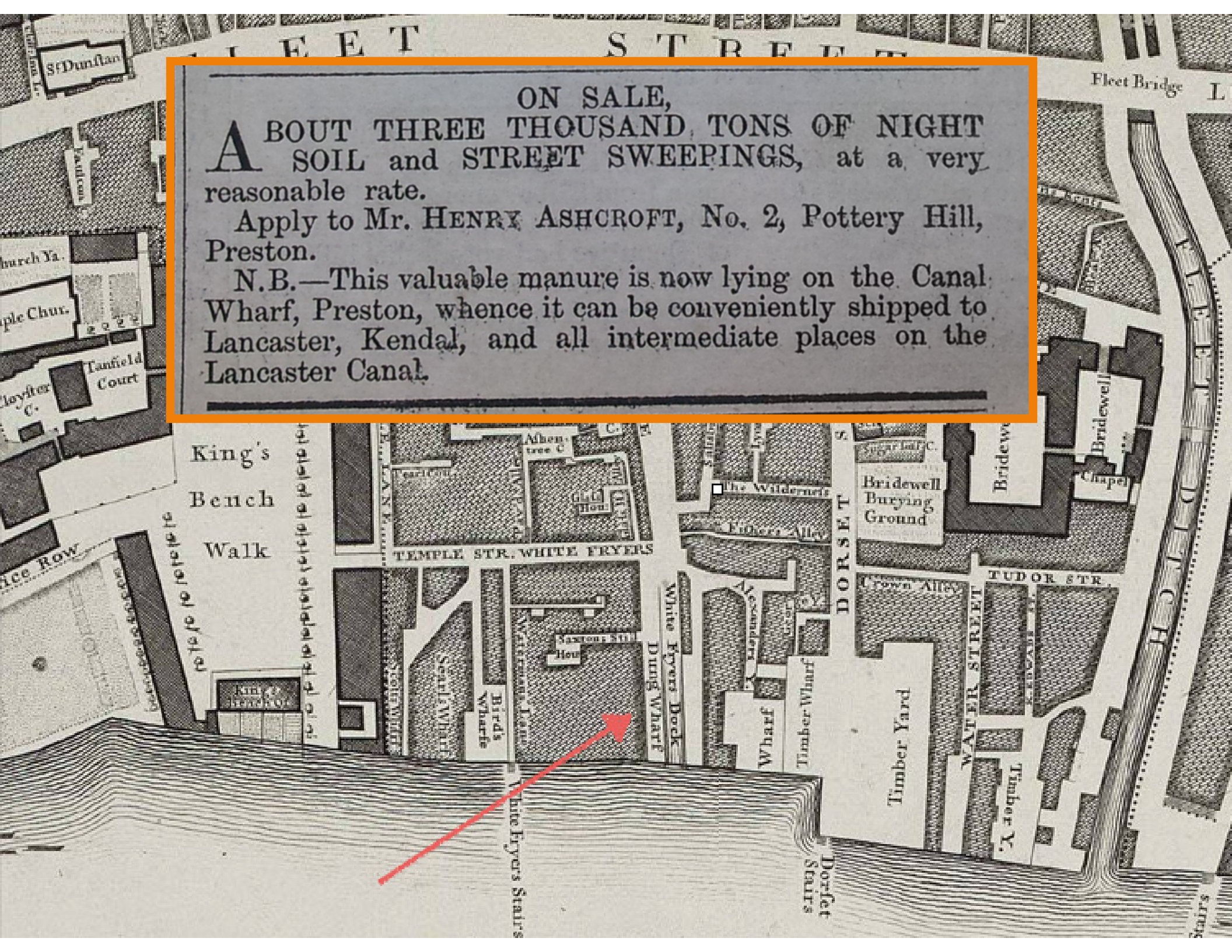
Four am to
haul off
Night Soil



ON SALE,
ABOUT THREE THOUSAND TONS OF NIGHT
SOIL and STREET SWEEPINGS, at a very
reasonable rate.

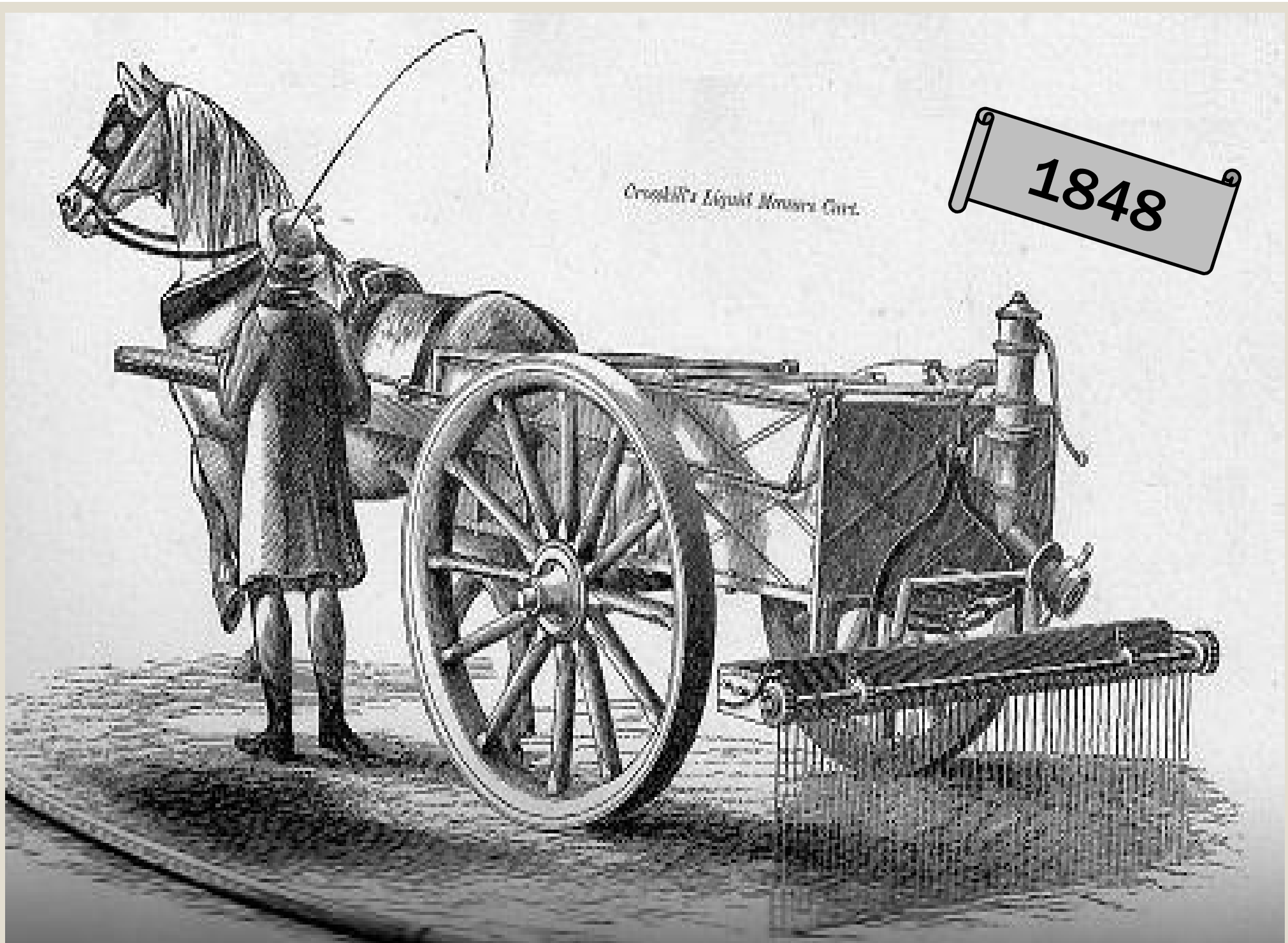
Apply to Mr. HENRY ASHCROFT, No. 2, Pottery Hill,
Preston.

N.B.—This valuable manure is now lying on the Canal
Wharf, Preston, whence it can be conveniently shipped to
Lancaster, Kendal, and all intermediate places on the
Lancaster Canal.





“it is a very powerful manure... It speedily dries, is easily pulverized”



Crosskill's Liquid Mower Cart.

1848

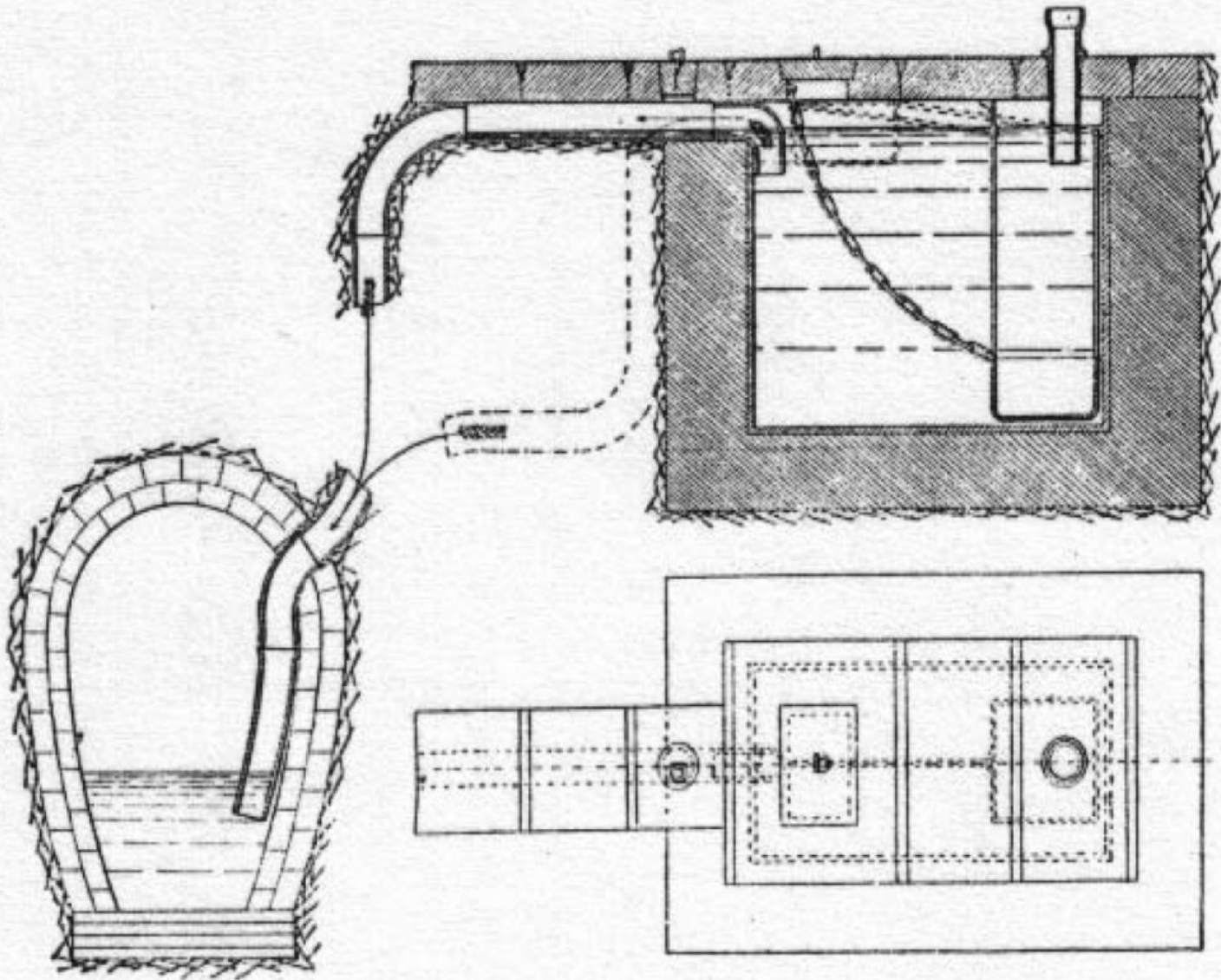


FIG. 64.—Fosse Mouras. La vidangeuse automatique.

FIRST SEPTIC TANK



1860 France

With the assistance of Abbé Moigno the creator John Mouras obtained a patent in 1881 .

1874





AMERICA



1883

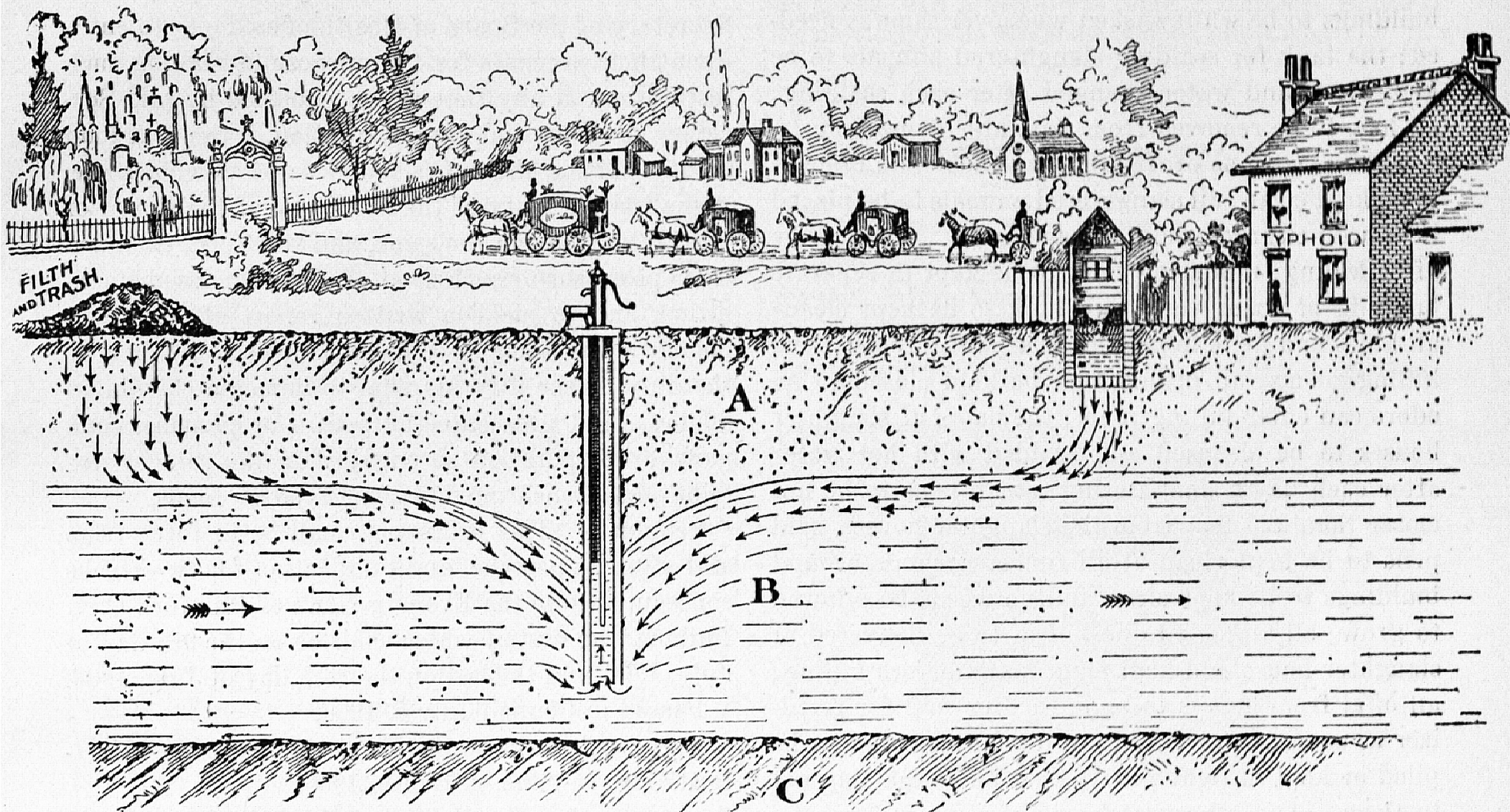


The privy is a detestable and dangerous necessity.

- It is so near the well as to pollute that,
- So near the kitchen as to lend odor to that,
- And so near enough to the parlor to remind us of what is unpleasant

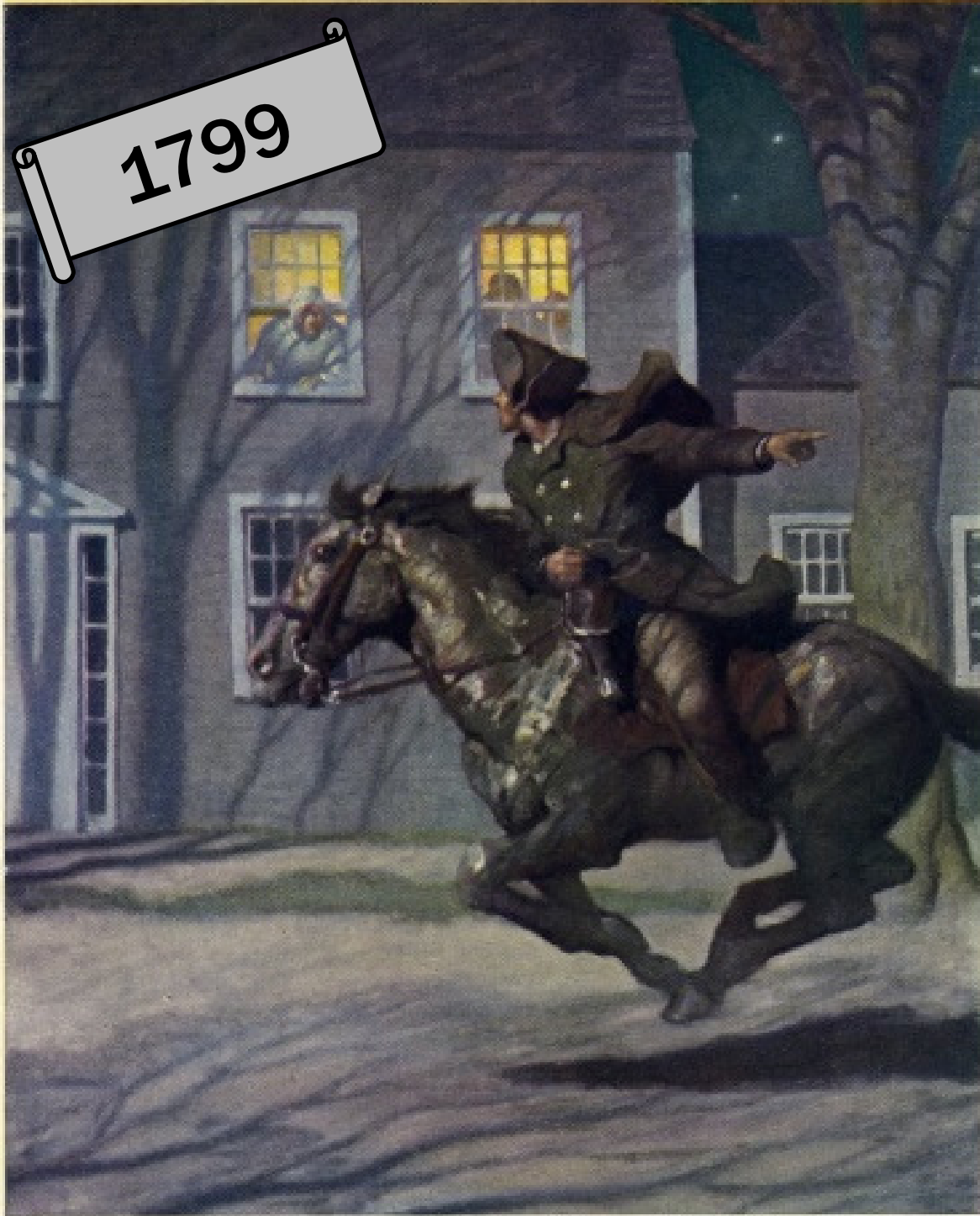


NEED FOR REGULATION



THIS PICTURE SHOWS HOW PRIVY VAULTS AND WELLS SOMETIMES CONNECT UNDERGROUND, AND THE FUNERAL PROCESSION MAKES PLAIN THE OUTCOME.

1799



Boston Board of Health

- Empty Privy when... within 18 inches of the surface.
- License every Inhabitant intending to open or clean Privy
- Dedicated Carts

1850



1910



1950



Warrington's 'night soil men' on their rounds emptying the 'toilet tubs' 1950's

Today



Env-Wq 1023.01 (a)



...combined thickness of the sludge and surface scum equal $1/3$ or more of the tank depth.

PERMIT NO.

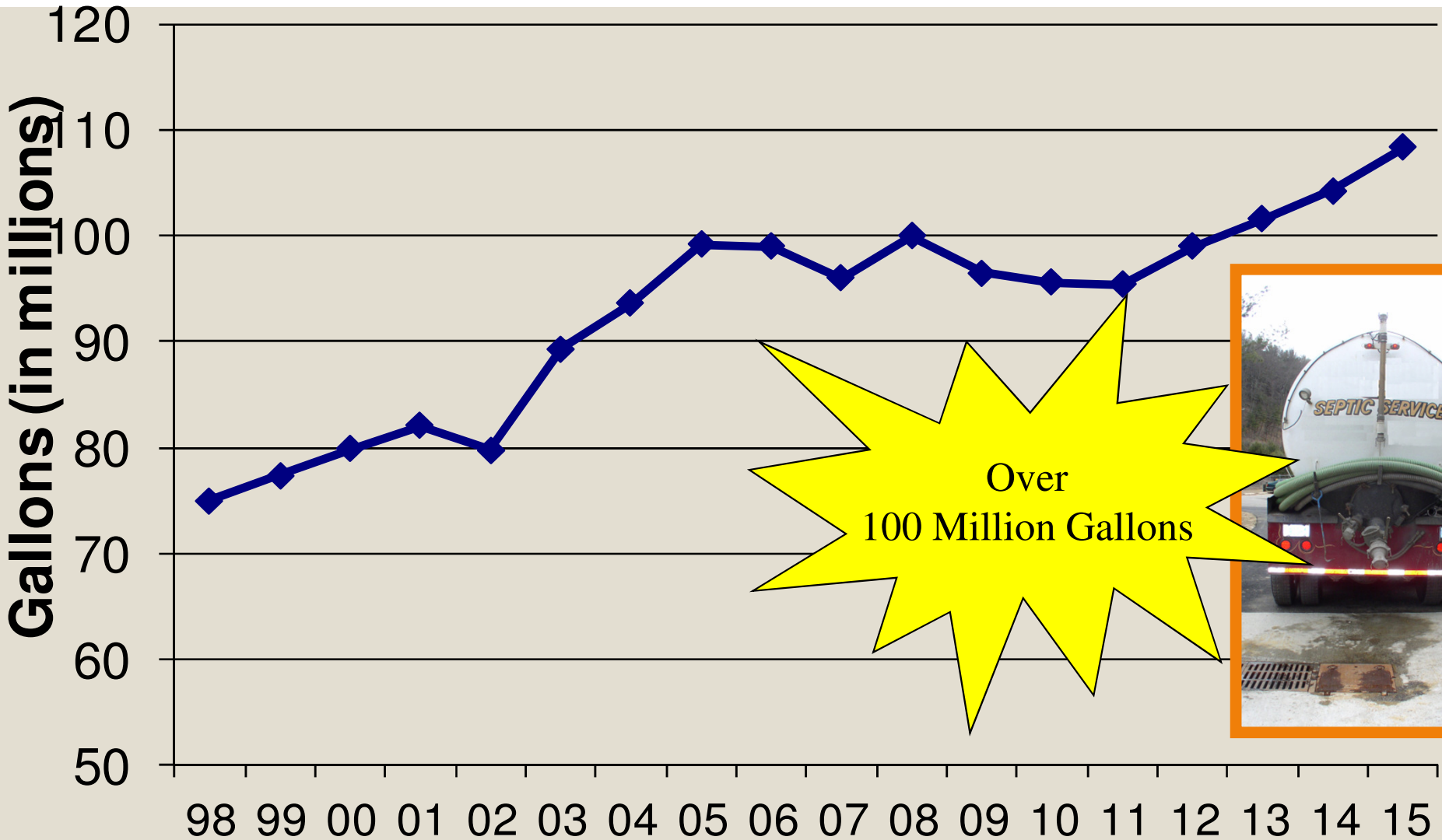
NHS-128

N.H. D.E.S.

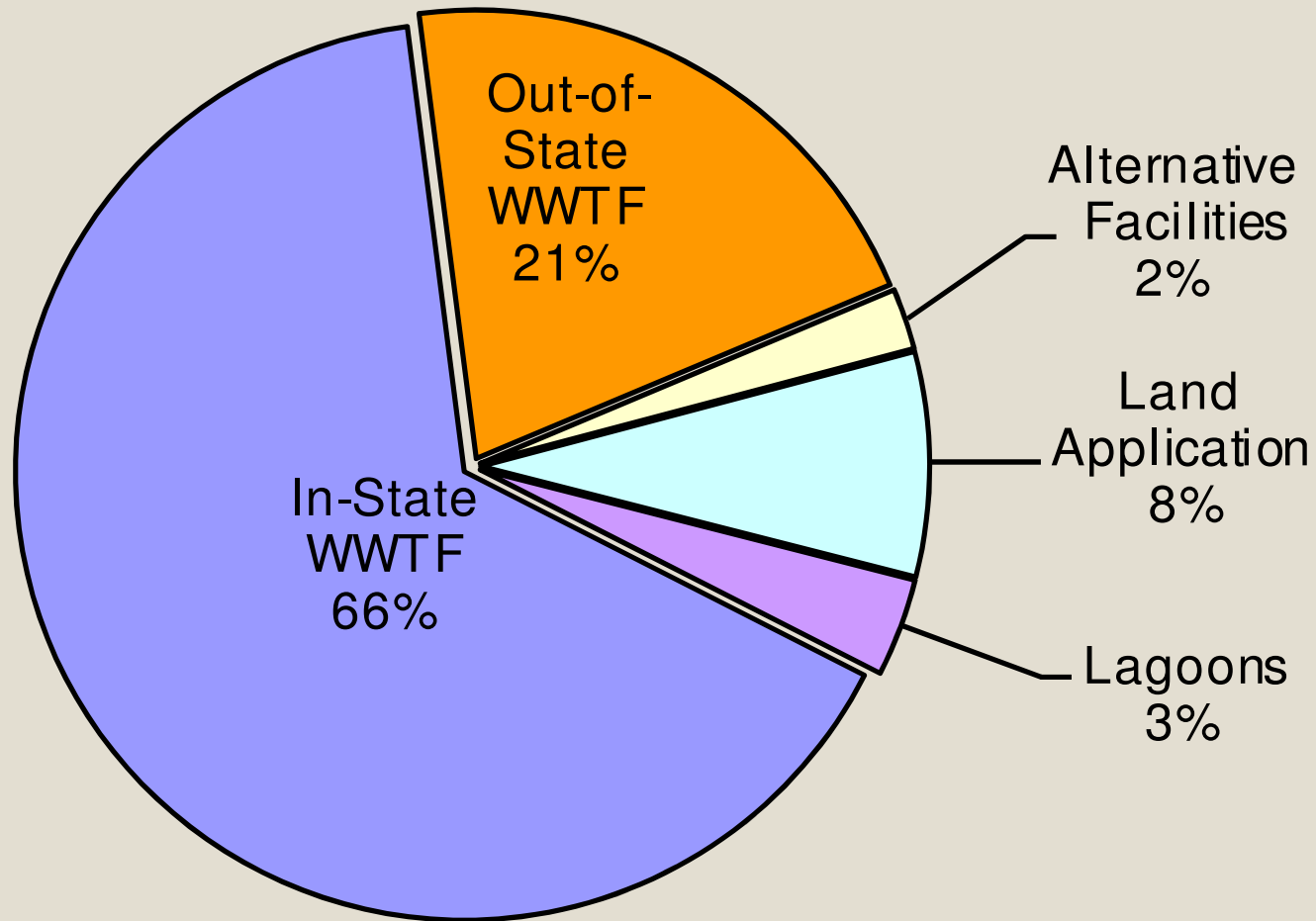
**SEPTIC TANKS PUMPED
SWIMMING POOLS FILLED
NOT SAME TRUCK**

439-1250

SEPTAGE GENERATION IN NH



Septage Disposal



Wastewater Facilities treat about 87% of the septage



ALTERNATIVE
FACILITIES

2%



LAGOONS

3%



LAND
APPLICATION

8%

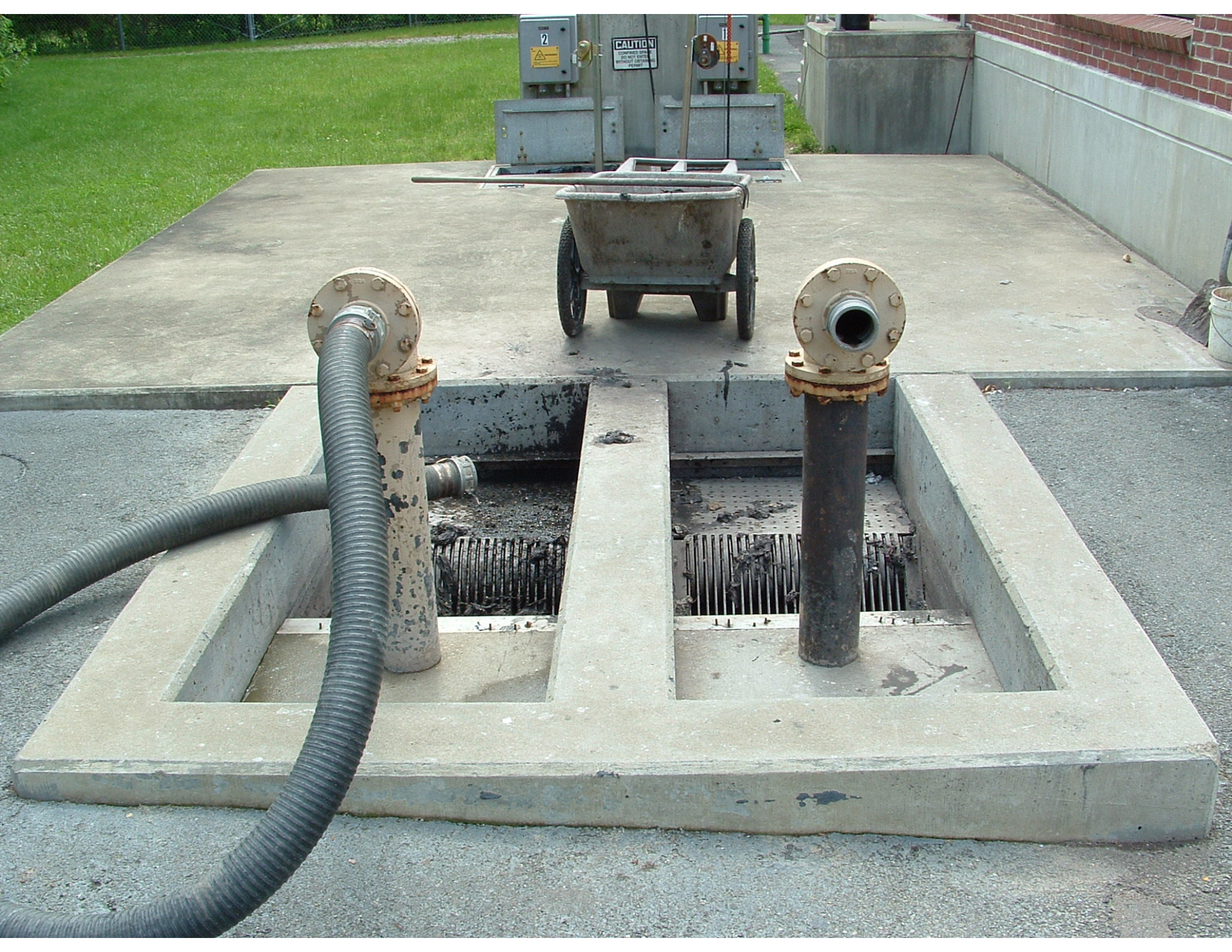
08/21/

WASTEWATER TREATMENT FACILITIES

87%



Out of 106 WWTF
42% Take Septage





Solids



Clean Water



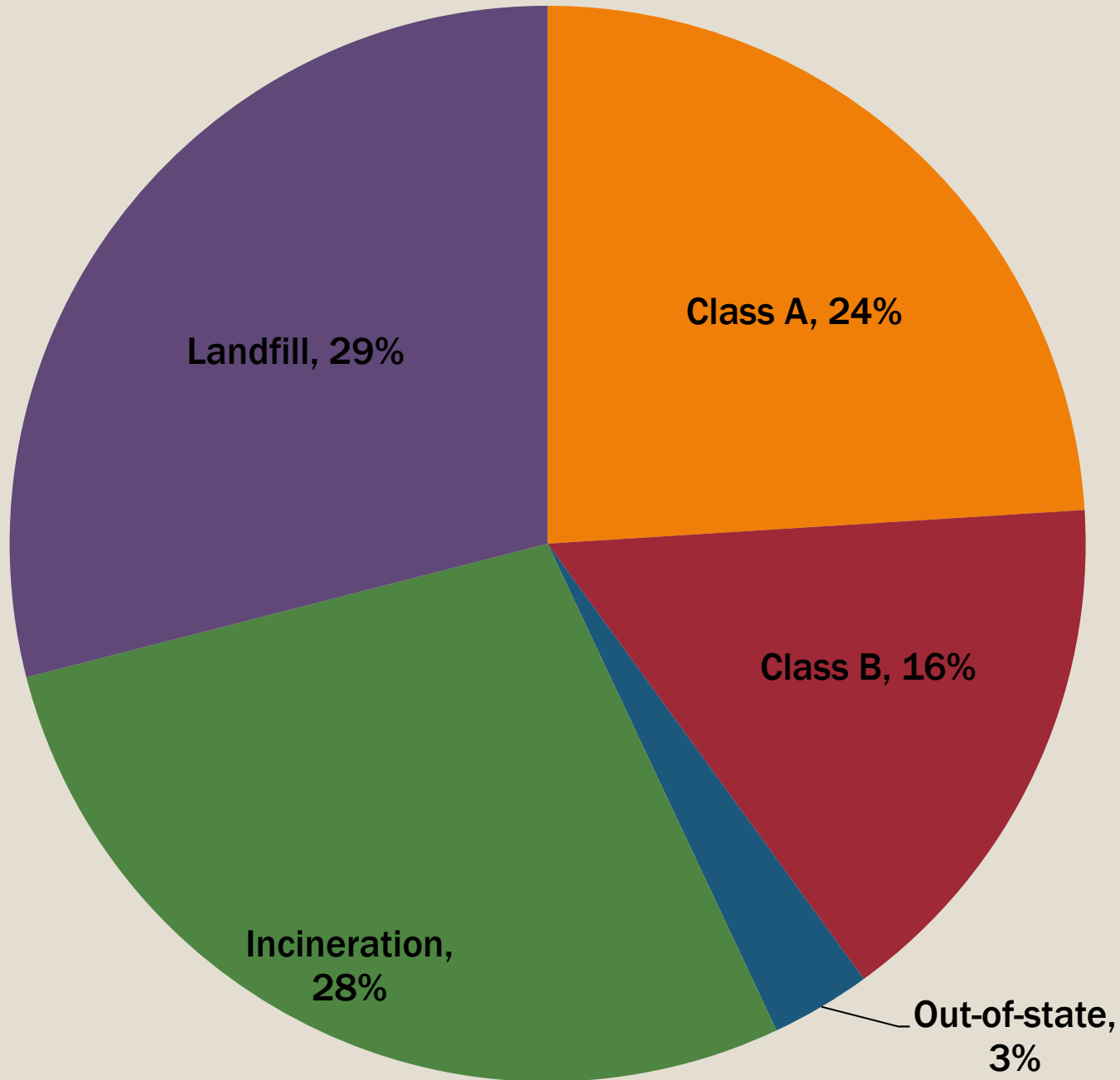
54 WASTEWATER TREATMENT FACILITIES GENERATE SLUDGE



LICENSED SLUDGE HAULER



2012



**NH SLUDGE
&
BIOSOLIDS
DISPOSAL
PRACTICES:**

**81,672
wet tons**





29%

**6 Landfills
Most with
Restrictions**



28%

**One
Incinerator
Manchester
WWTF**



3%

Out-Of-
State

SLUDGE VS. BIOSOLIDS



- Not treated
- No Testing
- NO Beneficial reuse

- Treated for Pathogens
- Tested and Certified
- Beneficial reuse



FEDERAL RULES

40 CFR
PART 503





PRETREATMENT

- Prohibitions
- Standards
- Local limits

SLUDGE QUALITY CERTIFICATION

■ 158 Analytes

- Metals
- VOC's
- SVOC's
- PCB's,
- Nutrients
- Dioxins





40%
Land
Application



NUTRIENT MANAGEMENT

- **Manual of Best Management Practices for Land Application of Biosolids –**
 - **Including Phosphorous**
 - **Nitrogen**



University of
New Hampshire
Cooperative Extension



SOIL TESTING

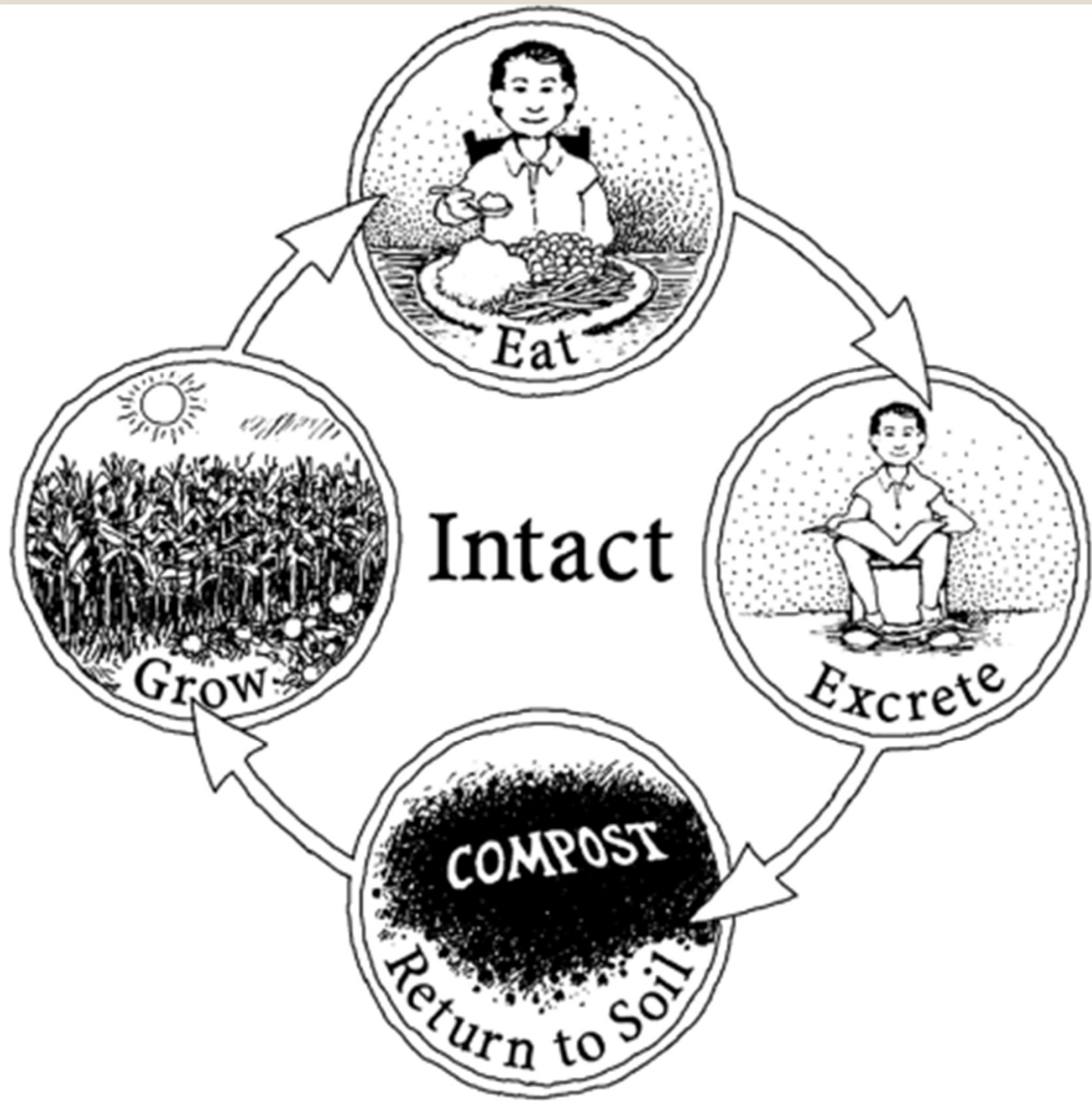


Corn and Hay











CONTACTS & INFORMATION

**NH Department of Environmental Services
Wastewater Engineering Bureau - Residuals Management Section
29 Hazen Drive, Concord, NH 03301**

NHDES: <http://des.nh.gov/index.htm>

RMS: <http://des.nh.gov/organization/divisions/water/wweb/septslud.htm>

**Ray Gordon
Administrator RMS
(603) 271-3571
E-mail: ray.gordon@des.nh.gov**

What is Flushable?



By Ray Gordon, NH DES

Agenda

- What is Flushable?
- Impact on Septic Systems and Wastewater Facilities
- Flushable vs. Dispersible?
- INDA - Association of the Nonwoven Fabrics Industry
- “Good” “Bad” and “Ugly”
- Solutions

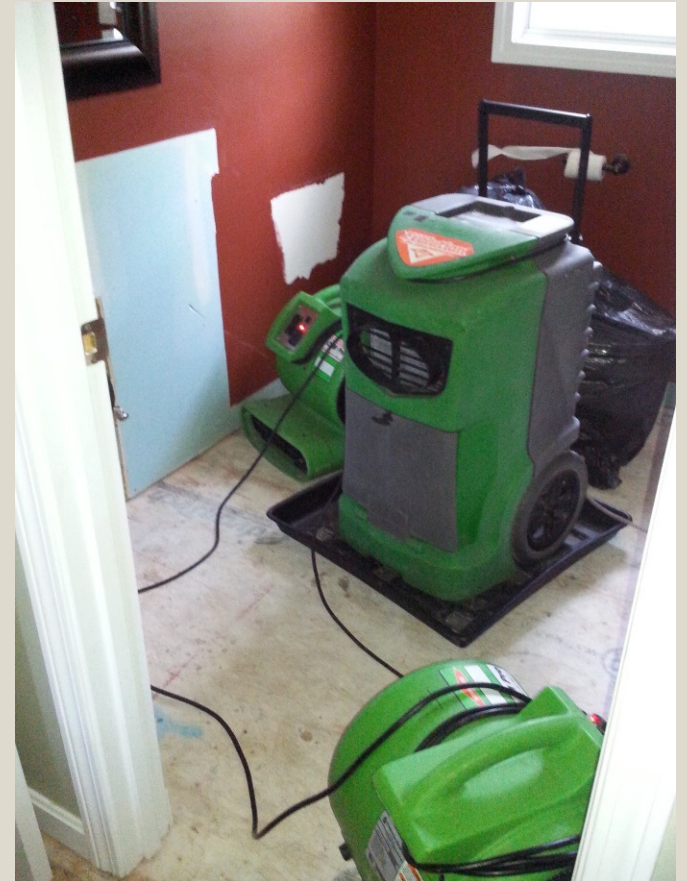


What is Flushable?



Sanitation is Important

- 222 Million Toilets in the US
- Salmonella bacteria can survive up to 4 weeks in a toilet even with cleaning fluids
- 737 E. coli bacteria were found scattered around a bathroom after flushing
- 1.5 million child deaths worldwide due to food/water tainted with



Consumer Wipes: Benefits

Convenience

- Portability
- Disposable
- Easy-to-use
- Time saving

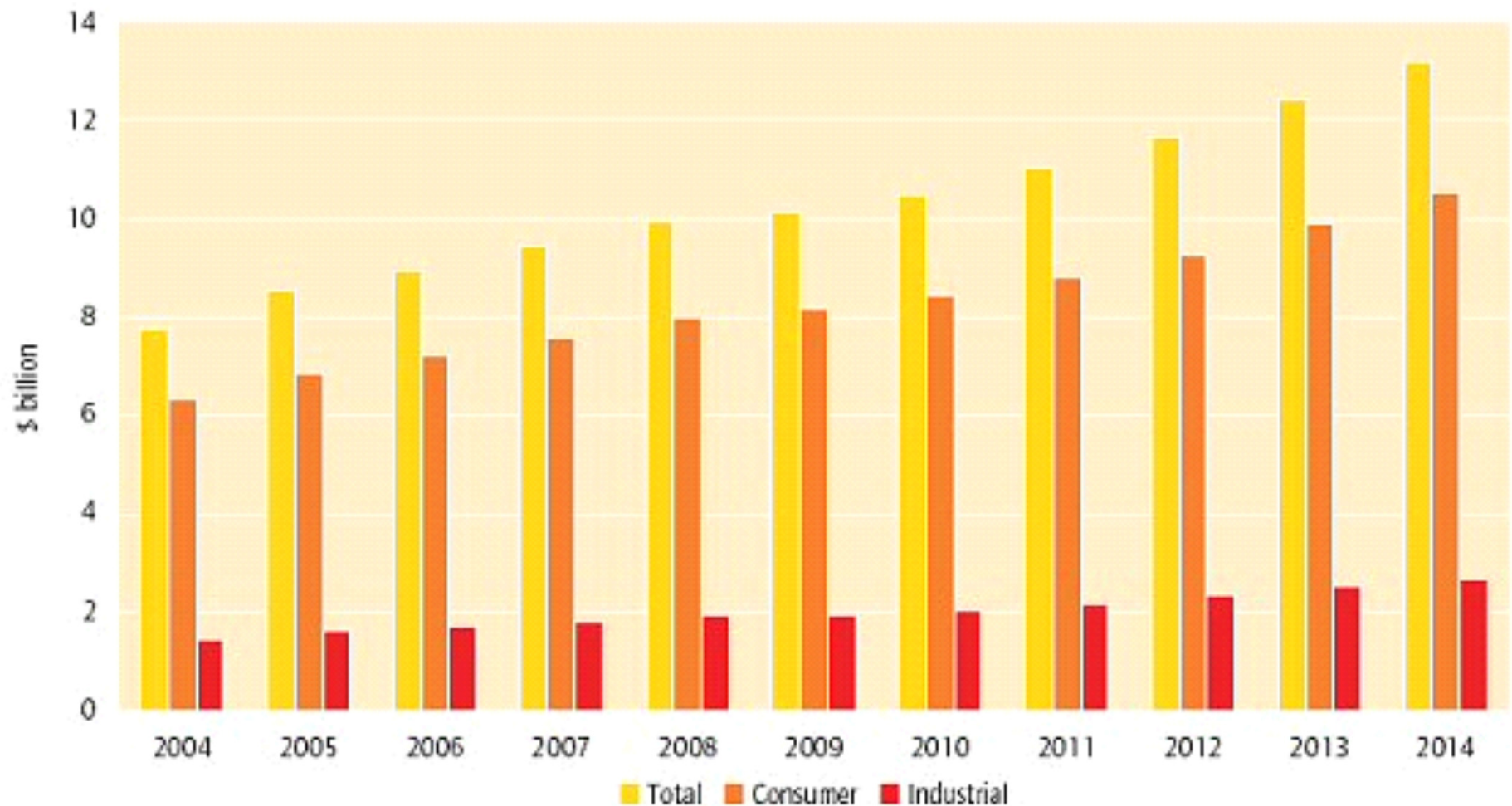
Health/Hygiene

- Limit Cross Contamination
- Safety



Consumer Wipes: Prevalence of Use

FIGURE E.2 Sales of consumer and industrial wipes, 2004-14 (\$ billion)



Source: Pira International Ltd



Impacts of Non-Dispersibles on Waste Treatment Systems



Septic Systems







- wipes reached the first 5 feet of drainfield
- had to be excavated and replaced
- took more than a day to repair the clogged system



Had to be cleaned out by hand



Can Fill Up Septic Systems impacting WWTF



Can Clog Pipes



Baby Wipe Removed from Clogged Pipe





San Antonio Sewer Monster



Eleebana Sewer Monster, Australia

Franklin WWTF

Wipes were hung up on a wire left in the pipe from an old meter in a 60 inch sewer.



Can Clog Pumps





Screenings Sampling

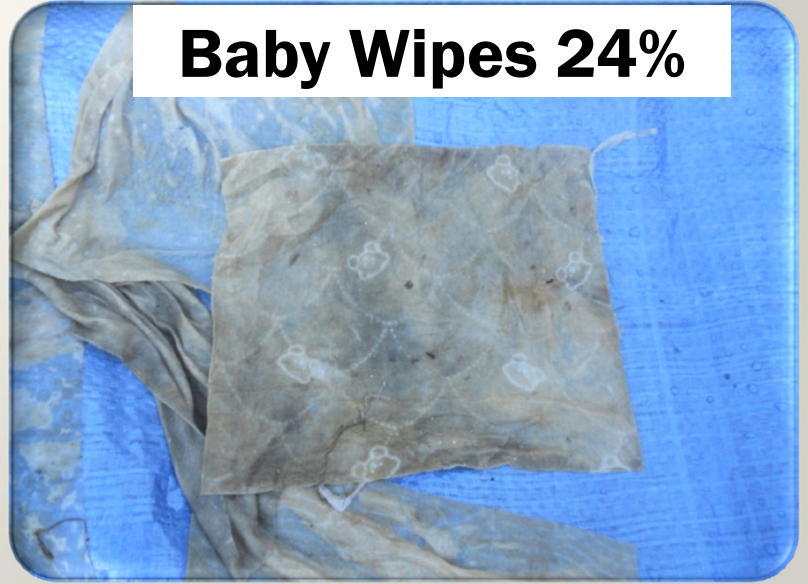


2011 Test Results from Portland, Maine

Paper Products 42%



Baby Wipes 24%



Feminine Hygiene 17%



Flushables 8%



Other: Household Wipes 4%, Cosmetic 3%, Medical 2%, Hands, Face and Body (HFB) 1%

Source: OCSD



flushable?

I don't think so!



6'0"

5'6"

5'0"

4'6"

4'0"

3'6"





A top-down view of a white ceramic toilet bowl. The bowl is centered in the frame, with its rim and the inner basin visible. The background consists of dark, square tiles with light-colored grout. The text is overlaid on the bowl's surface.

Flushable

vs.

Dispersible?

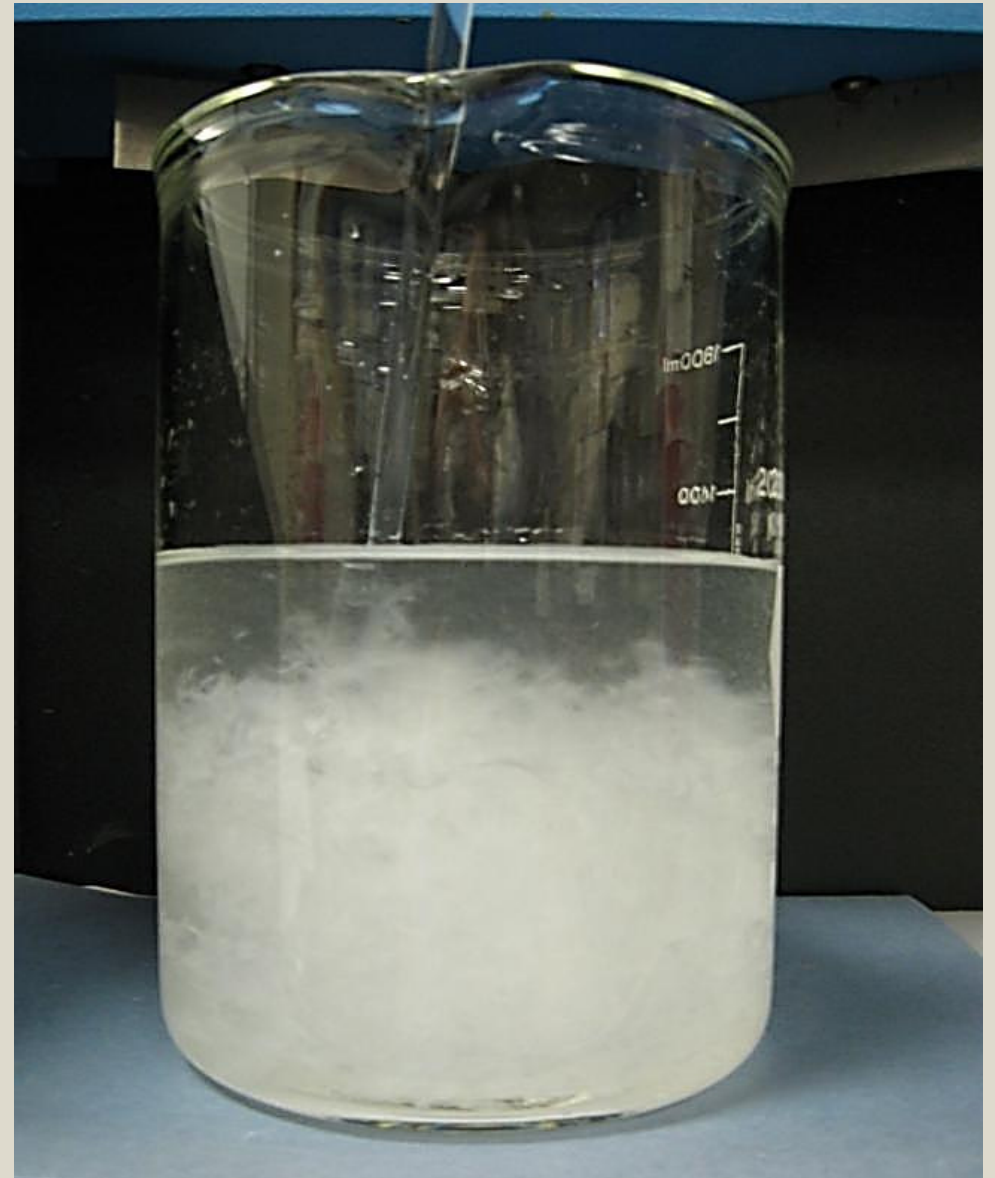
What is Dispersible?

dis·perse (dĭ-spûrs')

1.
 - a. To drive off or scatter in different directions: The police dispersed the crowd.
 - b. To strew or distribute widely: The airplane dispersed the leaflets over the city.
2. To cause to vanish or disappear. See Synonyms at scatter.
3. To disseminate (knowledge, for example).
4. To separate (light) into spectral rays.
5. To distribute (particles) evenly throughout a medium.



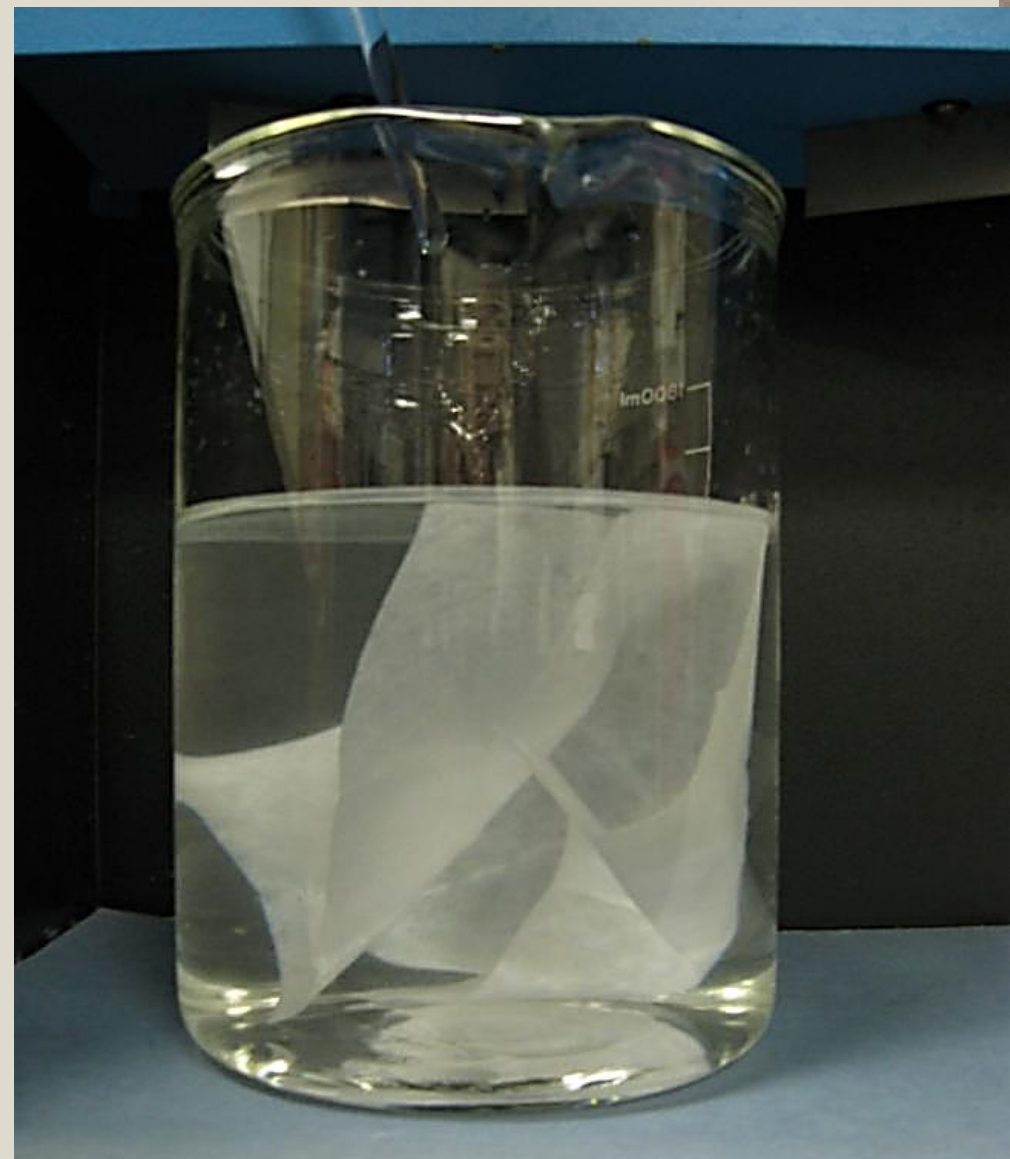
Toilet Paper Rapidly Disperses at OCSD Lab 2010



Source: OCSD

Flushable But Not Dispersible Wipes

4 hours heavy stirring at OCSD Lab 2010



Source: OCSD

KIRKLAND Signature™

*Compare to Kleenex®
Cottonelle Fresh®

moist flushable wipes

Enhanced
Cleansing & Freshness
Better than dry
toilet paper alone



- Ultra Soft
- Gentle on Skin
- Safe for Sewer & Septic

600
Pre-moistened Wipes

perfect for the entire family!

10 x 60 ct Solo Packs
6.8 in x 5.9 in
(17.3 cm x 15.0 cm)

?



?

2012

Source: OCSD

Non-Dispersible? at OCSD Lab 2012



Toilet Paper after 5 min.

Wipes after 24 hours

Flushable Wipes?

at OCSD Lab 2012



Unused

After 24 hours

Conclusion



Toilet Paper is
Dispersible



Most Flushable Wipes are not
Dispersible

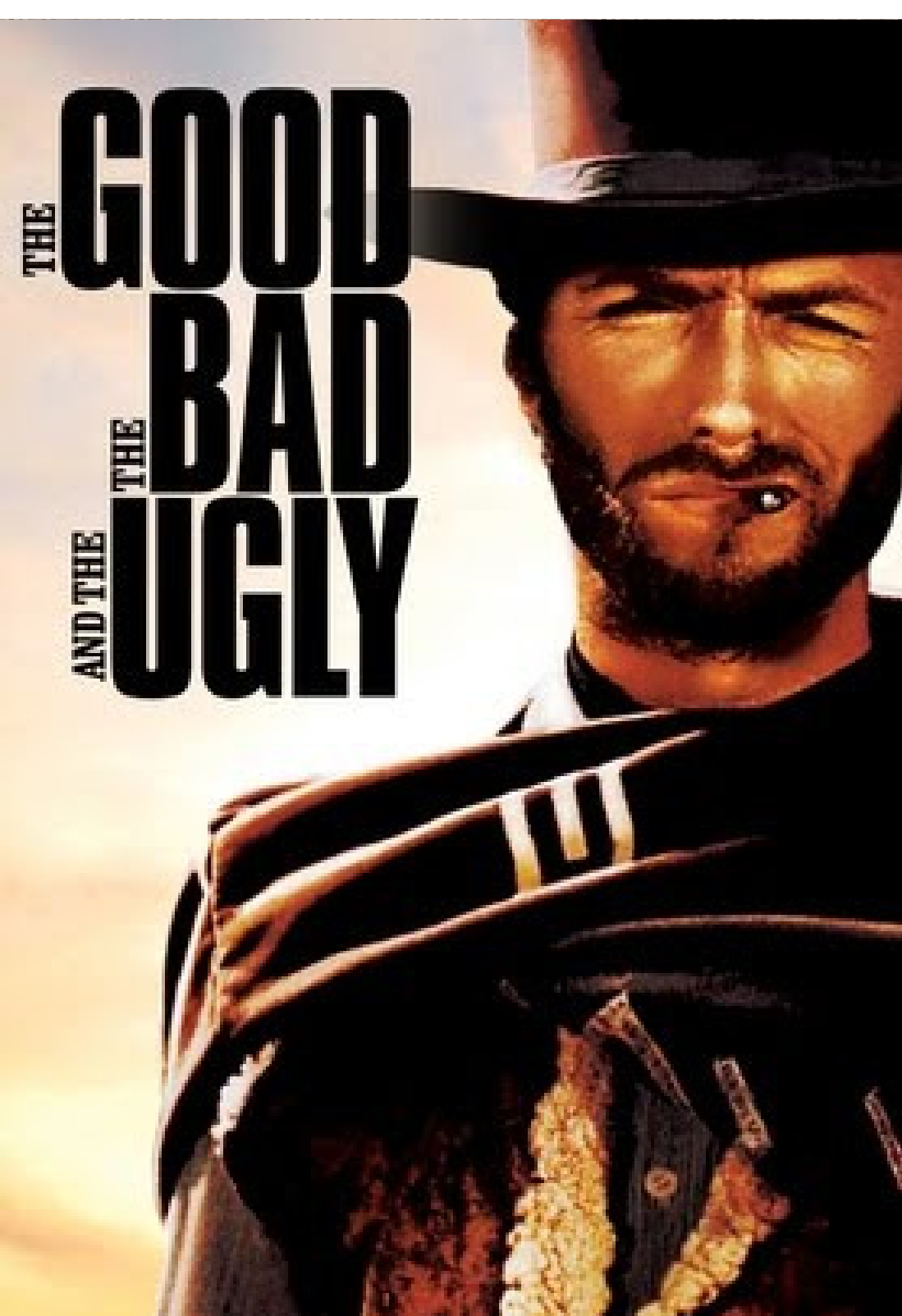
A meme featuring a brown and white cat looking at a toilet paper roll with a questioning expression. The cat's eyes are wide and its mouth is slightly open, conveying a sense of confusion or skepticism. The background is a dimly lit bathroom.

**So you're tellin' me
flushable wipes**

aren't flushable?

INDA Logo's







*refer to the **labeling,**
packaging, or marketing
not to the product itself.*

Labels: the “Good”

Using water-based binders that readily disperse.



Placing INDA-standard DNF logo prominently (though still not on the front!)



NEW

168
RESEALABLE

Cottonelle
FreshCare

Flushable
cleansing cloths
débarbouillettes
jetables dans les
toilettes

CleanRipple
TEXTURE

SAFEFLUSH
TECHNOLOGY

Cottonelle
FreshCare

flushable
cleansing cloths
débarbouillettes jetables
dans les toilettes

QUICKDRY
Performance

SAFEFLUSH
TECHNOLOGY

168
débarbouillettes

7.25 X 5.0 IN. (18.4 X 12.7 cm)

UNIT PRICE
\$4.15

RETAIL PRICE
\$6.97

COTT FR REF 18ACT

Flushable Wipes

144
WIPES

7 X 5.25 IN (17.7 X 13.3 cm)



Reviews

Cottonelle Fresh Care Flushable Cleansing Cloths

- **Good on you tush ... Bad for you pipes**, December 30, 2013 By [aslterp](#)
I LOVE these, the pipes in my house however, HATE these.

\$300 dollar plumber bill and what I'm sure will be a lengthy process in fixing our damaged dry wall and carpet have made these products less desirable.

They will back up your pipes and lead to a clog which will ultimately lead to water overflowing somewhere in your house. In our case our recently finished basement... UGH.
- **They work on you... not on your pipes!!!**, December 30, 2013 By [Robbie](#)
We were big fans of this product. They were a great alternative to toilet paper, and certainly felt "cleaner" to us.

Well, the plumber just left and a few hundred dollars later, the flushable wipes were the culprit in our backed up pipes. He explained that these wipes do not break down like the package says they do, and they will ultimately lead to problems, especially in older pipes and main sewer lines. Save yourself the trouble and stick with original TP!!

Labels: the “Bad”



Labeling things “flushable” that do not satisfy INDA standard.

Above: Packaging.

Below: After testing for 24 hours



Manufacturing products *likely to be flushed* (feminine or hemorrhoid wipes) that are *not dispersible*.

Displaying “flushable” and non-flushable products mixed together at point of sale.



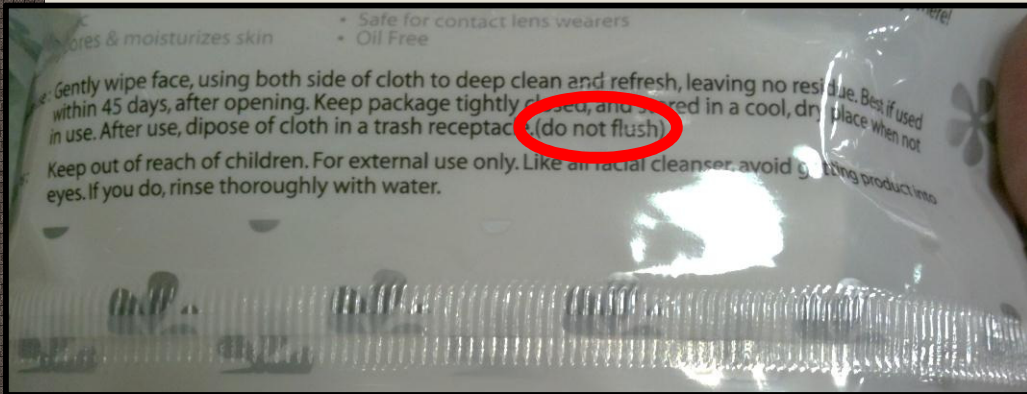


Reviews

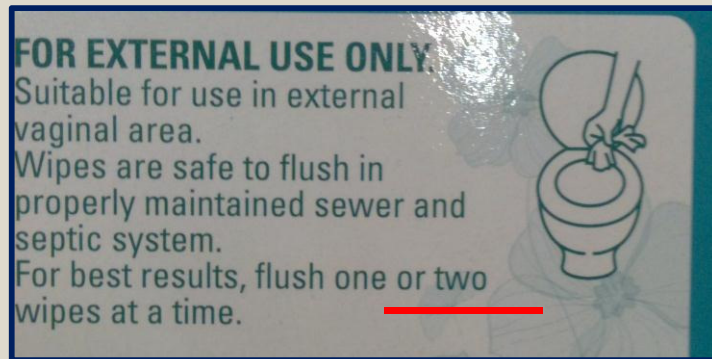
Kirkland Signature Moist Flushable Wipes

- **NOT flushable**, July 10, 2013 By [EC4151](#) –
Was looking down the barrel of a \$400 plumbing bill but fortunately the plumber was able to retrieve all the of the fully intact "flushable" wipes without having to dismantle the toilet. Be aware that these are NOT flushable regardless of the packaging claims.
- **Flushable wipes apparently not so much**, November 4, 2012 By [bandaid](#)
First of all, they are difficult to get out in 1 piece, but mostly they do not break down, had to pay a RotoRooter guy to snake the line, \$198 later and all he found were these clogging up the main line. Don't be fooled, these are not flushable.
- **DO NOT FLUSH**, August 13, 2012 By [M. Grady "maraquin"](#)
We recently bought several boxes of these "flushable" wipes. Fast forward to today when my landlord had to get our sewer line snaked and clean up a basement flooded with sewage because these wipes did not break down at all once they were flushed. We had no idea that these would clog our sewer lines especially since the box claims they are safe to flush and that they are safe for sewer and septic systems. **THIS IS NOT TRUE.** Save yourself time and money and either do not buy these wipes or do not flush them if you buy them, this will save you lots of time and money down the road.

More “Bad”!

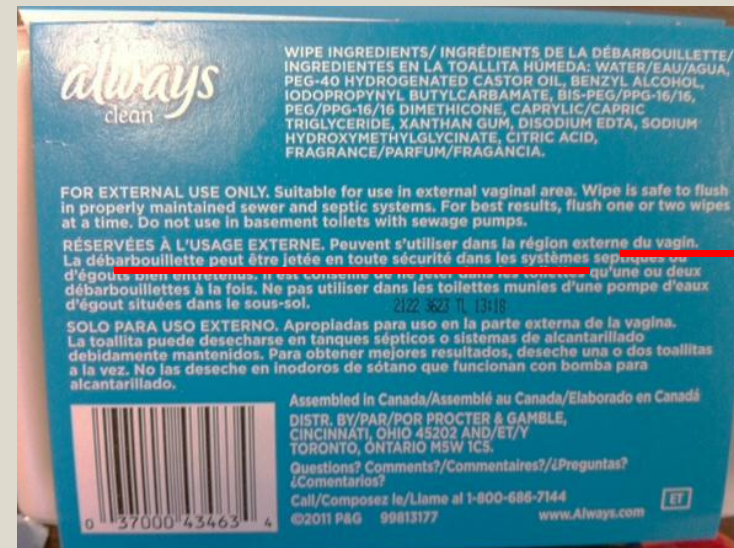


Placing disposal information only in fine print.



Fine print: qualifying number of wipes that can be “safely” flushed; differentiating between sewer and septic systems.

Using non-INDA standard DNF logos on packaging.



Labels: the “Ugly”



Packaging that positions, encourages non-flushable products to be flushed. (This product is not dispersible).

No disposal information whatsoever on package.



Products not compatible with plumbing and POTWs marketed as flushable.





Reviews

Pampers Kandoo Flushable Wipes

- **Kandon't Use These** By [Doc Holladay](#) on April 24, 2013

These wipes don't break down in water. I was up until 2 this morning, snaking our line, because everything backed up into our basement. It was awesome. And by "awesome," I mean I pulled out grey and black clumps of intact Kandoo wipes from the line, and had to disinfect the entire basement floor. The only thing these "kandoo" is create a serious headache, and put you out anywhere from \$150-\$300. I'm not blaming the product, because I really should've known better than to flush something down the toilet that looks, feels, and acts like a diaper wipe. It's that blasted frog, though. He's so unassuming and cheerful looking, as if he's saying, "Don't worry, I'll clean up all your kids' messes--I 'kandoo' anything! Yay!" In reality, he's saying, "I might clean your child's bum with ease, but I'm going to make sure you're cleaning up your family's poo water from the basement floor in several months. Yay!"

- **Clogged our sewer main line - the real cost of these wipes was over \$1000 for us.,** December 31, 2013 By [AV](#)

Even when flushing only the recommended amount, we ended up with clog in our main sewer line which backed up into our home, filling our bathroom and garage with sewage and piles of these wipes, which had not broken down in any way since they were flushed weeks ago. We needed to have both a plumber out as well as a cleanup service. If you are looking for a flushable wipe that is safe for your plumbing, this is not it.

Solutions?



Upgrade Equipment

Chopper Pump

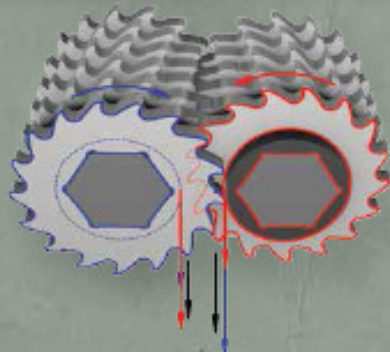


Grinder





GRIND.PUMP.REMOVE WIPES READY TECHNOLOGY



OPTIMIZED CUT CONTROL™
CUTTERS STAY CLEAN
PREVENTS LONG STRIPS



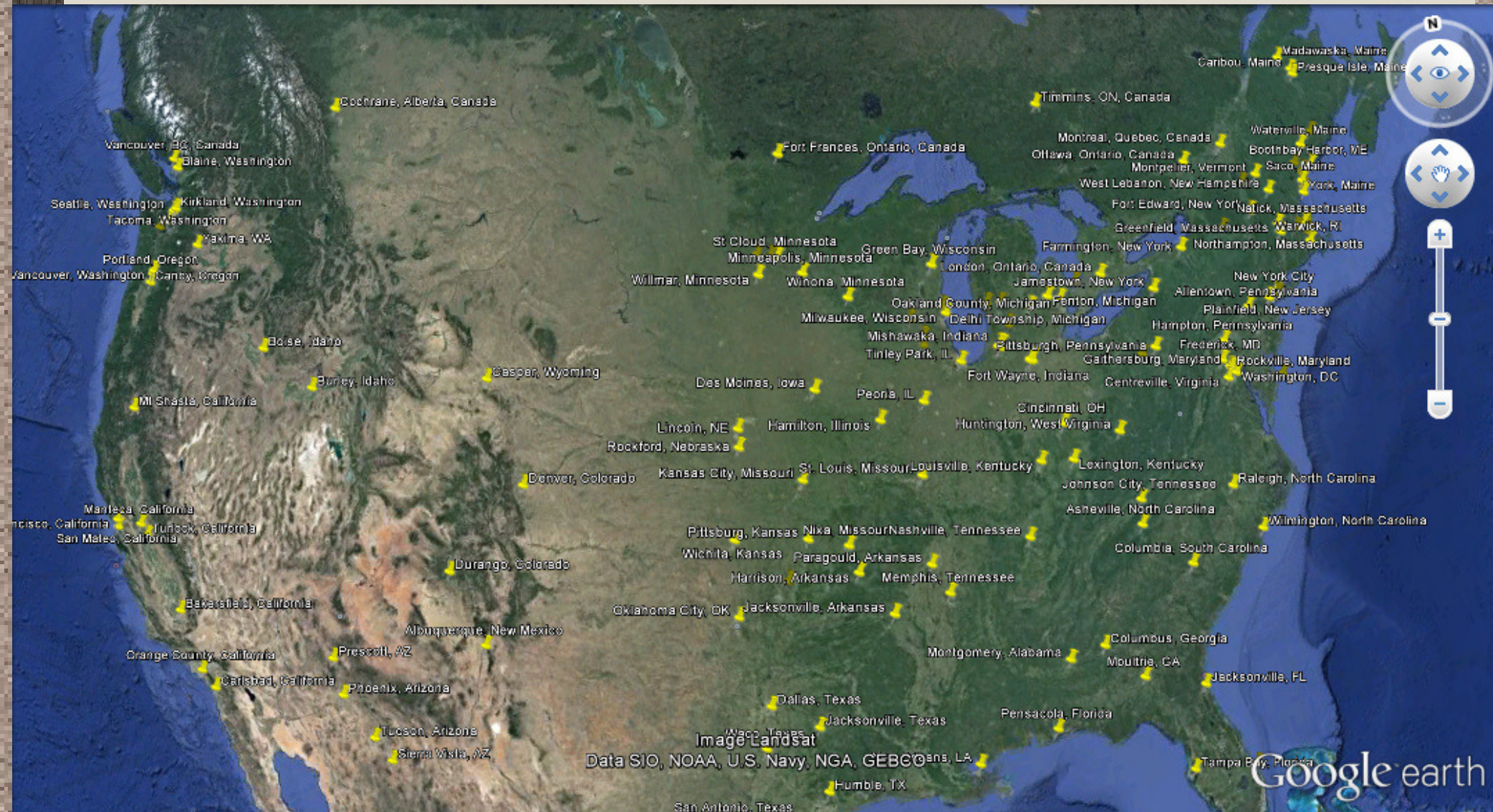
WIPES READY CUTTERS™
SMALLER PARTICLES
NO REWEAVING



PERFORATED DRUMS™
NO WIPES BYPASS
MAINTAINS HIGH FLOW



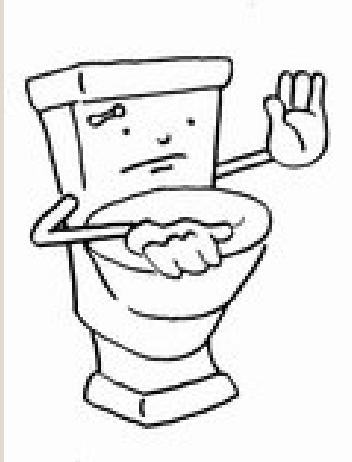
Education





- Three P's
- PEE, POOP and Paper

- **STOP! BE CAREFUL WHAT YOU FLUSH!**



CAUTION
THIS TOILET IS ON A
SEPTIC TANK

DO NOT DEPOSIT
FEMINE HYGIENE PRODUCTS,
WASTE PAPER OR ANY
NON-BIODEGRADABLE ITEMS

THANK YOU



**WET WIPES
TURN NASTY
WHEN YOU FLUSH THEM**



Toilets Are **Not** Trashcans!



Did you know that flushing wipes down the toilet can cause problems in the City's sewer system?

Even wipes (such as sanitary wipes, household cleaning wipes, baby wipes, etc.) that are labeled "flushable" clog the sewer system, contributing to costly cleanups. The San Francisco Public Utilities Commission (SFPUC) encourages everyone to flush only human waste and toilet paper down the toilet. Please throw wipes and similar items in the trash.

Remember, the bay and ocean are closer than you think!



<http://pollutionprevention.sfwater.org>



It's a Toilet, Not a Trashcan!



- Only Human Waste and Toilet Paper



**If it is not toilet paper,
it shouldn't be flushed!**



*A message from the
Portland Water District*



What's FLUSHABLE?

Educational Brochure



What's FLUSHABLE?



A toddler will tell you that *everything* is flushable... but what you *think* is flushable could be costing you money!

Product labels can be misleading. Some items that claim to be "flushable" can clog sewer and septic systems and can end up costing you a pretty penny.

"Flushable" does NOT mean it is SAFE for your septic system or sewer.

"Disposable" items ARE NOT flushable and should be placed in the trash.

The bottom line:
ONLY

Human waste and toilet paper
ARE FLUSHABLE

The DO NOT FLUSH List:



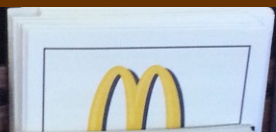
Diapers
Cigarettes
Paper Towels
Cotton Swabs
Tampons

Condoms
Dental Floss
Facial Tissues
Wipes



Experience
New Hampshire Heritage
The Portsmouth to Plymouth
Museum Trail

What's
FLUSHABLE?



New Hampshire Fish and Game Department
FISH NH.com
Catch a Memory in
New Hampshire!

MARY BARR
HISTORIC
NEW HAMPSHIRE
OPEN TO THE PUBLIC

New Hampshire Fish and Game Department
HUNT NH!

NEW HAMPSHIRE
STATE PARKS
MAP

MAP
Seacoast
Helicopters

U.S.S. ALBACORE

CHAMPNY'S
CHOCOLATE

CHAMPNY'S
CHOCOLATE

FIREWORKS

MERRIMACK
PILGRIMAGE
COTTLEDIP

ZIP LINE
CANOPY TOURS

JUNE 18-22, 2014

2014 Membership Directory

New Hampshire
Antiques Dealers
Association

INDOOR SKYDIVING

McCluffe-Shapiro
Discovery Center

PETS
PEAK

Canterbury Shaker Village

New Hampshire
State Parks Map

New Hampshire
State Parks Map

La Salette
Shiraz

WINERY

WeatherVane

Green Concord

Green Concord

OLD BOOKS

Enfield Shaker Museum

Candia
Vineyards

AMERICA'S
STONEHENGE

AMERICA'S
STONEHENGE

AMERICA'S
STONEHENGE

AMERICA'S
STONEHENGE

McCluffe-Shapiro
Discovery Center

EXPLORE
RUGGLES
MINE

WILD NH

WILD NH

WILD NH

WILD NH

WILD NH

What's
FLUSHABLE?

FISH NH.com

HUNT NH!

WILD NH

WILD NH

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HUNT NH!

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WILD NH

WILD NH

WILD NH

What's FLUSHABLE?



A toddler will tell you that everything is flushable... but what you think is flushable could be costing you money!

"Flushable" does NOT mean it is SAFE for your septic system or sewer.

The bottom line:

ONLY

Human waste and toilet paper
ARE FLUSHABLE

What's FLUSHABLE?



What's FLUSHABLE?




DES.NH.GOV

Environmental Services

NEW HAMPSHIRE DEPARTMENT OF **Environmental Services**



DES.NH.GOV

What's not FLUSHABLE?



The bottom line: **ONLY** Human waste and toilet paper **ARE FLUSHABLE**

DES.NH.GOV

Environmental Services



Voluntary Compliance Industry Standards



Contact Info



Ray Gordon
NHDES Septage Coordinator
Wastewater Engineering Bureau
(603) 271-3571



Grease to Gold: How to Make Energy From a Problem

Ray Gordon, NH Dept. of Environmental Services

Wastewater Engineering Bureau



Wastewater and Solid Waste = Perfect opportunity to work together

Why should you collect cooking oil! The Steps to Start a Collection!



FATS

Solid at room temperature

Butter, shortening, margarine
Peanut butter
Meat trimmings
Uncooked poultry skin
Dairy: Cheeses, milk, cream,
sour cream, Ice cream

OILS

Liquid at room temperature

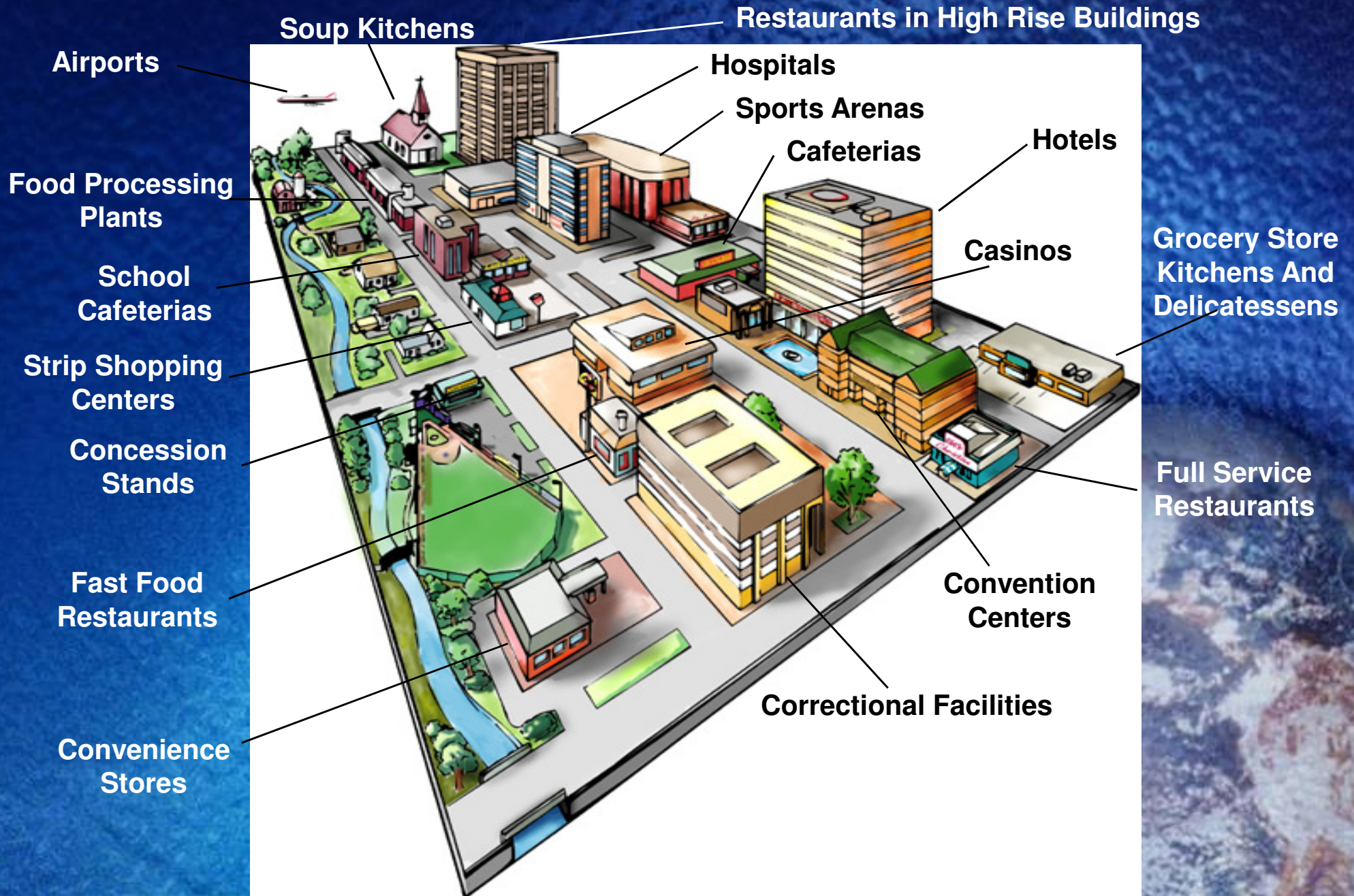
Vegetable oil
Canola oil
Olive oil
Corn oil
Salad dressings
Cooking oils

GREASE

Turns to liquid during cooking, but solidifies when cooled

Gravy
Mayonnaise
Melted meat fat
Bacon and sausage
Boiled poultry skin
Salad dressing

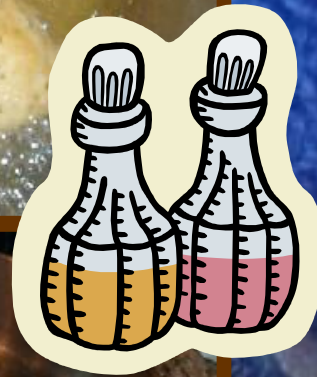
Sources of Fat, Oil and Grease



Fat, Oil and Grease

FOG Derived from food products such as:

- Deep-fried foods,
- Meats,
- Sauces,
- Gravies,
- Dressings,
- Baked goods,
- Cheeses, and
- Butter.



Basic Types of Waste Grease



Brown Grease



Yellow Grease

Food grade (French fry) grease, no wastewater or waste contact, good for fuel Regulated as Solid Waste



Yellow Grease





Mixed with wastewater, caught in interceptors or skimmed from the WWTF processes Regulated "Septage".



**Don't Pour Grease
Down The Drain**



Brown Grease

Freeze the Grease

PROPER GREASE DISPOSAL

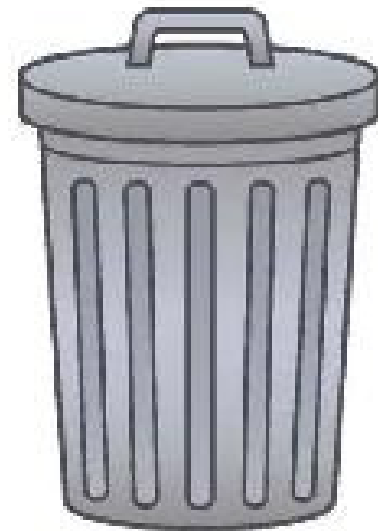
1. COOL IT



2. CAN IT



3. TRASH IT



Which is more dangerous?





Houston, we have a problem

**SO YOU'RE TELLING
ME**

**YOU Poured BACON GREASE DOWN THE
SINK DRAIN?**

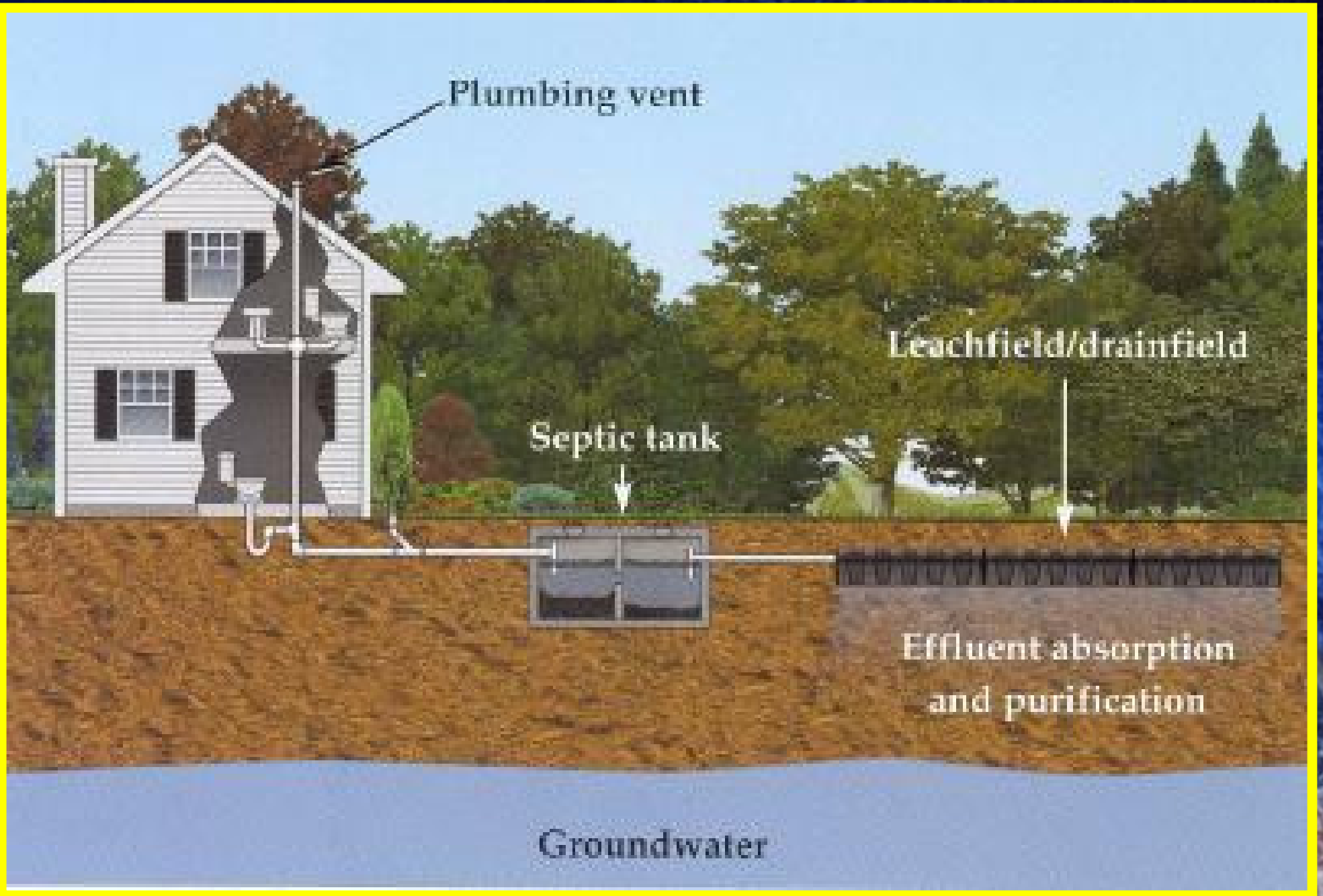
memegenerator.net





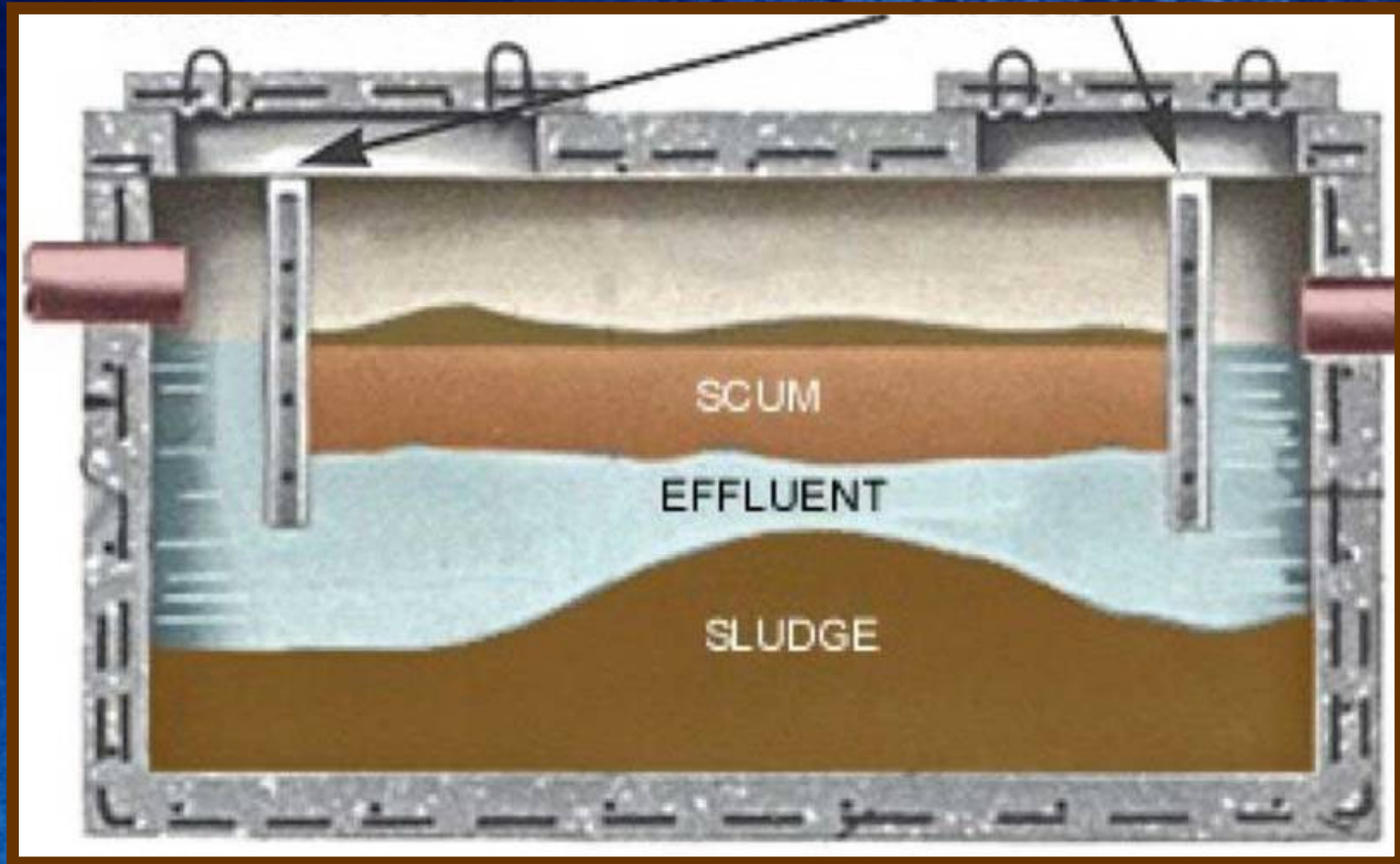
Septic Systems





Estimated 61% of NH Households on Septic Tanks

FOG in Septic Systems

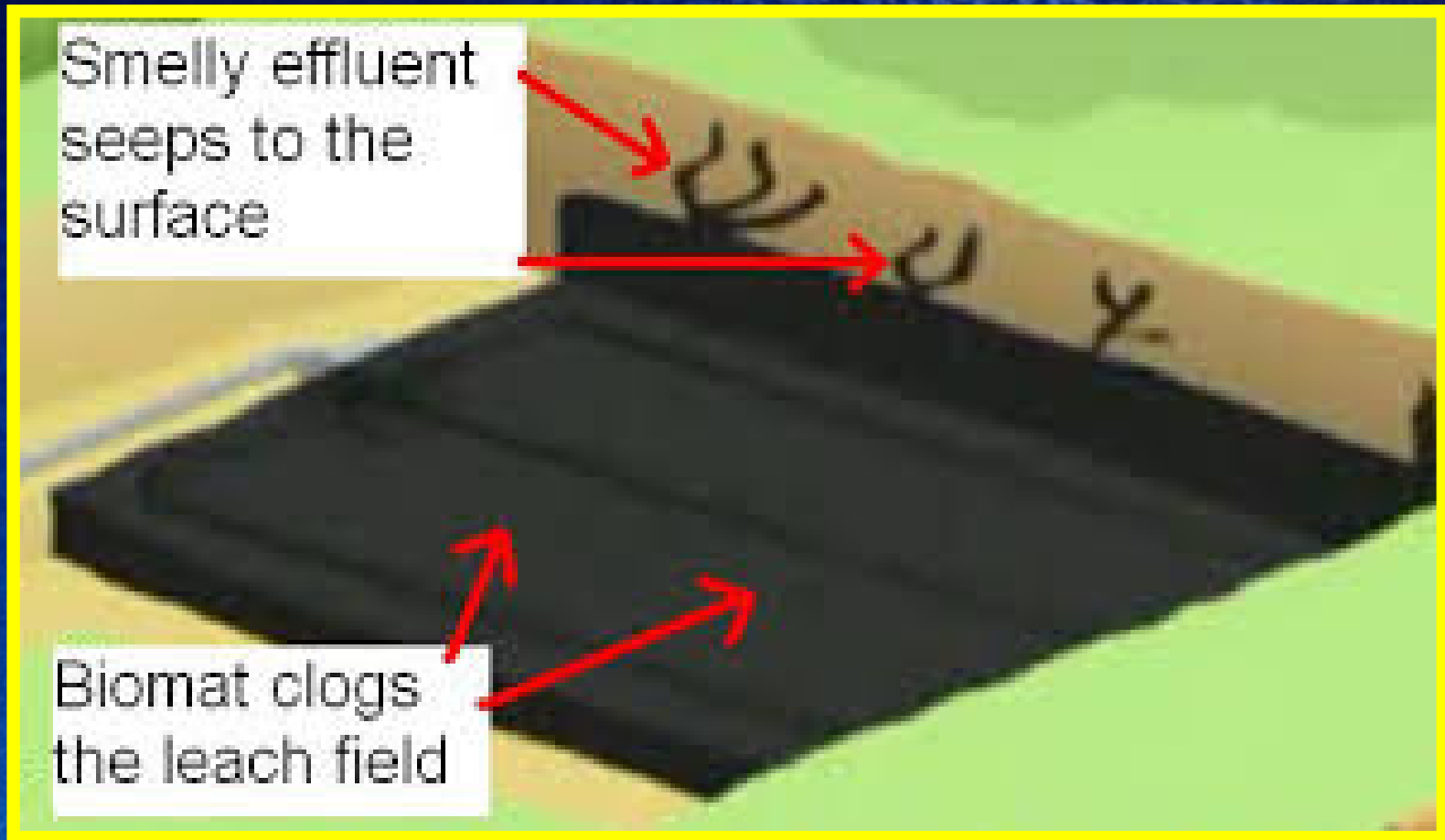


Fats can form a mass at the top of the septic tank and interfere with the biological activities taking place.

Septic Systems



The Problem?



Solids, grease, and smaller particulates that are allowed to leave the septic tank can buildup a bio-mat of viscous slime over the years. This can clog soil pores and render the leach field inoperable for percolation.

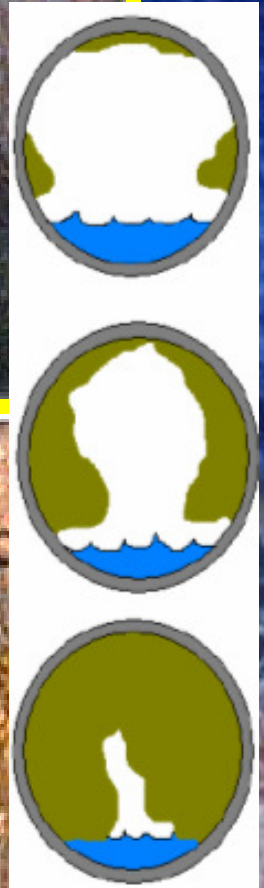
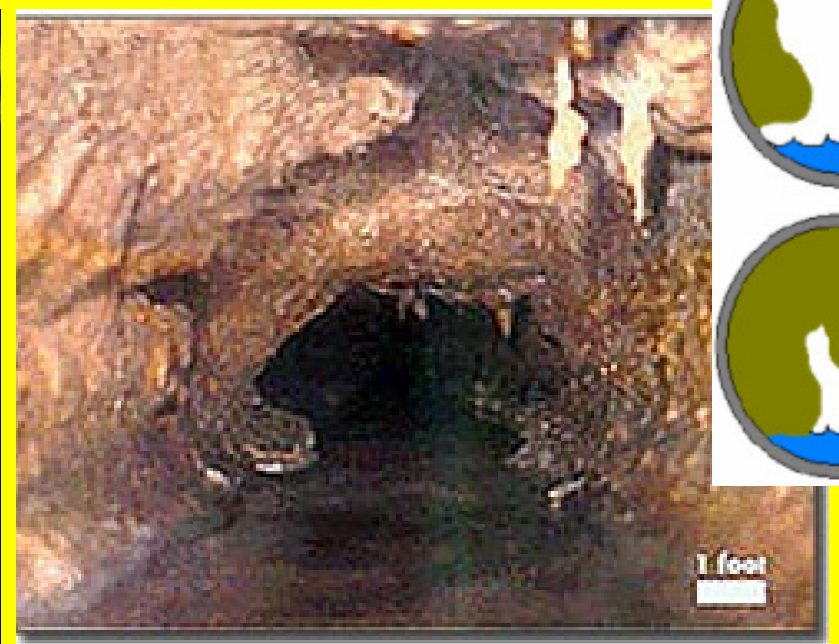
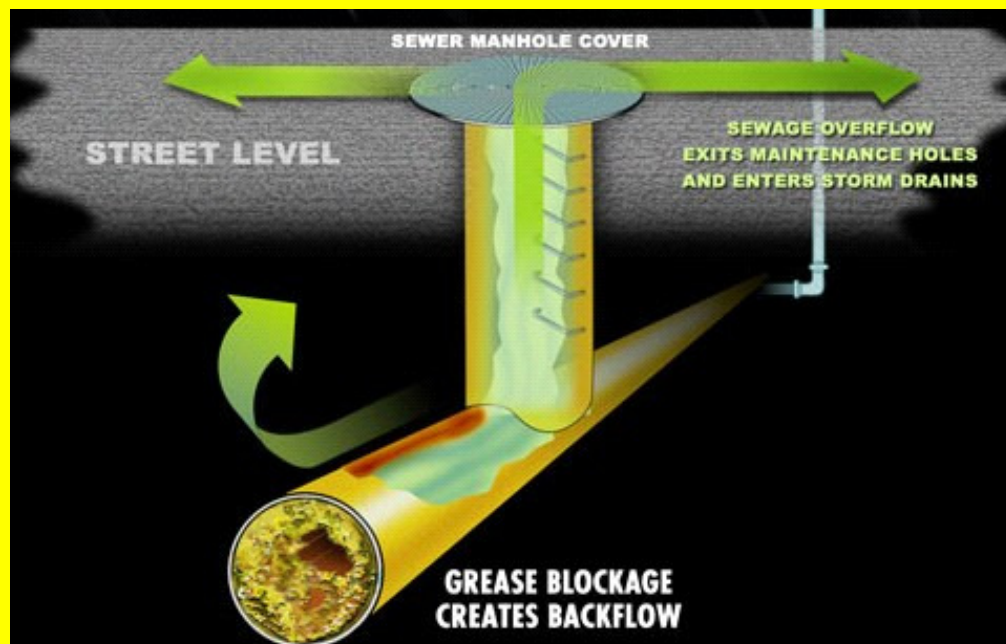
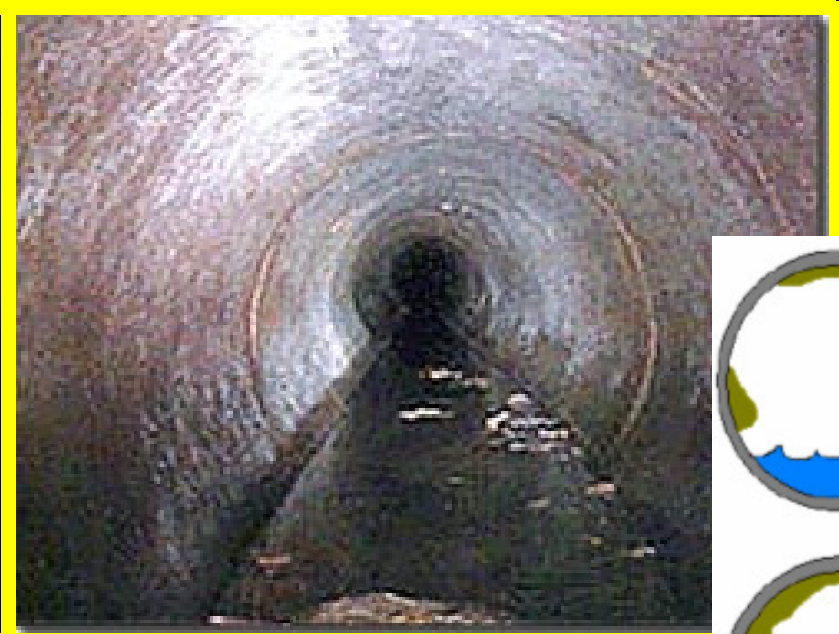
The Problem?



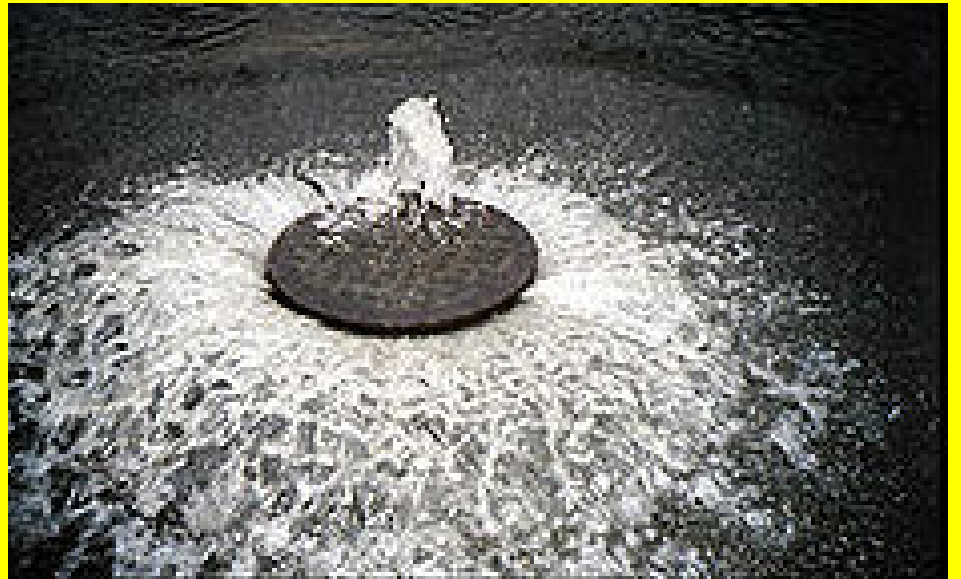
FATS, OILS, GREASE and sewer lines



Interference



Sewer Overflows



NH Communities Have Been Fined



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Newsroom

You are here: [EPA Home](#) » [Newsroom](#) » [News Releases By Date](#) » Keene N.H. Fined for Violations at Wastewater Treatment Plant

News Releases By Date

Keene N.H. Fined for Violations at Wastewater Treatment Plant

Release Date: 04/18/2006

Contact Information: David Deegan, (617) 918-1017

(Boston, Mass. - Apr. 18, 2006) – The City of Keene, N.H. will pay a \$58,000 fine as part of an EPA settlement for violations of the federal Clean Water Act at the City's municipal wastewater treatment plant and sewer collection system. The violations resulted in sewage overflowing from the system on dozens of occasions.

The settlement resolves EPA concerns regarding Keene's wastewater treatment plant and sewer collection system. Keene's violations led to more than 30 overflows of untreated sanitary sewage between 2000 and 2005, many of which reached local waterways. Most of the overflows were caused by blockages in the system, which can be prevented by routine cleaning and maintenance.

"By ensuring that sewer lines are properly cleaned and kept free of grease, roots and other blockages, we can prevent overflows and help keep our rivers and streams clean and healthy," said Robert W. Varney, regional administrator of EPA's New England office. "EPA is committed to protecting people's health by enforcing environmental laws that protect our water, air and land."

Keene's public sewer system includes a secondary wastewater treatment facility that discharges 3.5 million gallons per day of treated wastewater into the Ashuelot River. The collection system is made up of about 86 miles of sewer, 2000 manholes, five city-owned pump stations and 10 privately-owned pump stations.

Other violations captured in the penalty issued by EPA today are for exceeding effluent limits for zinc in the city's National Pollution Discharge Elimination System (NPDES) permit, and the failure to develop appropriate local

April 18, 2006

\$58,000 fine as part of an EPA settlement

30 overflows of untreated sanitary sewage between 2000 and 2005

"By ensuring that sewer lines are properly cleaned and kept free of grease, roots and other blockages, we can prevent overflows and help keep our rivers and streams clean and healthy," said Robert W. Varney, regional administrator of EPA's New England office. "EPA is committed to protecting people's health by enforcing environmental laws that protect our water, air and land."

Which is more dangerous?





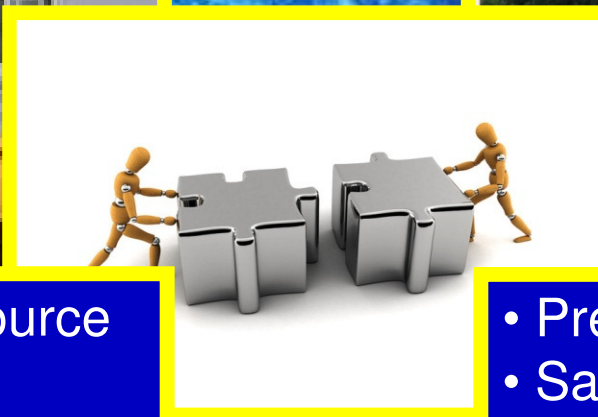
YOU can help

Public Works Partnership

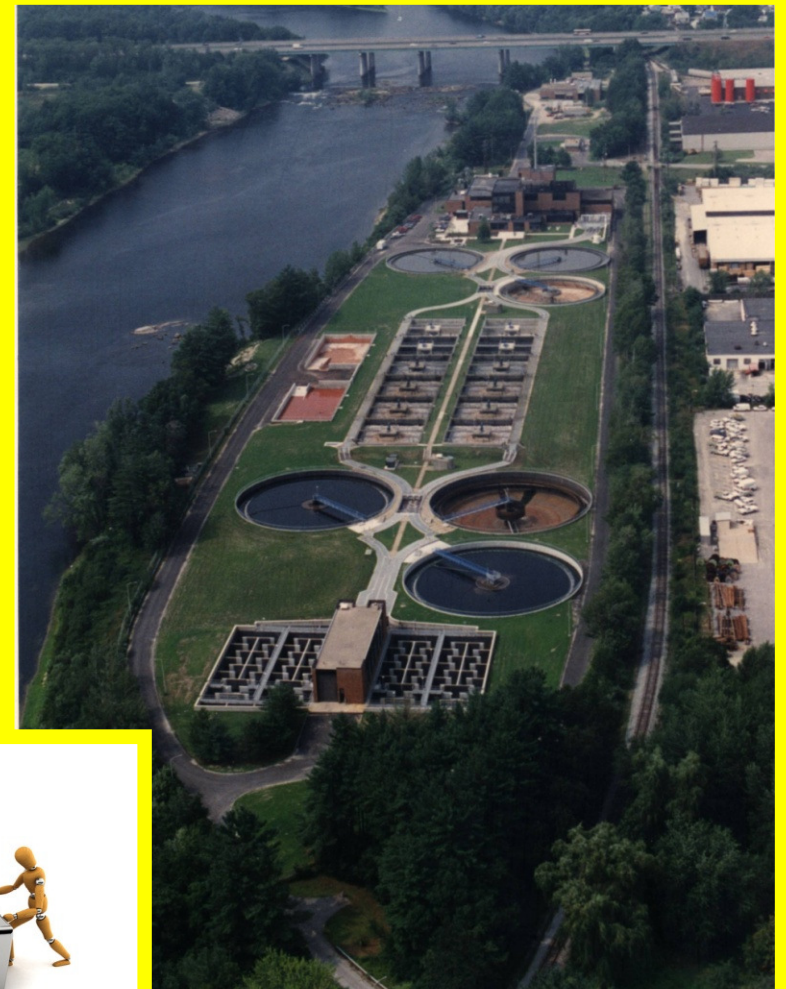
Solid Waste Facilities



- Turn a Waste into a Resource
- Collect Revenue



Wastewater Facilities



- Prevent SSO's
- Save Sewer Cleaning Costs

Help Protect Homes in Your Community



Set up a simple Recycling program!



North Oconee (GA) Water Reclamation Facility.



Northeast Resource
Recovery Association



NRRA Waste Vegetable Oil Collection Program

Provides **YOU** a Simple
Waste Vegetable Oil
Collection Solution

Step #1 -Free Containers



Step #2 -Free Signs

NH The Beautiful

- Each town gets 60 points a year towards free signs
- This sign is 14 points



Step #3 – Educate the Public



Pollution Prevention



**Don't Pour Grease
Down The Drain**



Brown Grease –
A Problem
Costs you \$\$\$

Convert

Yellow Grease –
A Resource
Can Pay you \$\$\$



**Recycling
used oil is
completely
logical.**

CETDEM

Organic
Farming
Project

Always Promoting Sustainable Development

COLLECTION CENTRE FOR USED COOKING

TOGETHER, WE CAN REDUCE POLLUTION.

**CONTRIBUTE TOWARDS THE PRODUCTION OF BIODIESEL
AN ECO FRIENDLY, SUSTAINABLE & RENEWABLE SOURCE OF ENERGY.**

CETDEM Organic Farming Community Centre (OFCC)

29 Jalan 19/15, 47300 Petaling Jaya

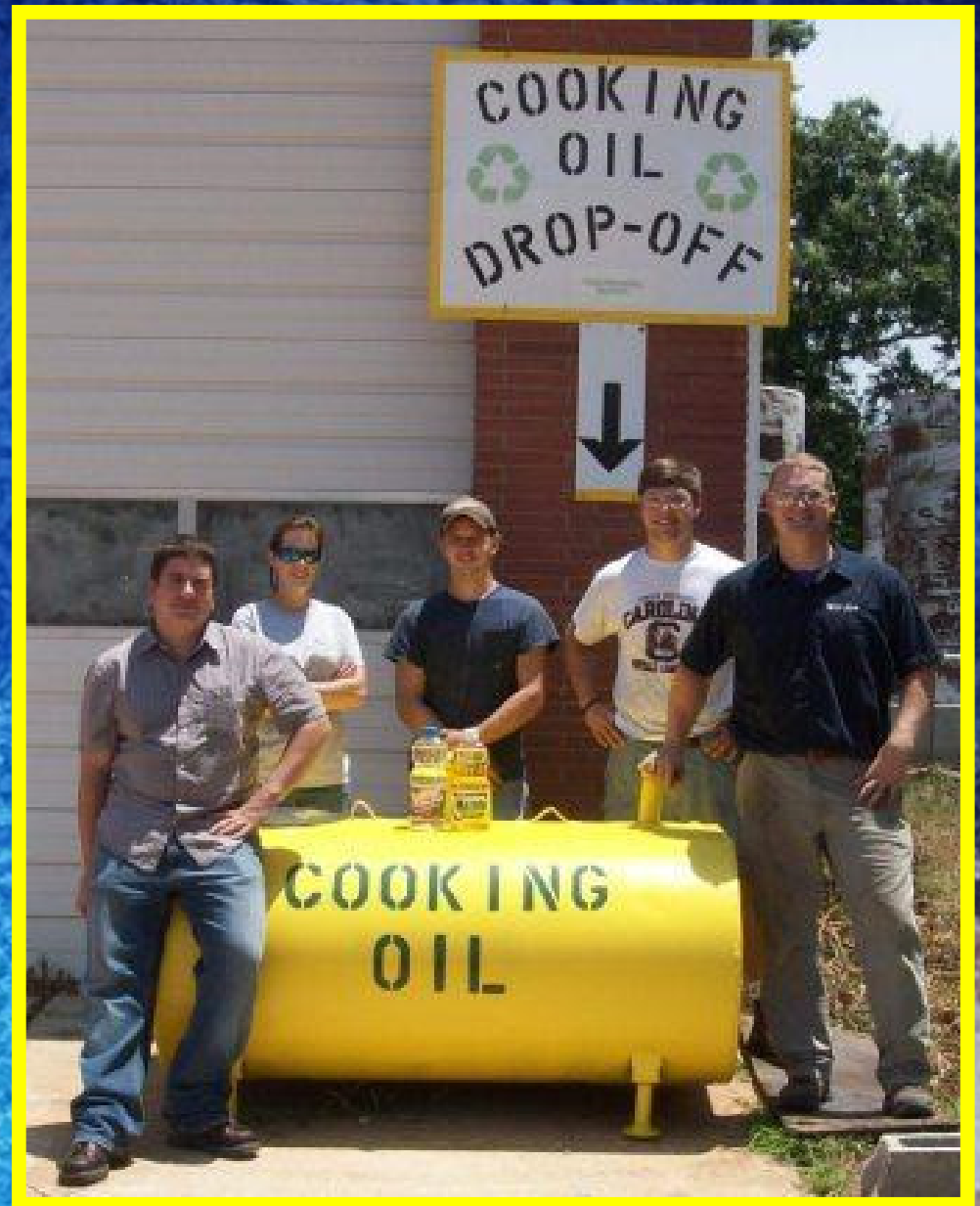
Monday - Friday : 9:30am - 12:30pm

Saturday - Sunday : 11:00am - 12:00noon (T: 03-7875 7767)

OIL



Step #4 – Start Collecting







ITEM #
25825

100% Pure

Mazola

CORN OIL

1.90 L (63.3 FL OZ)







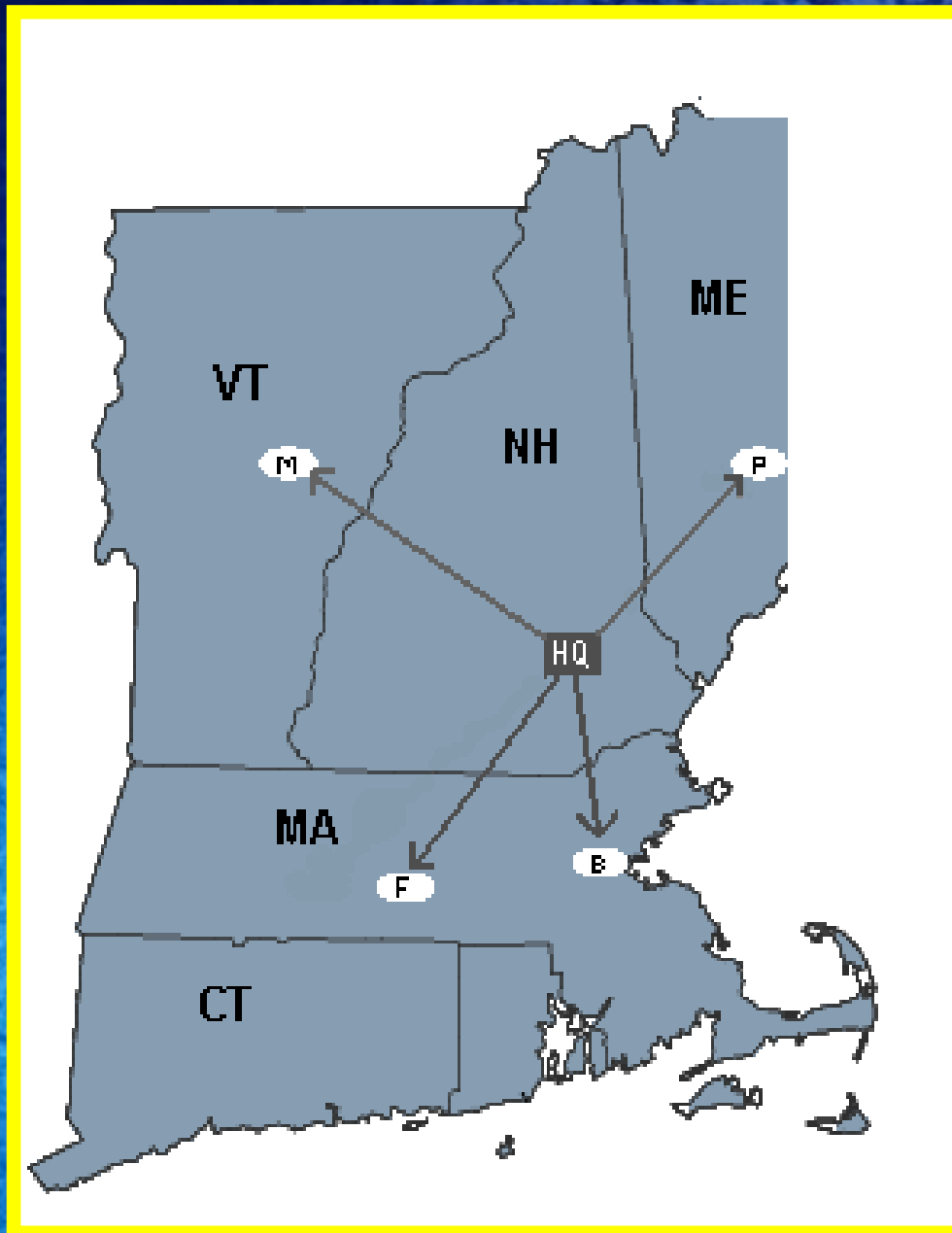
Step #5 - Free Pick-Up



Geographic Coverage

Collection Area:

NH
MA
RI
ME
VT
CT



Strategic Locations:

Pittsfield NH
Headquarters

Fitchburg Hub

Boston Hub

Portland Hub

Montpelier Hub

Pittsfield Facility



What AMENICO Does!!!



Turned Raw Waste Cooking Oil...

...into a vegetable based biofuel


AMENICO
American Energy Independence Company

7,302 gallons in 2016

Step #6 – Collect Revenue



- High of \$1.15/Gallon
- \$0.35/gallon in 2016

Step #7 – Brag about the Benefits

- Recycled used vegetable oil is being used for energy recovery and is not being wasted in our landfills or disrupting wastewater treatment plants.
- Reused as a fuel, vegetable oil has fewer harmful air emissions.
- Reduce our nation's dependence on natural resources.

Will you help?

- Provide residents a solution
- Contact **NRRA TODAY!!!**
Phone: 603-736-4401
1-800-223-0150
Fax: 603-736-4402
Web Site: www.nrra.net
Office Email: info@nrra.net



41 Towns Participated in 2016

Let your Sewer Department know so they get credit as part of their FOG Program

Educational Message







***My Spidey
Sense tells
me to
recycle
used
cooking
oil!***

For more information
call 251-626-2628 or visit us at
www.daphneutilities.com

How to Recycle Cooking Oil



Pour Excess Cooking Oil into Collection Container



Wipe Off Grease Before Rinsing



Acceptable Cooking Oil Products


- Canola
- Soy
- Palm
- Olive
- Corn
- Peanut
- Cotton seed
- Sunflower
- Vegetable
(Combination)





A man with a beard and a cap, wearing a dark blue shirt with a name tag that says "Earl The Plumber". He is pointing towards a jar of yellow grease. The background is a blue grid pattern.

We're turning grease into electricity?

A white jar filled with yellow grease, with several white lightning bolts striking it from above and to the left.

That's right, Dallas Water Utilities is turning YOUR grease and cooking oil into electricity at the Southside Wastewater Treatment Plant!

Cease the Grease



***Recycle
Used Oil
You Will,
Young
Jedi!***



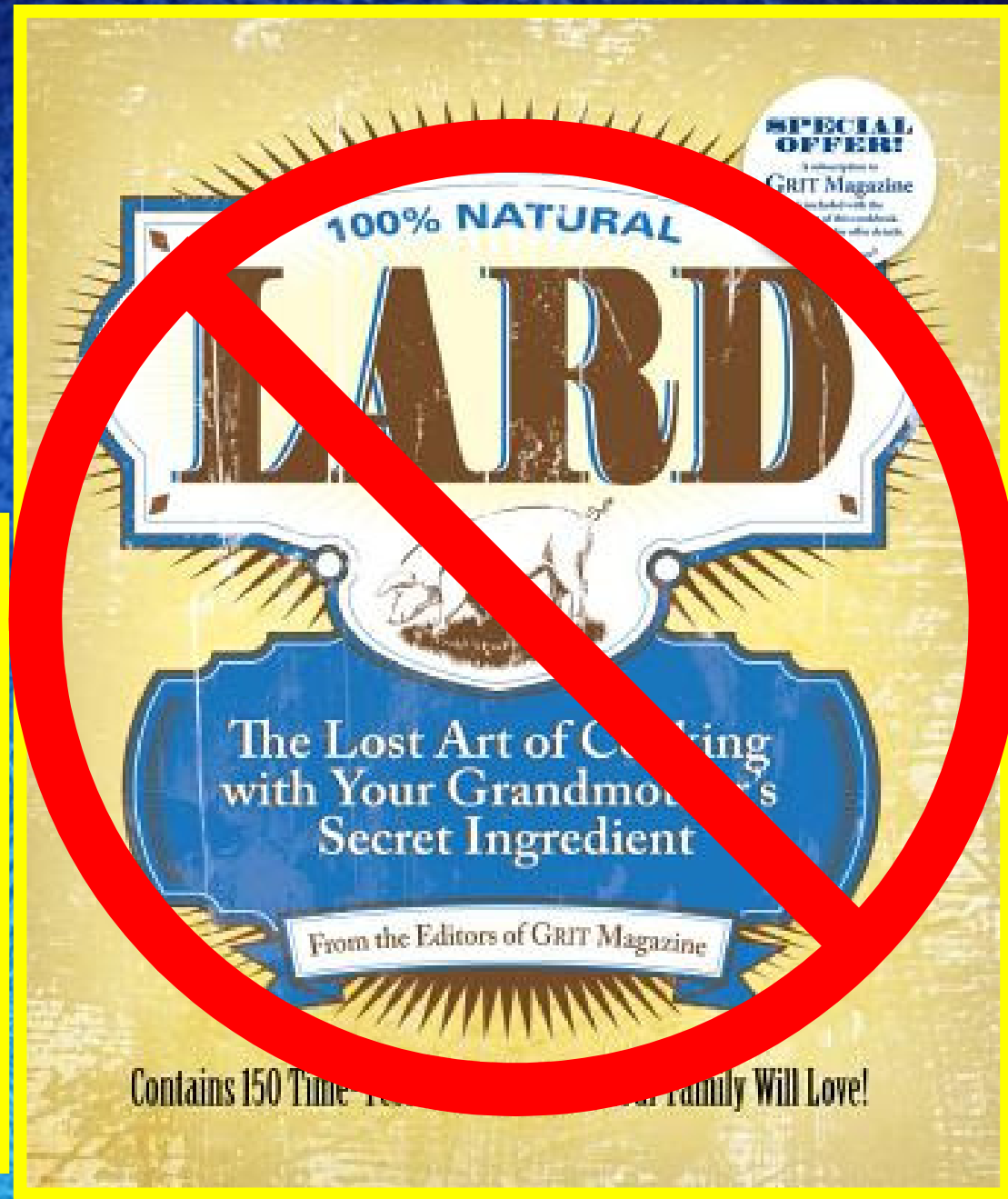
Daphne Utilities





Unacceptable Cooking Oil Products

- LARD - pig fat in both its rendered and un-rendered forms



The Many Uses of
BACON GREASE



For Gunpowder

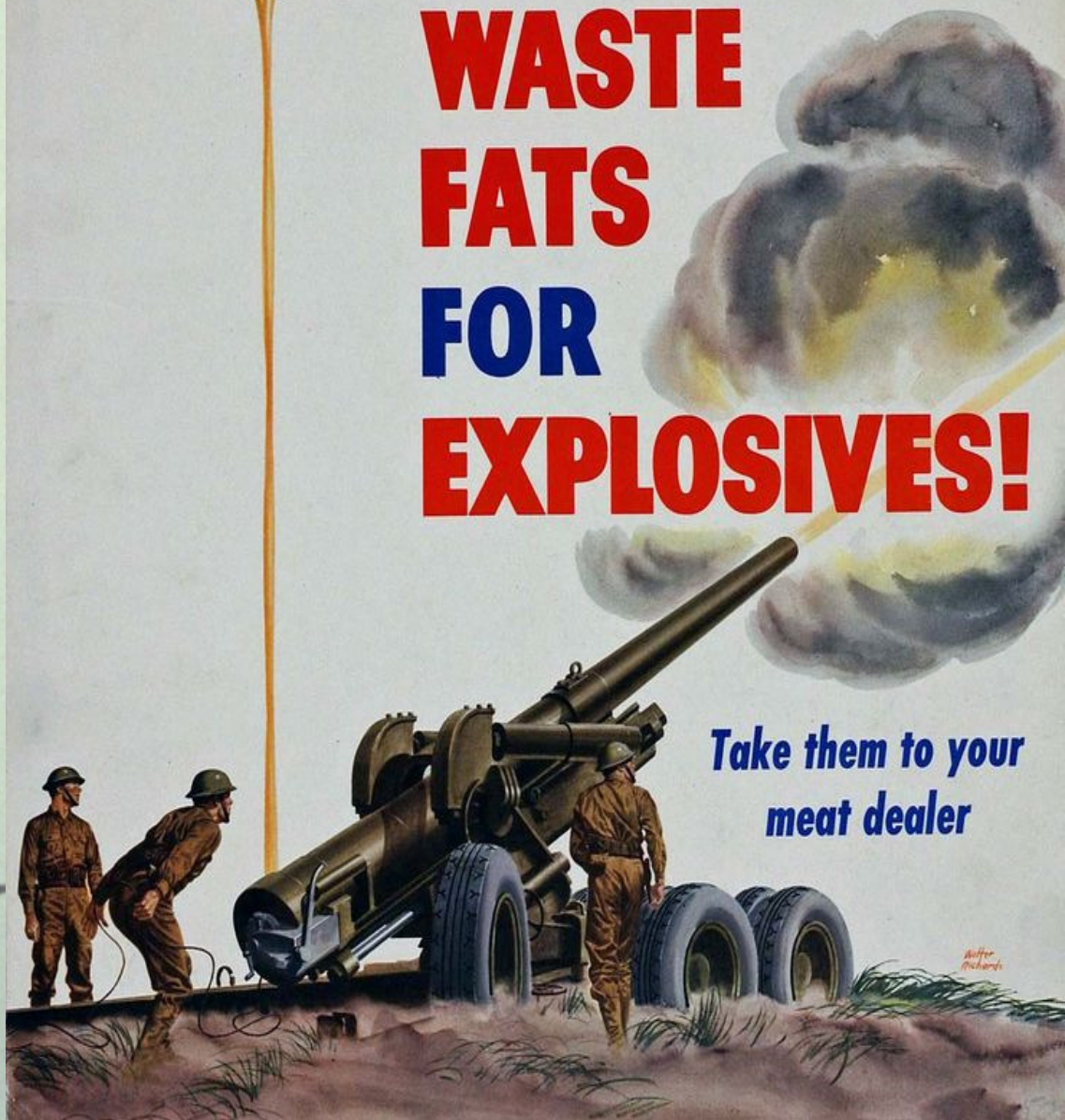
**SAVE
WASTE
FATS**

Rush Them to Your Meat Dealer



Housewives!
SAVE
WASTE
FATS
FOR
EXPLOSIVES!

*Take them to your
meat dealer*



*Walter
Richard*



Grandma's Best
Kitchen Secret



**BACON FAT IS A
HEALTHY, SUSTAINABLE,
AND FRUGAL COOKING FAT.**





Cool



Scrape



Trash



FREEZE THE GREASE



Unacceptable Oil Products

- Any other oil “not Cooking oil”
 - Linseed oil
 - Motor oil





**Put Used Oil
in Its Place!**





ONLY YOU

**CAN SAVE
OUR SEWERS**



Will you help?

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1-800-223-0150
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41 Towns Participated in 2016

Let your Sewer Department know so they get credit as part of their FOG Program

Contact Info

Ray Gordon
DES Septage Coordinator
(603) 271-3571

**Grease
Recycling**



Together We Can Make A Difference