WELCOME!

Welcome to DES

&

to Today's Workshop

"Best Management Practices for Transfer Station Operators"

WHY ARE YOU HERE?

- Required by law and NH Solid Waste Rules.
- Build your resume & accumulate professional development hours.

WHY THIS WORKSHOP?

- Top 10 most dangerous jobs
  - 33 deaths per 100,000 FTE
  - Due to accidents and exposure to hazardous materials and heavy equipment

DESKTOP MATERIALS & DISPLAYS

- Agenda
- Evaluation
- BMP Manual

TODAY'S AGENDA

- Best Management Practices & The BMP Manual
- Solid Waste Operator Training Rule Changes
- BMPs for Universal Wastes
- BMPs for Used Oil & Filters
- Break

TODAY'S AGENDA

- BMPs for Household Sharps
- BMPs for Composting Food, Leaf & Yard Waste
- BMPs for Scrap Tires
- BMPs for Glass
- BMPs for Brush Piles
- Q&A

Best Management Practices for Transfer Station Operators

BMPs & Use of the BMP Manual

BMPs & Use of the BMP Manual

Preferred Work Methods

Strategies to:

- *handle waste to protect environment/public health*
- *comply with regulations*
- *avoid unnecessary costs*

BMP vs. Rule

BMP	Rule
Preferred; sometimes required	Required
Outcome based	Usually more specific

BMPs……Tab 1 (Light Blue)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

BMPs

Best Management Practices for N.H. Solid Waste Facilities

Antifreeze

Antifreeze contains chemicals that can be toxic to people, plants and animals. The most common antifreeze solutions are mixtures of water and either ethylene glycol or propylene glycol. Ethylene glycol is much more toxic than propylene glycol and is slowly being phased out. Both types of antifreeze must be managed and stored to prevent impacts to the environment and public health.

Instead of sending used antifreeze to an expensive hazardous waste disposal facility, recycle it. In New Hampshire, the Universal Waste Rule simplifies the requirements for managing antifreeze if you recycle it. For more information about managing waste antifreeze under the Universal Waste Rule, refer to the Universal Waste BMP Guidance Sheet or contact NHDES.

Best Management Practices for Waste Antifreeze

- Do not pour antifreeze into septic tanks, sewer systems, storm drains, surface waters or onto the ground.
- Store antifreeze in containers that are in good condition and will not rust, rot or be dissolved by the contents.
- If stored outdoors, place all used antifreeze containers including buckets, drums and tanks:
  - > In secondary containment (a container that can hold at least 110 percent of the volume of the largest used antifreeze container or 10% of the total volume of all containers, whichever is greater).
  - > On an impervious surface such as intact concrete or heavy duty/rigid plastic.
  - > Under cover to keep the storage container and secondary containment dry.
- Clearly label each container with one of the following phrases to show how the antifreeze is being managed: "Universal Waste – Antifreeze", "Waste Antifreeze" or "Used Antifreeze".
- Clearly mark each container or tank with the date the antifreeze was first added. Reuse, recycle or dispose of it within a year of that date.
- Keep the antifreeze containers tightly closed, except when actively adding or removing antifreeze.
- If collecting different types of waste antifreeze, use separate funnels, drip pans and containers for each type. Label your equipment to avoid mixing the wastes.
- Immediately contain and clean up all spills and leaks. Keep spill control equipment nearby.
- Before shipping any antifreeze, make sure the shipping documents have been completed and the receiving facility has agreed to receive the shipment and is authorized under state law to receive it.
- Recycle waste antifreeze to restore its quality by:
  - > Hiring a contractor to come to your facility with a mobile recycling unit; or
  - > Transporting the waste antifreeze to a "universal waste destination facility" or "universal waste handler" that will recycle the antifreeze and meets all other requirements in the Universal Waste Rule; or
  - > Purchasing the proper equipment and doing it yourself.

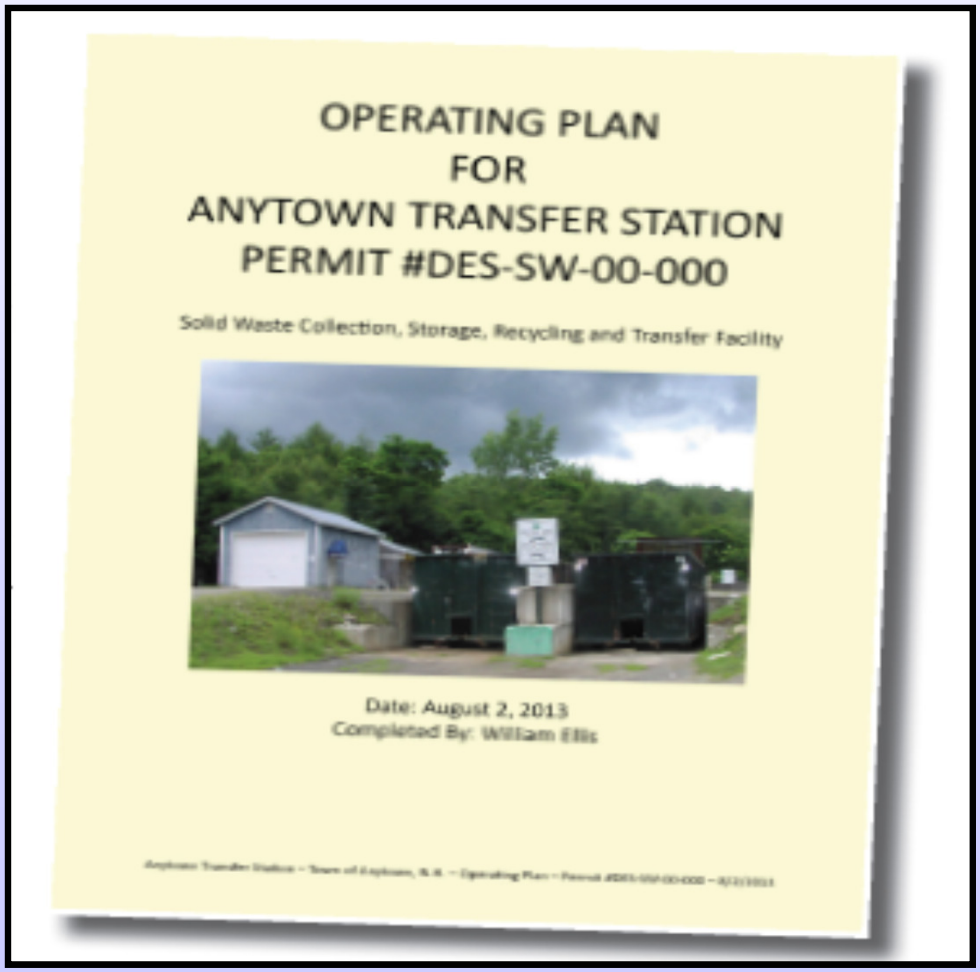
Remember…

- Ethylene glycol antifreeze is very dangerous because children and animals are attracted to its sweet odor. Drinking it can cause severe illness or death.
- Never put antifreeze in the trash, on the ground or down the drain.

Summer 2013

Resources……Tab 2 (Green)

Permit Information…Tab 3 (Dark Blue)



OPERATING PLAN
FOR
ANYTOWN TRANSFER STATION
PERMIT #DES-SW-00-000

Solid Waste Collection, Storage, Recycling and Transfer Facility

Date: August 2, 2013
Completed By: William Ellis

Facility Inspections…Tab 4 (Yellow)

Facility Reporting & Recordkeeping…Tab 5 (Orange)

Annual Facility Report (AFR)

NHDES-S-05-003

Environmental Services

2014 ANNUAL FACILITY REPORT

TRANSFER STATIONS and RECYCLING FACILITIES

RSA 149-M

Please complete all 5 pages identifying recycling and waste activities for calendar year 2014 (January 1 – December 31). Remember to make a copy for your records.

1. Facility Location (Env-Sw 1105.13(a))

Facility Name *****	
Physical Address (Facility location, not mailing address) *****	
Town/City *****	DES Solid Waste Permit No. (DES-SW-XX-##-###) *****

2. Permittee Information as Indicated on Permit (Env-Sw 1105.13(b))

Permittee Name *****			
Mailing Address 1 *****	Mailing Address 2 *****		
Town/City *****	State *****	Zip Code *****	Permittee Phone Number (*****) *****
Permittee Email Address *****			

3. Facility Status (Env-Sw 1105.13(d))

- ☐ Operated the entire calendar year.
- ☐ Did not operate in the calendar year.
- ☐ Operated part of the calendar year only.
  - → Started operating on ***** / ***** / 2014. Stopped operating on ***** / ***** / 2014.
  - → → → MM / DD → → → → MM / DD

4. Contact Information Provide the name of the person who can answer questions about this report.

Name *****	Job Title *****	
Work Mailing Address *****		
Town/City *****	State *****	Zip Code *****
Work Email Address *****	Daytime Phone Number (*****) *****	

Facility Reporting & Recordkeeping…Tab 5 (Orange)

Self Inspection Checklists

This is NOT something new; it has been in Rules forever.

Conducting self-inspections helps the facility to comply.

The (new) checklists are a tool to help you comply.

Operator Training & Certification….
Tab 6 (Green)

Miscellaneous…Tab 7 (Yellow)

Contacts…Tab 8 (Dark Blue)

SOLID WASTE FACILITY OPERATOR WORKSHOP

Solid Waste Operator Training Rule Changes

Effective July 1, 2014

OPERATOR TYPES

Establishes two types of operators:

1. Principal operator

- Attend basic training and pass the exam.
- May be in supervisory/management position.

OPERATOR TYPES

2. *Assistant operator*
   - Attend basic training, but do <u>not</u> take/pass the exam.
   - Must work under supervision of principal operator.

OPERATOR QUALIFICATIONS

- No more minimum education/experience requirements.
- Employers determine who is competent, not DES.

TRANSITION FROM LEVEL TO STEP

- *Attendant in Training → Assistant Operator*
- *Level 1 → Principal Operator, Step 1*
- *Level 2 → Principal Operator, Step 2*
- *Level 3 → Principal Operator, Step 3*
- *Level 4 → Principal Operator, Step 4*

SENIOR PRINCIPAL OPERATOR

To recognize those individuals who have 20 years of <u>continuous</u> certification, we have designated them as Senior Principal Operators.

STEPS

- Recognition for continuing professional development.
- Awarded automatically with renewal.
- Step increases with hours of accrued training starting July 1, 2014.

OPERATOR STEPS

Step	Hours of Accumulated Continuing Professional Development
1	2.5 total
2	12.5 total
3	25 total
4	37.5 total
Senior *	50 total

* Only for Principal Operators

PROFESSIONAL DEVELOPMENT

- "Continuing Professional Development" means professional or technical instruction that imparts information and instruction relevant to waste management and solid waste facility operations to individuals who have already attended basic training.

PROFESSIONAL DEVELOPMENT

- 2.5 hour minimum for annual renewal for **ALL** designations.
- Must be completed in the 12 months in-between expiration dates before you are considered late.

PROFESSIONAL DEVELOPMENT

- Repeated courses do not qualify for certification renewal or step increases.
- In-house and third party training count, provided the topic is waste-related.
- If you aren't sure if the training you want to take will count, call and ask us before you go.

GRACE PERIOD

- There is a 90-day grace period for renewal applications
- A $25 late fee will be assessed if your complete renewal application is received within 90 days after your certification expiration date

BEYOND THE GRACE PERIOD

- If you miss the grace period, you must start over.
  - Come back to Basic Training; and
  - Take the test again

SIGNATURE

- The operator's signature shall certify:
  - the information is true, complete and not misleading;
  - the operator understands s/he is subject to penalties of law for false swearing; and
  - the operator understands s/he is required to comply with RSA 149-M and SW Rules.

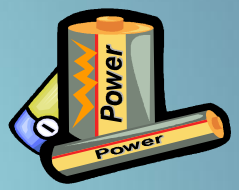
Best Management Practices for Transfer Station Operators

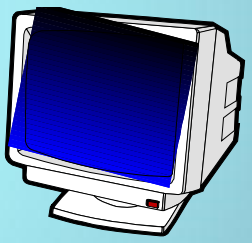
Universal Wastes

[Are also Hazardous Waste]

Types of NH Universal Waste

- Auto Antifreeze
- Certain Batteries
- Cathode Ray Tubes
- Certain Lamps
- Mercury-Containing Devices
- Some Pesticides





Used Auto Antifreeze

Store in a container or tank that's in good condition and that can be closed

May contain heavy metals and cancer-causing benzene
Antifreeze becomes acidic during its use

Used Auto Antifreeze

Container must be labeled, contain date when first used, in secondary containment if stored out doors, and closed when not in use

When shipping off-site, use a bill-of-lading

Used Batteries

Nickel-Cadmium (Ni-Cd)

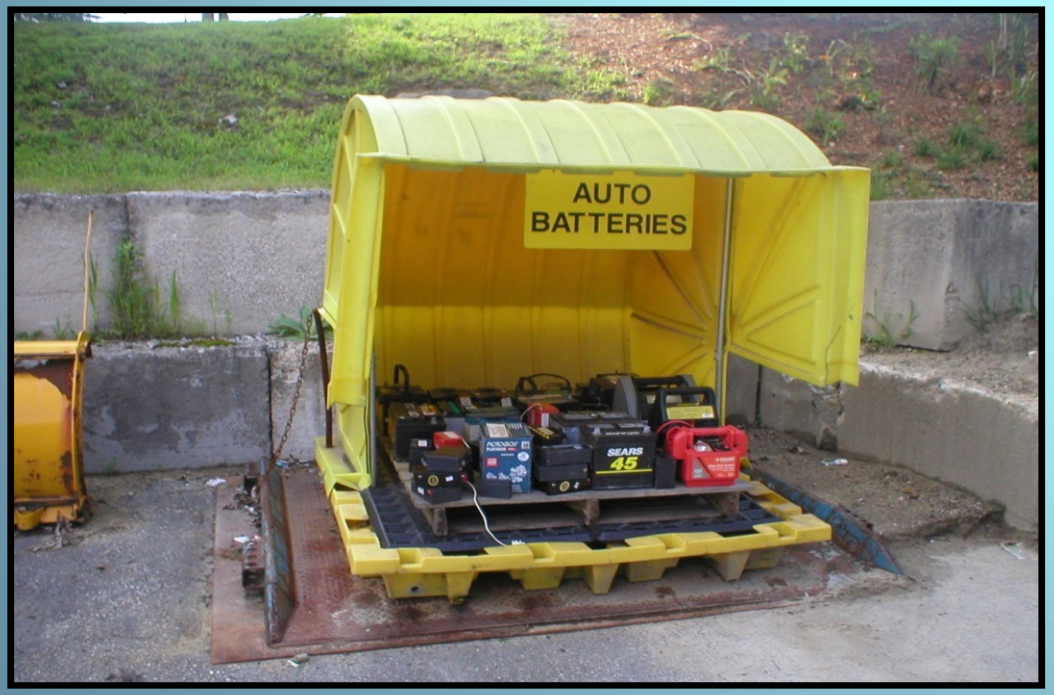
Lithium

Dangerous for Heavy Metals, fire hazard, and strong acids

Used Batteries

Container must be labeled, contain date when first used, in secondary containment if stored outdoors, and closed when not in use

When shipping off-site, use a bill-of-lading



Cathode Ray Tubes (CRTs) contain lead.

Used CRTs

Container must be labeled, contain date when first used, in secondary containment if stored outdoors, and closed when not in use

When shipping off-site using a bill-of-lading

Types of Universal Waste Lamps

- Fluorescent
- Mercury vapor
- High pressure sodium

THEY ALL CONTAIN **MERCURY!**

Used Lamps

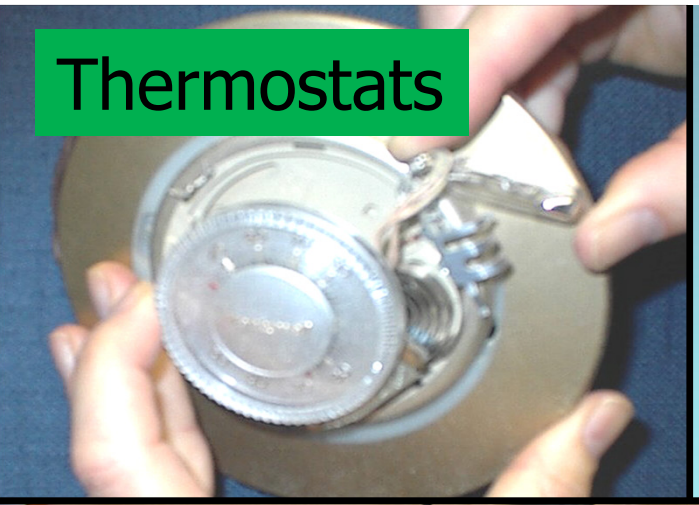
Container must be labeled, contain date when first used, in Secondary containment if stored outdoors, and closed if not in use

When shipping off-site, use a bill-of-lading

Universal Waste Lamps

Do NOT crush the lamps on purpose.
It is illegal.

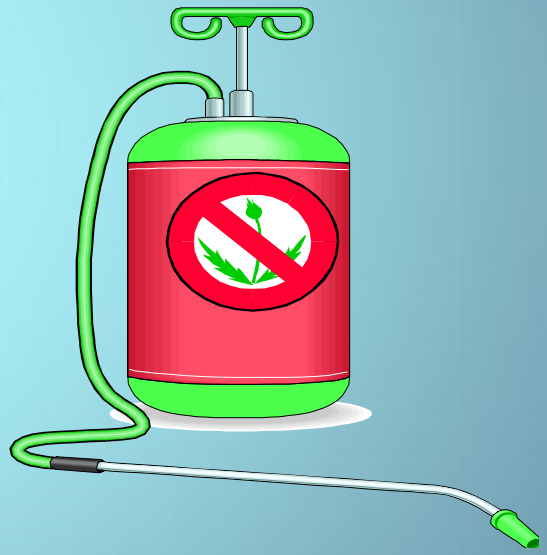
Mercury-containing devices



Store in a labeled, dated, & closed container & ship with a bill-of-lading

Some Pesticides Are Universal Wastes

The NH Department of Agriculture keeps a list of which pesticides are universal wastes



Many pesticides are still hazardous wastes with strict regulations

Storage of Universal waste

If you store less than a combined weight of 11,000 lbs. of universal wastes then your facility is classified as a "small quantity generator"

- 500 gal. of antifreeze [@ 8.7 lbs. per. gal.] weights approx. 4350 lbs.
- 75 car batteries [@40 lbs.] weights about 3,000 lbs.
- 75 CRTs [@40 lbs.] weights about 3,000 lbs.

If you store more than a combined weight of 11,000 lbs. of universal wastes then your facility becomes a "large quantity handler" and is subject to additional reporting requirements and regulatory over-site

Universal waste Storage

You can store these wastes for up to one year

You can store these wastes for up to two years if you:

- can prove the longer accumulation time is needed to facilitate proper recovery, and
- have a letter or contract from the destination facility confirming the reason for the longer time
- keep the letter or contract at the facility

Universal Waste Storage

Keep covered and store in secondary containment if stored outdoors

Don’t store antifreeze indoors, near a floor drain

Universal Waste Spills

Clean spills immediately

Contact DES if spill involves:

- imminent & substantial threat to humans & environment
- a violation of rules
- a violation of permit

Universal Waste Training

Train employees on proper handling.
(in-house training ok)

Teach operators:

What is the danger?

How do I handle these wastes?

Help!

Hazardous Waste Hotline

1-866-HAZWAST

1-866-429-9278

Questions

Used Oil and Filters

What is Used Oil?

- Includes – used motor oil, transmission fluid, brake fluid, power steering fluid, transaxle fluid
- Hazardous waste in NH - may contain toxic metals and chemicals - source of pollution
- Used Oil for recycle - if not mixed with other substances and is "recyclable" - less strict set of rules

Whose Used Oil Can I Collect?

- Residents: Do it Yourselfers (DIYers)*
- Businesses: Only if one of the parties is a marketer AND all other requirements are met (i.e., you have a furnace/copy of analysis)

Not sure what to do?

Use your BMP Manual for Guidance!

Call DES

WHAT HAPPENED HERE?

Options for Used Oil

- Burn in a registered (DES) used oil furnace for heat
- Picked up by an authorized used oil marketer/send to refiner
- Hire a registered HW transporter

<u>Funding Options</u>

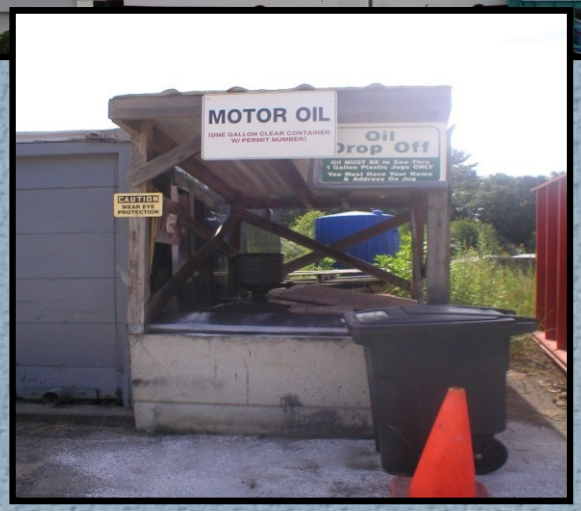
- Grant money available: NH towns, MV inspection stations & nonprofit orgs
- Fee on MV registration: used for automotive waste/used oil/other recyclables

Contact DES for more information

Accepting DIY Used Oil & Filters

- Instruct/educate residents to use closed, clear, non-leaking containers

- Trained SW operators should transfer contents to storage containers



Storage of Used Oil

- Store in metal containers in good condition, on intact surface, and label "used oil for recycle"
- Fill pipe/funnel should be reachable (waist high)
- Outdoors - *secondary containment*, under a roof
- Keep containers closed except when adding/removing

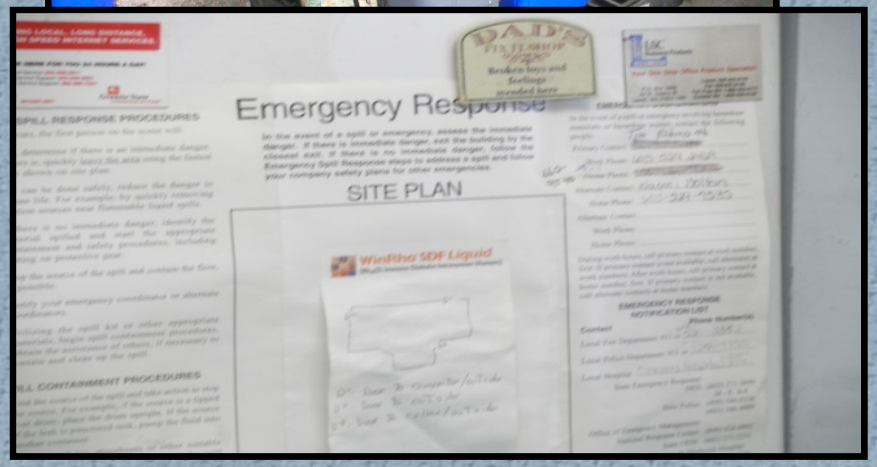
Metal Funnel Screwed into Bung

Storage of Used Oil

- Post Emergency/ Cleanup Information- Train employees
- Spill kit should be available
- Clean up spills right away*

  * Contact DES if >25 gals or not cleaned up immediately

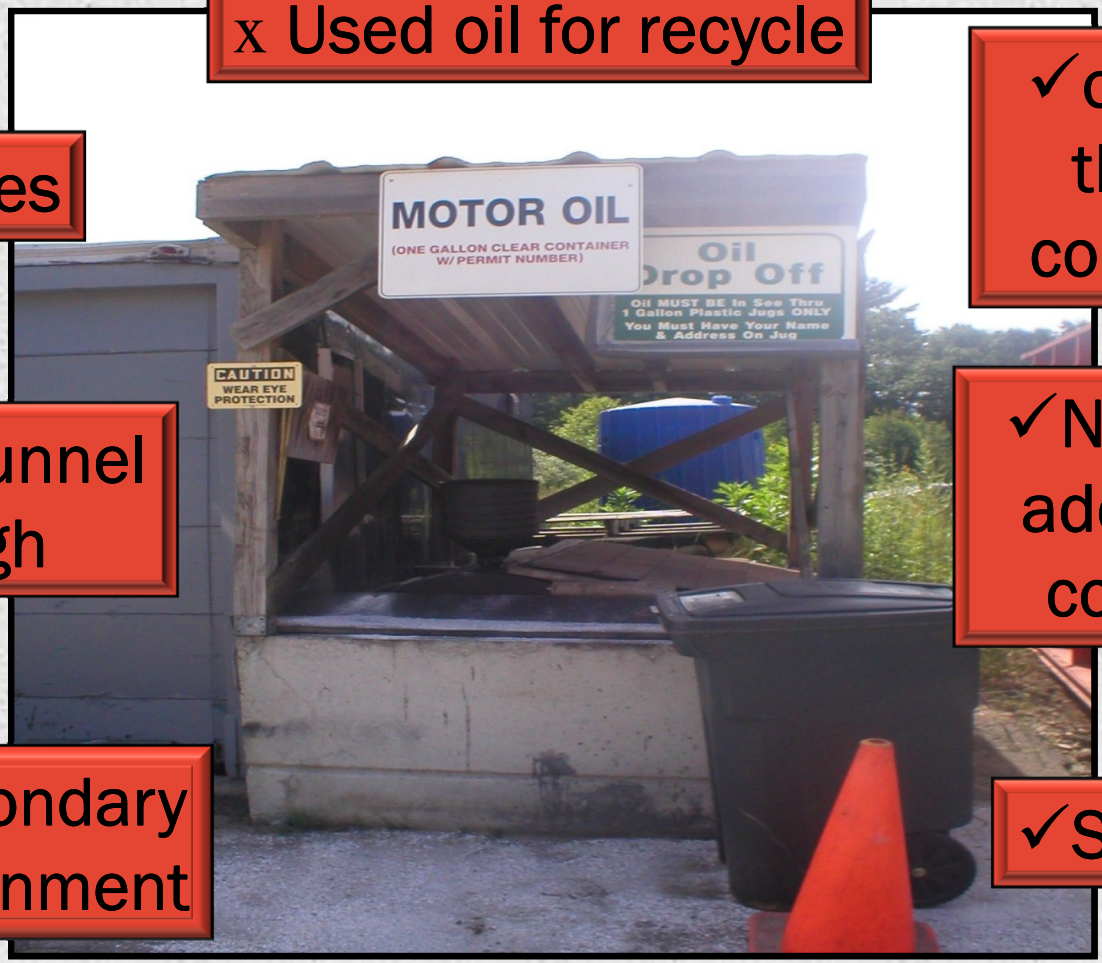
Refer to Your BMP Guide



x Used oil for recycle

x open sides

✓oil in see through containers



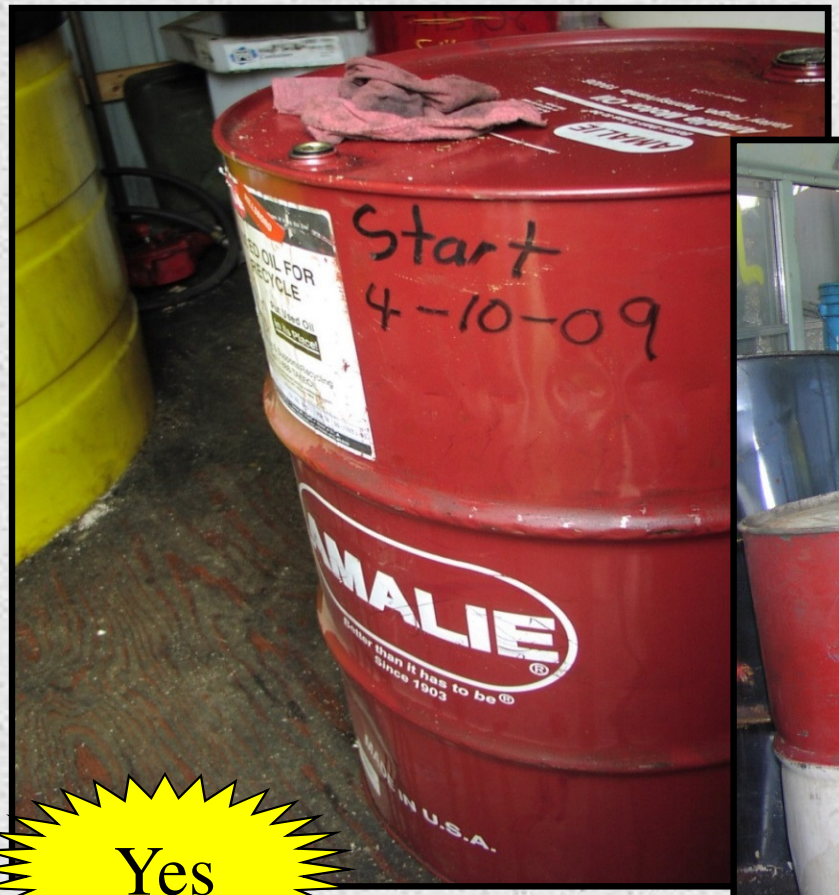
X Closed funnel
✓Waist high

✓Name and address on container

✓Secondary containment

✓Spill kit

Storage BMPs



Yes

No

Behind the Bus

Used Oil Filters

- Fully drain them -puncture or crush
- Recycle as scrap metal
- Label “Used Oil for Recycle”

Used Oil Filter Crusher

Shipment of Used Oil

- Transfer to a marketer or refiner
- Transfer to a HW transporter
- Use a bill of lading or manifest*

  Manifest: no fee if NHX1

  code (used oil for recycle)
- Keep copies of records for at least 3 years

Bill of Lading

USED OIL SHIPMENT
BILL OF LADING

Shipment Number: _____ Batch Code: _____
(Batch Code is required for marketers only; analytical reports attached)

Generator/: Marketer
Name
EPA Identification Number (if applicable)
Site Street Address
Site Town State Zip Code

Transporter:
Name
EPA Identification Number
Hazardous Waste Transporter Registration Number
Site Street Address
Site Town State Zip Code

Receiving: Facility
Name
EPA Identification Number
Site Street Address
Site Town State Zip Code

Quantity / Volume	Description	Date Shipped	Date Delivered
	Combustible Liquid, n.o.s (NA 1993) package group III		

This used oil is destined to be recycled and is subject to regulation by the New Hampshire Department of Environmental Services under Part Env-Hw 807. I certify that this used oil is not a hazardous waste fuel as defined in Env-Hw 807.04 and that I have not mixed this used oil with any other hazardous wastes identified in Chapter Env-Hw 400 or any used oil classified as a hazardous waste fuel under Env-Hw 807.04.

Generator Name (print) Generator Signature Date

Revised June 3, 2010

Storage Tanks Rules

- Apply to <u>used oil, gasoline and diesel only</u> (not virgin heating fuel)
- Register with DES/ must meet standards/ funds available
- Aboveground Storage Tanks (ASTs)
  - Tank > 660 gallons or combined capacity of > 1,320 gallons must register & meet AST Standards
- Underground Storage Tanks (USTs)
  - ALL USTs must register & meet UST Standards

Twenty-four 55 gallon drums = 1,320 gallons of capacity

DES encourages the collection of "Used Oil for Recycle."

Saves Money

Good Service

Good for Environment

Do we want this….?

…or this?

One pint of oil can contaminate a whole lake

NH generates 3 million gals of used oil/year

It is in your hands!

Questions?

BREAK

Best Management Practices for Transfer Station Operators

Household Sharps

Concerns

- **Sharps are sharp!** (skin punctures)

- **Infection:** Sharps can carry human and animal *diseases*

Who is at risk?

- facility operators
- trash collectors
- family members
- residents using the facility

Examples of Syringes & Needles

More Examples: Infusion Sets, Lancets & Scalpels

Disposal Options

In the trash:

- Use rigid, puncture-resistant containers
- Seal with tape
- Label: **"MEDICAL SHARPS - NOT FOR RECYCLING"**

<u>WARNING!</u> To prevent breakage, fill no more than ¾ full.

Disposal Options

- Mail back (fee based)
- Household Hazardous Waste Collections

Specialized Collection Containers

- Protected Location
- Locked
- Labeled
- Properly Maintained

Educate Residents

- Use a detergent bottle or manufactured container.
- When 3/4 full, seal with heavy-duty tape.
- **IMPORTANT!** Never place the container in the plastics or single-steam recycling bin.
- See attendant for assistance.

Labels

- Provide labels
- Direct to labels (des.nh.gov)

Train Operators

- Don’t put sharps containers in with recycling.
- Immediately report injuries.
- Use gloves when handling sharps not in containers.
- Call DES with questions.

DES Sharps Brochure

Available on the DES website.

This project is a collaborative effort by a joint legislative subcommittee seeking solutions for safe disposal of medical sharps.

Funding for the preprinted labels has been provided by:
Granite State Diabetes Educators
NH Department of Environmental Services
NH Local Government Center
NH Medical Society
Becton, Dickinson and Company

For additional information about safe sharps disposal, contact:
Granite State Diabetes Educators
PO Box 773
Concord, NH 03302-0773
or
granitestatediabeteseducators@gmail.com

Do-It-Yourself Medical Sharps Container

Here's a simple way to safely dispose of personal medical sharps at home:

- USE a thick-walled, sturdy plastic container with a tight fitting screw cap, such as an empty detergent bottle.
- LABEL the container with one of the new labels or with the words, "Medical Sharps Container. Not for Recycling."
- When about half-full, SEAL the container with heavy-duty tape.
- DISPOSE OF the container in the trash.

No sticks. No worries.

Help us make an important point!

Proper Disposal of Personal Medical Sharps Keeps Everyone Safe!

Help us make an important point!

Proper Disposal of Personal Medical Sharps Keeps Everyone Safe!

The Granite State Diabetes Educators has a new label (above and attached) designed to turn a sturdy, plastic bottle into a simple, inexpensive and SAFE container for disposing of personal medical sharps at home.

Help keep sharps from being thrown loose into the household trash or flushed down the drain.

Needle stick injuries are a serious public health risk to family members, home health providers and sanitation workers. Spent needles can carry HIV/AIDS, Hepatitis B and C, tetanus, and other blood borne diseases. Needle stick injuries cost thousands of dollars in medical testing and cause considerable stress for the injured, even when tests are negative.

A limited number of FREE labels are available from the Granite State Diabetes Educators, by contacting Liz Kennett at jimlizk@comcast.net. The labels will also be available online for printing onto Avery-type labels at www.des.nh.gov .

For more information on FREE sharps container labels, fill out this slip and leave in the nearby drop box.
Or contact Liz Kennett, Granite State Diabetes Educators, at jimlizk@comcast.net.

Name: _____ Telephone #: _____

Email address: _____

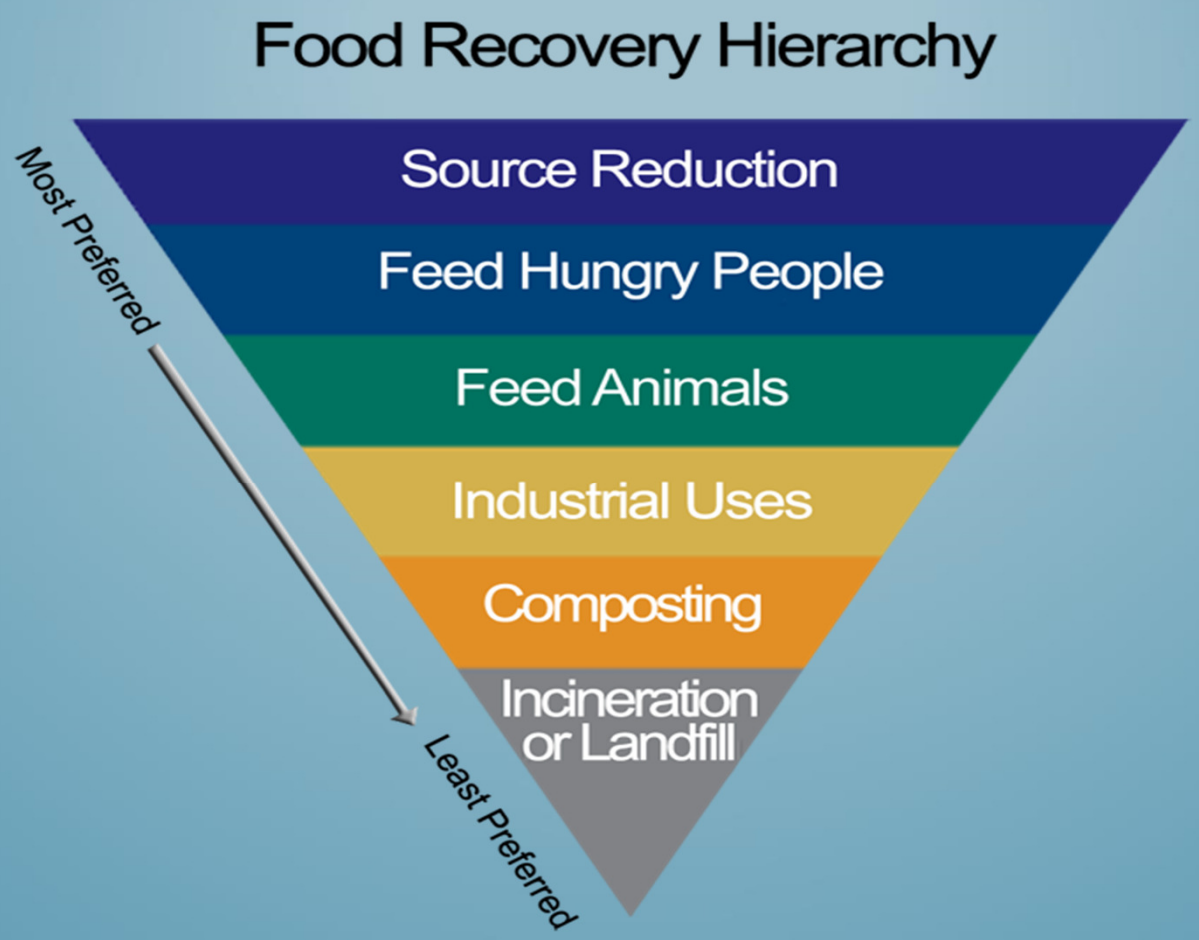
Mailing Address: _____

Bottom Line

Unmanaged

Managed!

ORGANICS MANAGEMENT



ORGANICS MANAGEMENT

Source Reduction - Reduce over-purchasing and excess food prep waste, and reduce spoilage with proper storage.
Feed People – Provide residents with information about local pantries.
Feed Animals – Consider networking with residents and local farmers.

ORGANICS MANAGEMENT

Industrial Uses – Liquid fats, oils and greases (or FOG) can be made into cosmetics, soap, and converted in biodiesel.

Anaerobic Digestion – A system where organic wastes, including food, manure, and sewage sludge are “digested” in the absence of oxygen.

Composting – An excellent alternative to chemical fertilizers.

TO COMPOST OR NOT TO COMPOST?

WHY AND HOW?

- Do you want to reduce costs, make money, or create a sustainable community?

- Meet with residents, farmers and local business to investigate whether composting will work

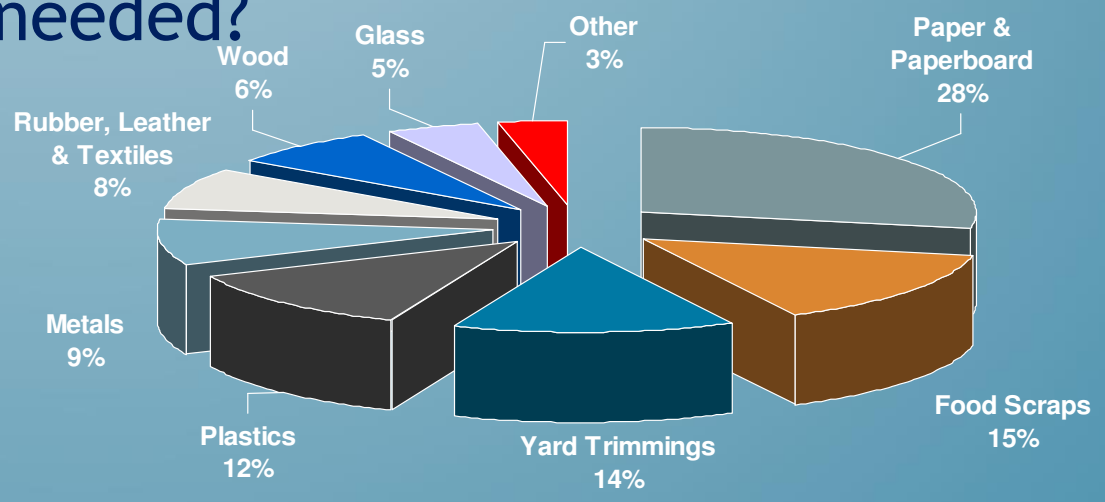
- Identify who will manage the operation [can a public/private partnership work?]

- Call DES at 271-2925

COMPOSTING BOON OR BUST?

Chief concerns regarding whether or not to operate a municipal compost facility are:

- Will the cost of the composting operation be greater than not composting?
- Do we generate enough food waste and feedstock [leaves, grass, etc.] to compost?
- What type of equipment is needed?
- What are the end markets?

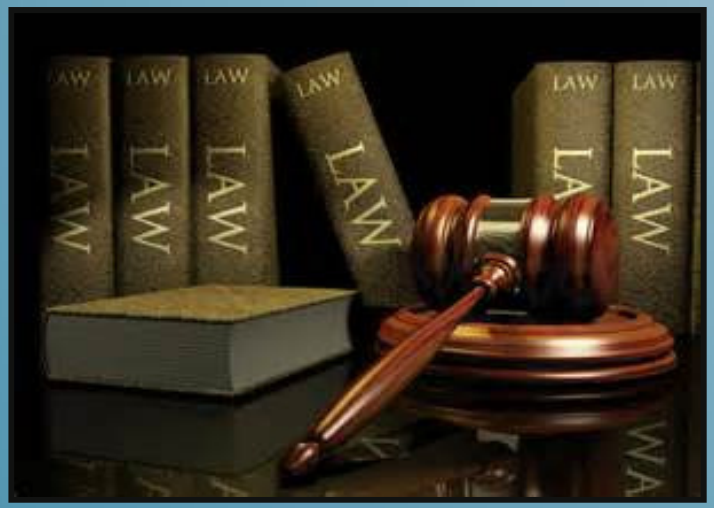


OPTIONS?

- Encourage residents and schools to do “back-yard” composting
- Compost either at your existing facility or at another municipal site
- Use your existing facility as a collection center for food waste destined for composting off-site

SOME SPECIFICS

- Permit? – Yes & No, more on this later!
- Operating & Closure Plans? Yes, like any other solid waste facility, you'll need to prepare or modify both plans
- Site Plan – Yes, you'll need to prepare a plan of the facility.



PERMITS

- Env-Sw 600 Composting Chapter in Solid Waste Rules
- Two Types of Permit:

    - Standard Permit – generally for larger, commercial facilities
    - Permit-by-Notification – for smaller facilities

PERMIT TYPE

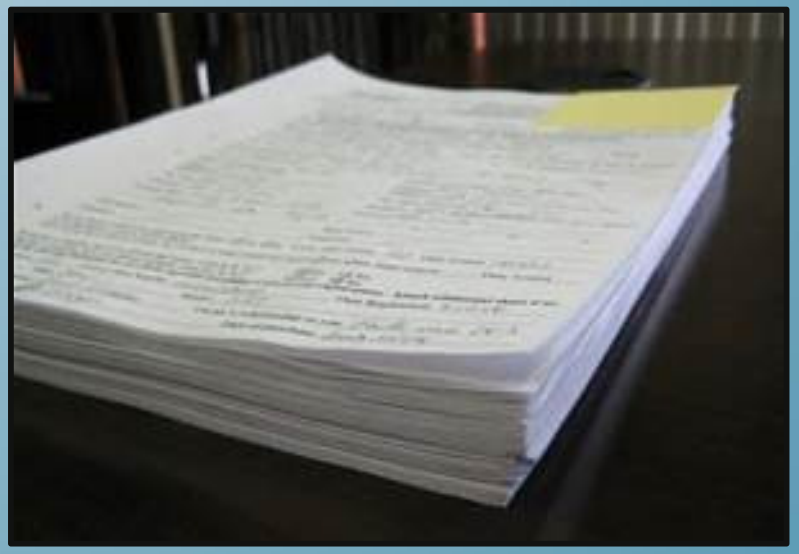
Standard Permit:

- A substantial application form
- Urge using professional help
- Need operating & closure plans*
- Accepting more than 30 tons of food waste per day
- Compost meat and dairy products
- Public hearing
- Background check of the applicant, key officials & employees
- Financial report
- Requires a fee

PERMIT TYPE

Permit-by-Notification (PbN):

- A much simpler application form
- Accepting less than 30 tons of food waste per day
- Require operating and closure plans*
- Cannot compost meat and dairy products
- No public hearing
- No financial report
- No fee



WHAT ABOUT EXISTING FACILITIES?

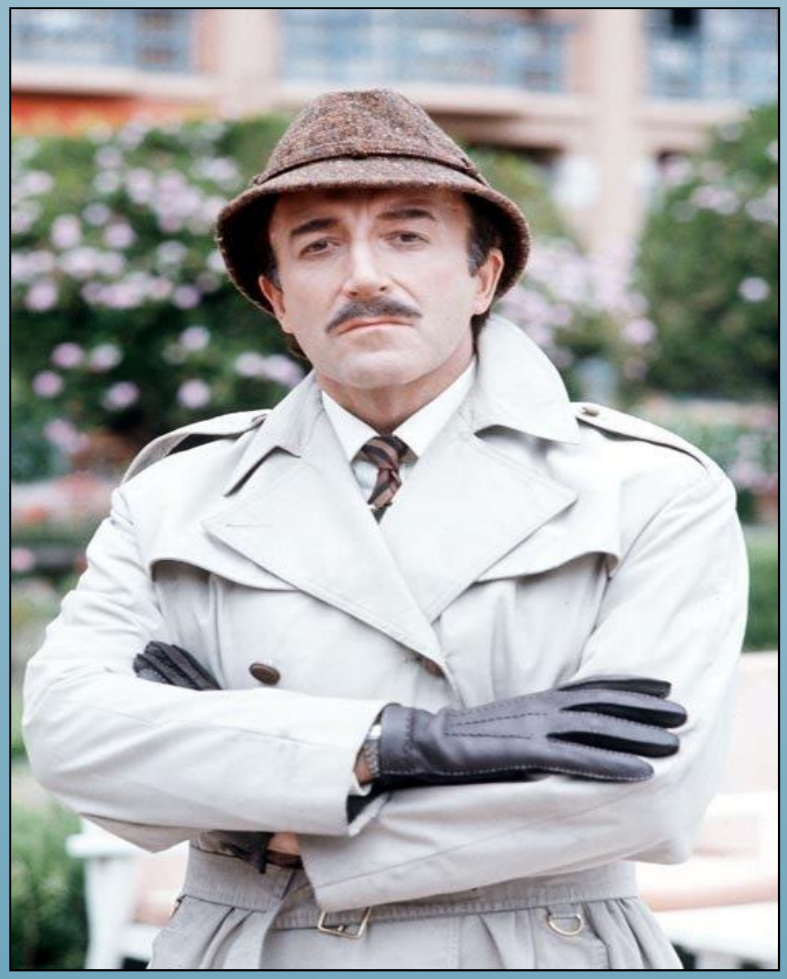
- If you are already permitted to accept food waste via your standard permit or PbN you can modify your operations & closure plans to accommodate the change in operations.

- PbN facilities still cannot compost meat and dairy.

STATUS OF COMPOSTING IN NH

- We have 9 permitted food composting facilities in the State
- Not all of these facilities are actively accepting food*
- Accumulation of solid waste (your operating plan needs to address this issue)
- Odors have been an issue (not just at food compost facilities)

QUESTIONS?



Scrap Tires

Best Management Practices

- Collect outside in transfer containers (dry & ready for shipping) or on ground
- If outside, cover with plastic, place in a warm, sunny area
- Check local fire codes - max 25 ft wide x 15 ft high - 25 ft fire lanes and 12 inch berms
- Indoors - comply with NFPA requirements

Why are tires a concern?

- Tires <u>burn</u> well & make a lot of smoke
- Burning tires emits toxic fumes and <u>pollutes</u> air
- Melting rubber generates <u>oil</u> and pollutes water and soil
- (7 gallons/ tire –EPA)
- Stagnant water collects inside -breeding grounds for <u>mosquitoes</u>

More concerns

- Tires are expensive and <u>difficult</u> to dispose of
- Landfilling tires takes up valuable <u>space</u> and is unstable
- The # of tires stockpiled and generated in the U.S. exceeds the market <u>demand</u> for recycled tires

Best Management Practices

- Keep equipment, cover material and other supplies nearby to <u>control fires</u>
- Ship tires when the truck is <u>full</u> (1000 to 1500)
- If landfilling - split, quarter, or shred to <u>prevent resurfacing</u>

This pile…. …..can turn into this.

Did You Know…?

- In 2012, over 308 million scrap tires were <u>generated</u> in United States
- N.H. municipalities can charge a <u>fee</u> on MV registration to be used to pay for tire disposal
- In a <u>fire</u>, tires can melt into an oily substance. When the fire is doused with water, the oily substance becomes runoff and pollutes surface waters

Questions?

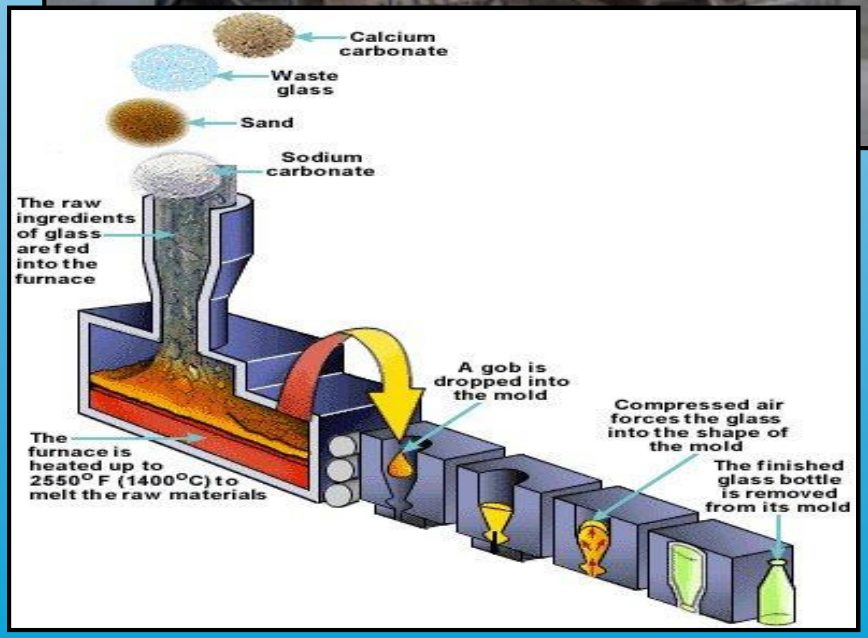
Recycled Glass
Best Management Practices

Douglas Kemp
Solid Waste Management Bureau

Benefits of Recycling Glass

- Can be used an unlimited number of times

- Mixing recycled glass with raw glass sand:
  - Saves raw material
  - Reduces emissions
  - Uses less fuel glass
  - Reduces costs



Recycled Content in Glass Industry

- Fiberglass uses 50%
- Container glass exceeds 90%
- Bead industry uses up to 100% (blasting & reflective road striping)

Recycled Glass Industry in New England

- One glass manufacturer in New England (Massachusetts)
- Five glass processing facilities in New England

Glass Recycling Industry

- Glass manufacturers need uniform colored glass because different colored glass & types of glass have different melting temps.

- Green glass problems? Only a small number of beverage and food manufacturers use green containers. Also color matching concerns.

Recycled Glass Trivia

- Cullet furnace ready chipped glass
- Processing Facilities prefer to receive color sorted cullet
- It can take as few as 30 days from curbside to store shelf
- Contaminants include: color, type (window and glassware), paper, ceramics, plastic, soil, organics
- Color sorted glass can be shipped up to 200 miles

High Quality Cullet Uses

- If you separate your glass by color and type, and it's free of contaminants:
  - Food and Beverage Containers
  - Kitchenware
  - Art work and Jewelry
  - Abrasives (blasting and sand paper)
  - Aggregate Substitutes
  - Fiberglass

Low Quality Cullet Uses

- If contaminated -
  - Aggregate for road use
  - Concrete pavements
  - Abrasives
  - A substitute for sand
  - Matches and Ammunition
  - Reflective Paint for Highways
  - Brick and Blocks
  - Landscaping
  - Countertops and Flooring
  - Drainage projects

Processed Glass Aggregate [PGA]

- Certified Waste-Derived Product for Processed Glass Aggregate (PGA) or Construction Aggregate in 1999
  - Used in public works projects as sub-base for roads, pipe bedding, and retaining walls
  - Cannot be applied to the ground surface & left uncovered as a final application
  - Can be used in private projects with a NH professional engineer's approval
  - Total of 9 specifications/restrictions
  - **100% of PGA must pass 1" screen**
  - ***Cannot be used alone [general fill]***

Glass Crushing for PGA

- NRRA has established “Host Sites” in NH, including: Goffstown, Hopkinton, Keene, Littleton, New London, Wakefield; and Springfield VT
- Municipalities can purchase their own glass crusher
- Be prepared to make repairs

Glass Storage

- How you manage your glass will determine its use
- Storing glass on a gravel surface can contaminate the pile and limit your outlets
- Mixing glass by color, by type, with ceramics will limit your outlets

Glass Storage

- If <u>not</u> single-streaming your glass, encourage your residents to separate their glass by color, type, and from other recyclables
- Use signs to direct your residents to the glass recycling area
- You must <u>actively manage</u> your glass stockpile
- If you need long-term storage for DPW use then add language in your operations plan explaining your storage needs

Glass Handling

When handling glass, wear protective clothing such as boots, gloves and safety glasses

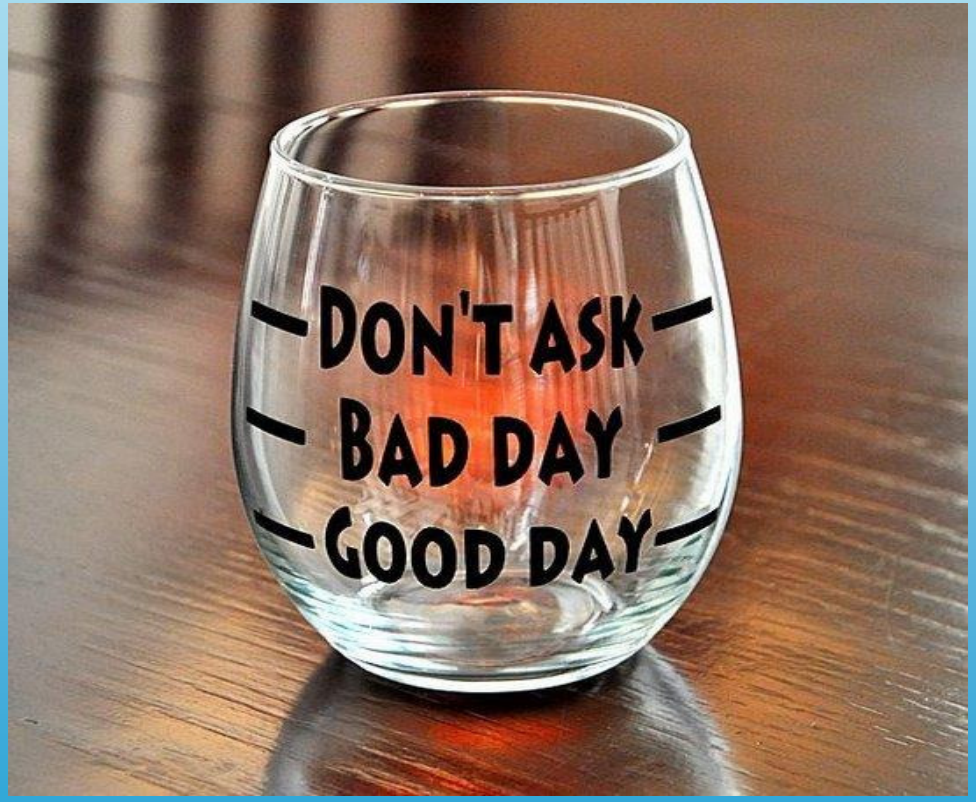
Final Notes

- The biggest roadblock to PGA use is public perception
- Glass free of contaminants is worth more to a glass processing facility and can be hauled further than contaminated glass (up to 200 miles)
- ***Glass cannot be used as general fill***

Final Notes - Success Stories

- PGA has been used in NH as aggregate in municipal projects for more than 20 years
- PGA – used with gravel in beneath class 5 roads, around pipes, under sidewalks, and foundation drains
- Municipalities using PGA: Meredith, Goffstown, Tuftonboro, New London, Wakefield, Henniker

Questions?



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