



MANAGING C&D DEBRIS IN NEW HAMPSHIRE

TODAY'S AGENDA

- INTRODUCTION TO CONSTRUCTION & DEMOLITION DEBRIS (C&D)
 - WHAT IS IT?
 - COLLECTION – PROCESS - DISPOSAL
- HOW IS C&D REGULATED IN NH?
- WHAT ARE THE CONCERNS?

BREAK

- INDUSTRY EXPERTS ON PROCESSING C&D
- EXPERTS FROM DHHS TO DISCUSS LEAD ABATEMENT
- GUIDANCE

SPEAKERS

- TARA MAE ALBERT, SWOT COORDINATOR, NHDES
 - TARA.M.ALBERT@DES.NH.GOV
- FRED BRUNEAU, ENVIRONMENTAL COMPLIANCE MANAGER, RESOURCE WASTE SERVICES
 - FBRUNEAU@RESOURCE-WASTE.COM
- ROSS MALCOLM, ENVIRONMENTAL LEAD INSPECTOR, NH DHHS
 - ROSS.A.MALCOLM@DHHS.NH.GOV
- MICHAEL DOHERTY, HEALTHY HOMES & LEAD POISONING PREVENTION PROGRAM, NH DHHS
 - MICHAEL.G.DOHERTY@DHHS.NH.GOV



INTRODUCTION TO CONSTRUCTION & DEMOLITION DEBRIS

What is it? How it is Generated? What are the
Hazards and Concerns?

Construction & Demolition Debris

(Env-Sw 102.42)

- means non-putrescible waste building materials and rubble which is solid waste resulting from the construction, remodeling, repair or demolition of structures or roads. The term includes, but is not limited to, bricks, concrete and other masonry materials, wood, wall coverings, plaster, dry wall, plumbing, fixtures, non-asbestos insulation or roofing shingles, asphaltic pavement, glass, plastics that are not sealed in a manner that conceals other wastes and electrical wiring and components, incidental to any of the above and containing no hazardous liquid or metals. The term does not include asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballast or transformers, furniture, appliances, tires, drums and containers, and fuel tanks.

Construction and Demolition Debris (C&D)

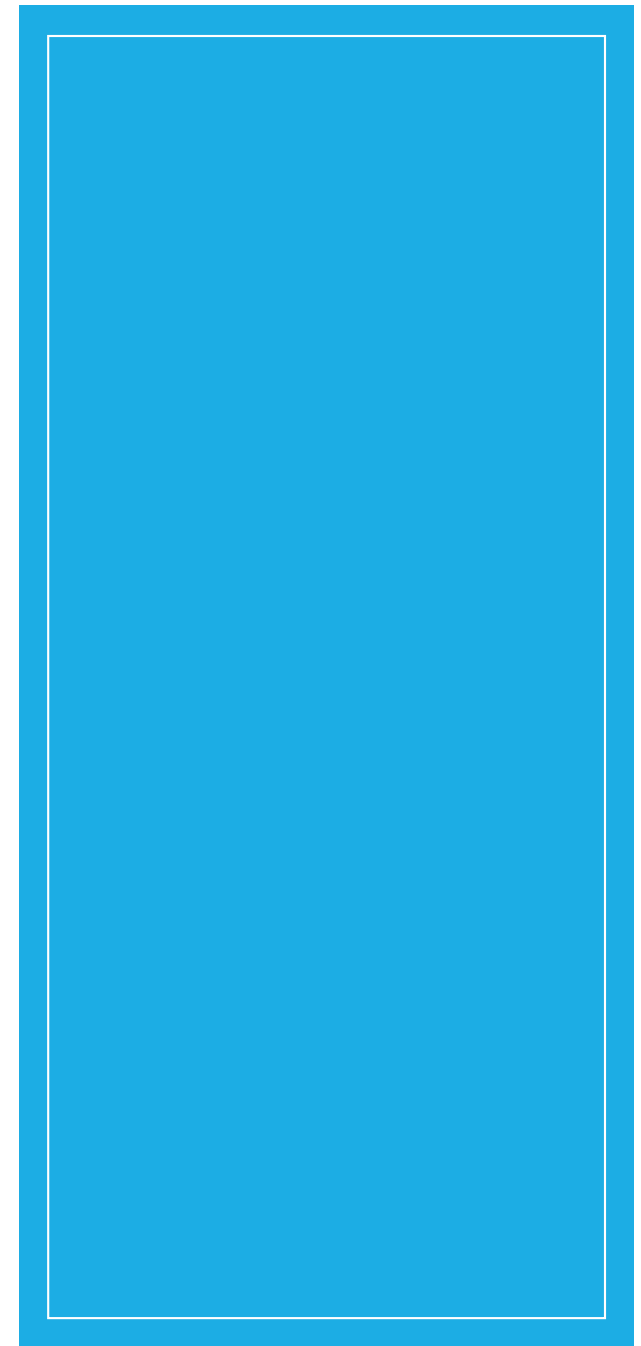
Definition Env-Sw 102.42:

“ Non-putrescible, waste building materials and rubble which is solid waste resulting from the construction, remodeling, repair, or demolition of structures and roads.”





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Construction and Demolition Debris (C&D)

Definition

“Non-putrescible, waste building materials and rubble which is solid waste resulting from the construction, remodeling, repair, or demolition of structures and roads.”

What does that mean?

- Not liable to become foul
- Does not have odors
- No LIVE material
- No “garbage juice”
- Simply, not stinky.

Construction and Demolition Debris (C&D)

Definition

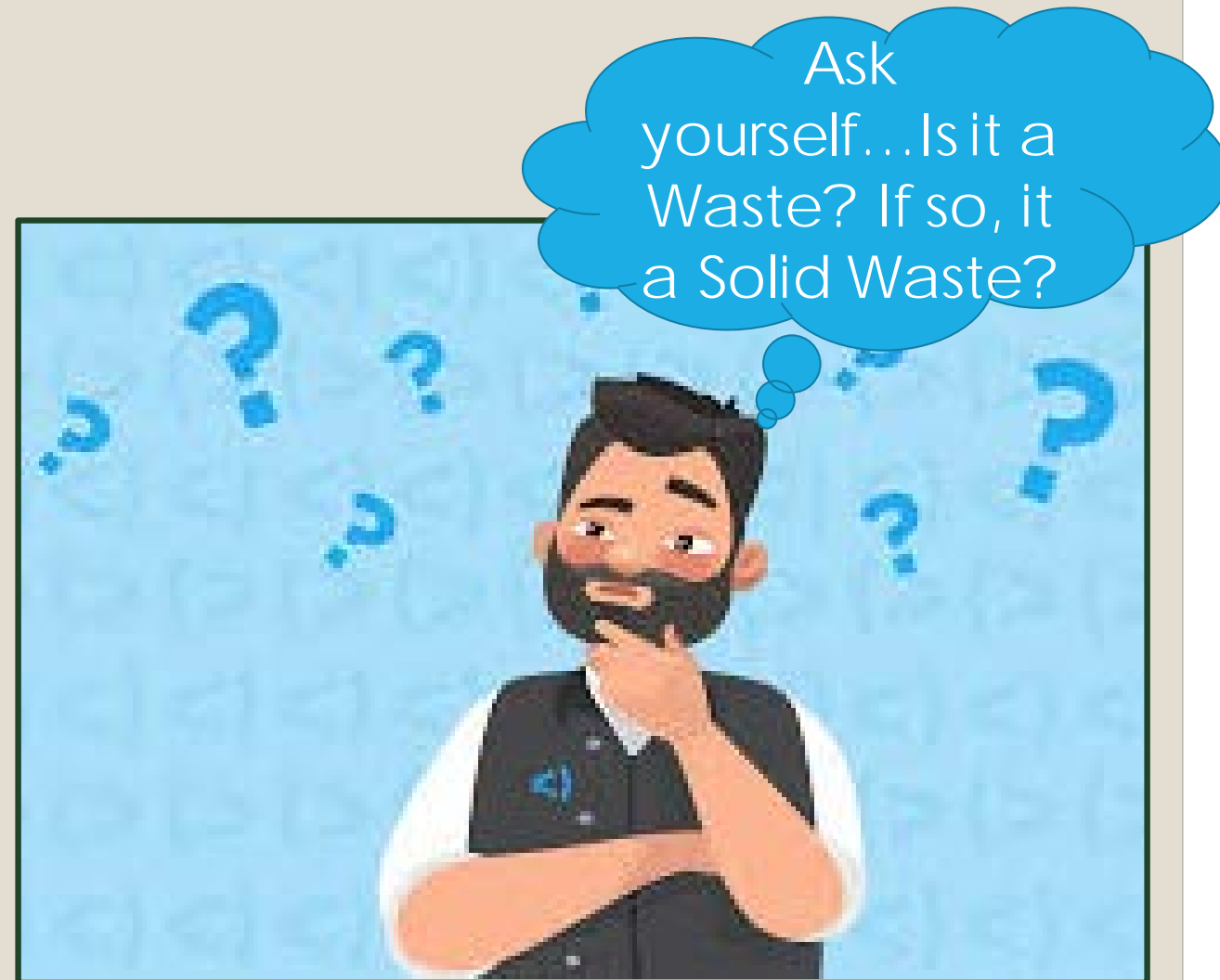
“ Non-putrescible, waste building materials and rubble which is solid waste resulting from the construction, remodeling, repair, or demolition of structures and roads.”



Construction and Demolition Debris (C&D)

Definition

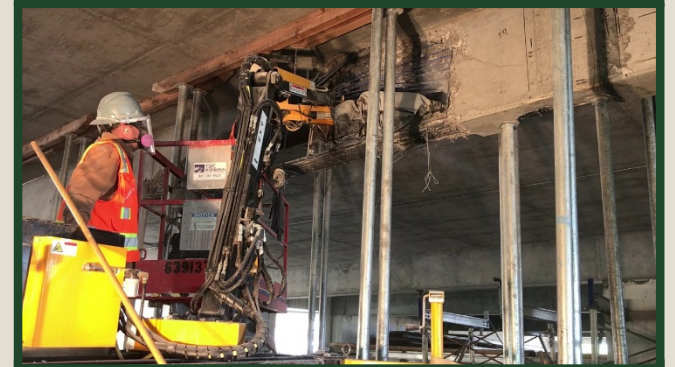
Non-putrescible, **waste** building materials and rubble *which is solid waste* resulting from the construction, remodeling, repair, or demolition of structures and roads."



Construction and Demolition Debris (C&D)

Definition

“ Non-putrescible, waste building materials and rubble which is solid waste resulting from the construction, remodeling, repair, or demolition of structures and roads.”

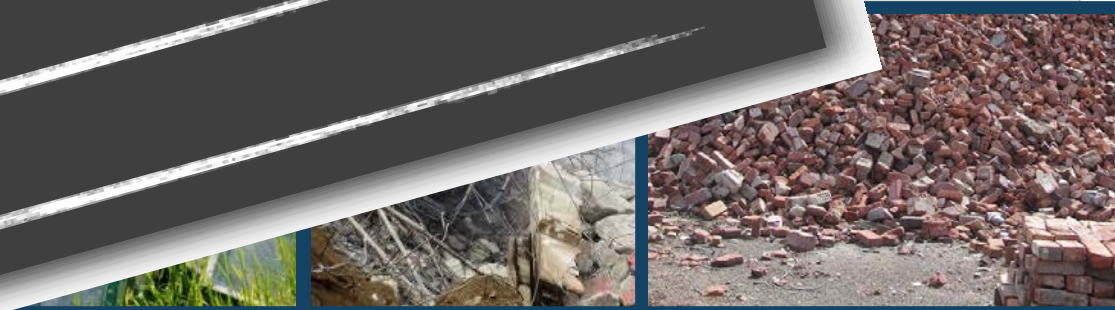


Construction and Demolition Debris (C&D)

- Includes (not limited to)
 - Asphalt

Examples

-
-
-
-
-
-



Construction and Demolition Debris (C&D)

- Includes (not limited to)
 - Asphalt Pavement
 - Bricks
 - Wall Coverings
 - Concrete
 - Wood
 - Dry Wall
 - Plumbing
 - Fixtures
 - Insulation (non-asbestos)
 - Shingles (non-asbestos)
 - Glass



NOT C&D Debris

- Does Not Include
 - Asbestos Waste
 - Garbage (MSW)
 - Corrugated Container Board (CCB)
 - Electrical Fixtures (hazardous)
 - e.g., fluorescent light ballasts, transformers
 - Furniture
 - Appliances
 - Tires
 - Drums and Containers
 - Fuel Tanks

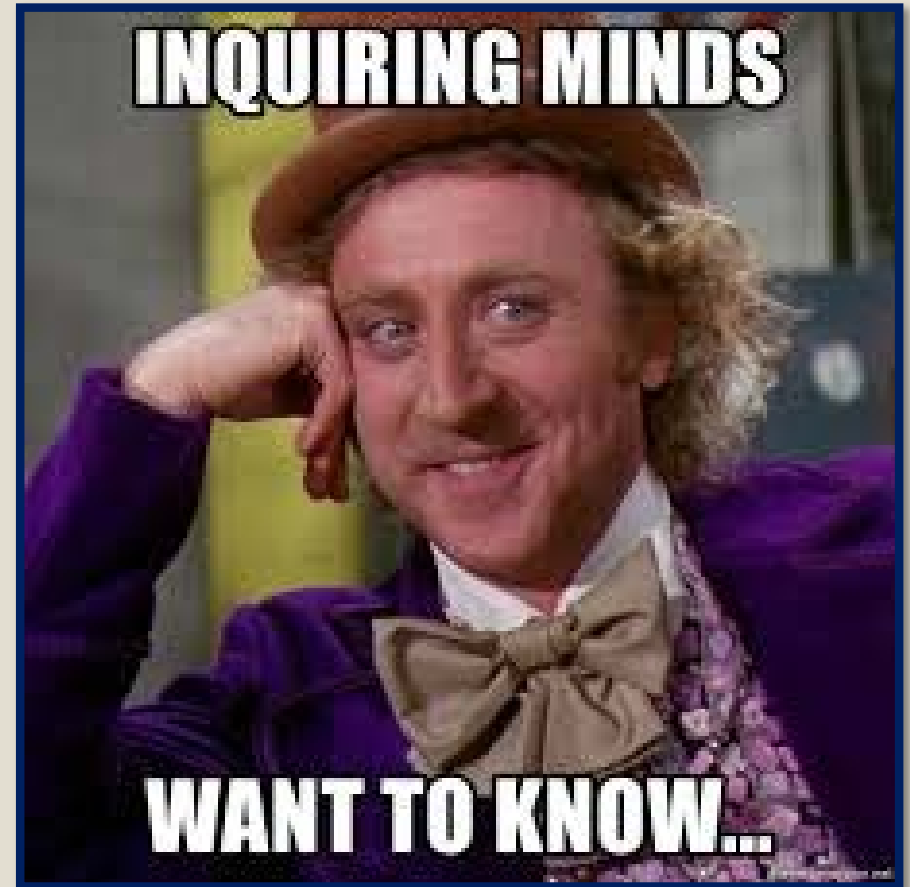


HOW IS C&D REGULATED IN NH?

Rules & Disposal Methods

Why is it not considered in definition of Municipal Solid Waste?

- Significant portion of total waste stream in US
- Contains potentially hazardous building materials
- Physical properties are different
- Reuse/Recycling Potential



NH Rules and Regulations

Solid Waste Rules

- C&D Debris must go to an authorized facility.
- If it is not household generated, a HW characterization is required.
- You may need a TSCA qualification

Air Statute

- Combustion Ban (RSA 125-C:10-c)
- NH SW facilities cannot burn C&D debris including the wood component.
 - “*Incidental*” Exemption
- Single-Family Residential burning of clean C&D (Env-A 1001.05(e))

NH Management Methods

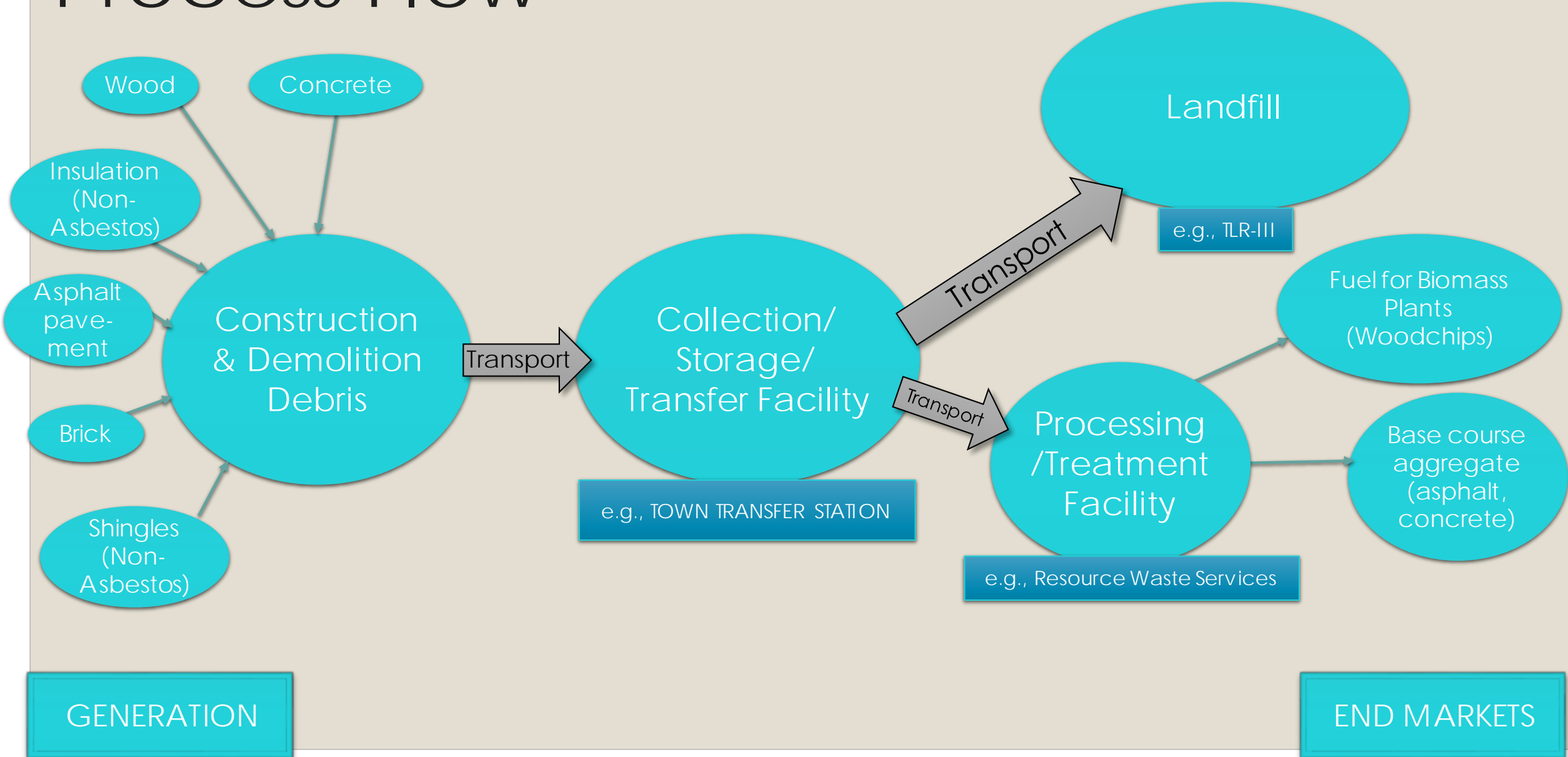
- Recycle and Reuse
- Alternate Daily Cover in Landfills
- Disposal in Landfills
- Incineration: *** Only if it is being sent out-of-state to an authorized facility.***

Where does
your C&D
Debris go?



COLLECTION & CONCERNS

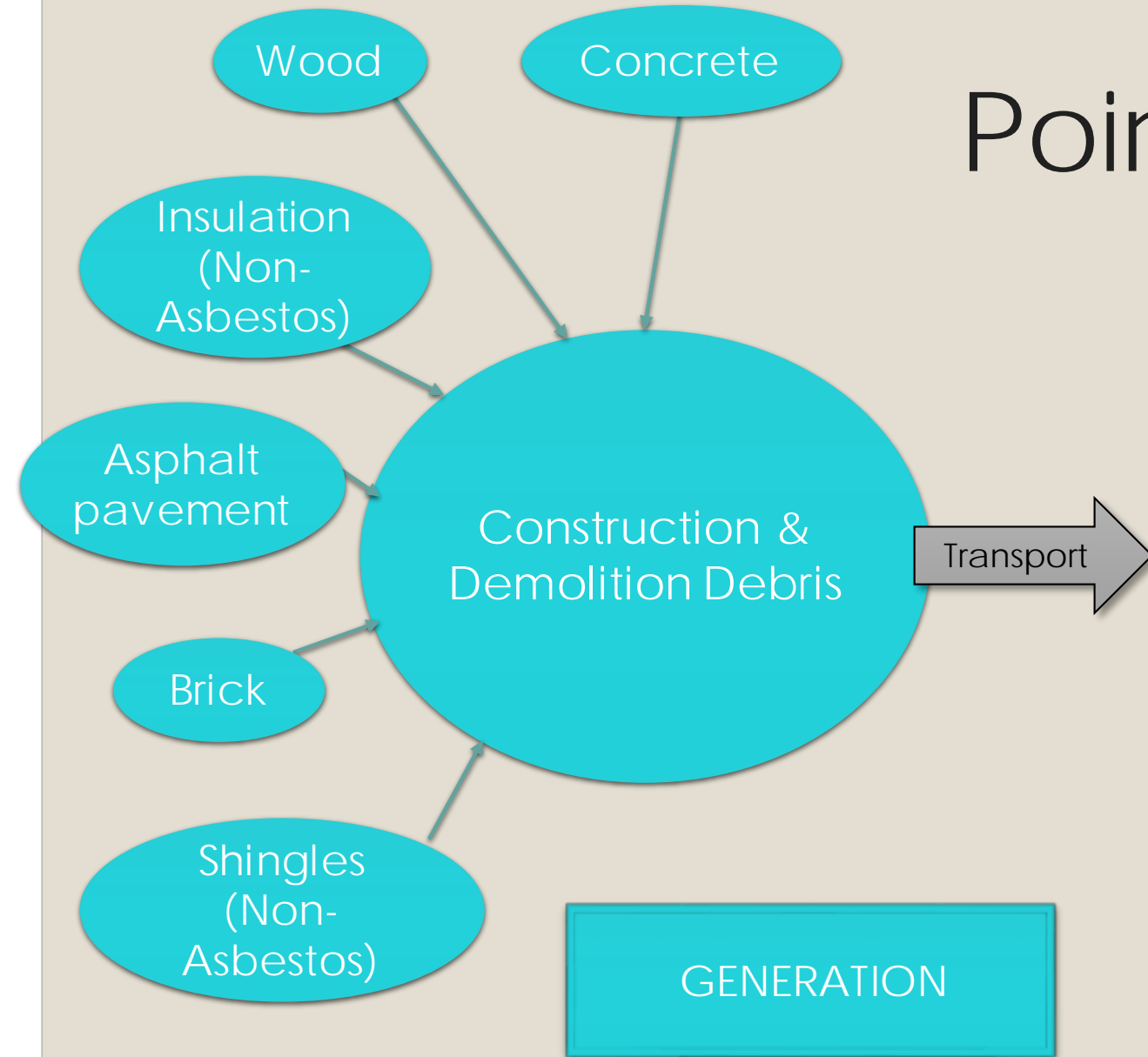
Process Flow



Point of Generation

Concerns

- Contaminants
- Proper Storage
- MSW & Bulky Waste
- Hazardous Materials
- Asbestos
- Lead
- PCBs
- Gypsum (H_2S)





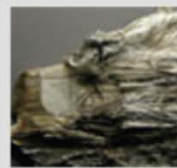
ASBESTOS

Asbestos Concerns

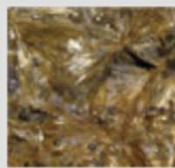
- Naturally occurring mineral that was used in numerous products due to its characteristics.
- Asbestos can be found in hundreds of products, and can be hard to identify.
- Hazardous Air Pollutant with the potential to cause major health problems when you inhale or ingest it.
 - Lung cancer
 - Mesothelioma
 - Asbestosis



THERE ARE 6 TYPES of ASBESTOS



Chrysotile



Amosite



Crocidolite



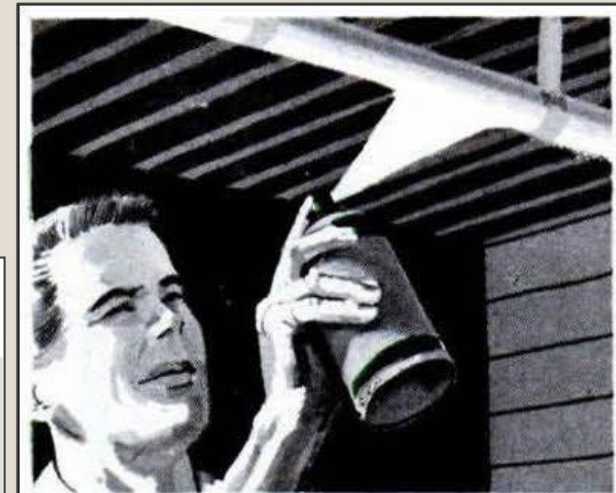
Tremolite



Anthophyllite



Actinolite



LIQUEFIED ASBESTOS in handy pressurized cans for spraying on heating pipes, water pipes, above furnaces and around hot-air registers.

Asbestos Concerns: Where & How?

- Questions to ask yourself...



1. Is asbestos a solid waste?
2. Is asbestos a hazardous waste?
3. Is asbestos a hazardous air pollutant?
4. Is asbestos ever construction & demolition debris?
 - a. Do your customers know that it is not a C&D Debris?
 - b. Do they know what asbestos is?
 - c. Whose job is it to determine if a homeowner is conducting a project that may disturb asbestos?
 - d. Whose job it is to determine if a contractor is conducting a project that may disturb asbestos?
 - e. Do you have the right to ask a customer, whether homeowner or commercial, for their verification that the material they are bringing in does not contain asbestos?
 - f. Is it your responsibility to do so?
 - g. If they do not provide it or if they do and the material contains asbestos, can you turn them away?

Asbestos Concerns: Where & How?

- Questions to ask yourself...
- Materials in C&D waste stream that may include asbestos:
 - Building materials from structures built prior to 1980
 - Shingles / Siding
 - Floor Tiles
 - Pipe insulation
 - Special Case: Vermiculite Insulation



Asbestos Concerns: Solutions

Tips to Prevent Receipt of C&D Debris Containing Asbestos

Ask the Resident/Contractor:

- Where did the waste material come from?
- Was an asbestos survey completed before beginning the project?
- If so, was all asbestos properly removed and disposed of before bringing the waste to the transfer station?
- How old was the building from which the waste came from?

You were Gifted it, now what?

- Call NHDES Immediately
- Contain the waste & cordon off the area
- Depending on the state of the waste will determine what your next steps are.





LEAD-BASED PAINT WASTE

Used & Applied Lead-Based Paint

Lead-Based Paint Waste Concerns

- Lead-Based Paint Waste can be and probably is a hazardous waste.
- Lead Poisoning comes from inhalation and ingestion of flaking lead paint.
- Many things to consider with this waste:
 - Point of Generation determines disposal options.
 - Activity determines disposal options.
 - Final Disposal Facility has right of refusal and should be considered in your collection and storage measures.
- Knowing your facility including your vendors is key!!!



Lead-Based Paint Waste Concerns: Where & How?

- Lead Paint Waste
 - Paint Chips
 - Dust
 - Paint Stripping Waste
 - Building Components
 - Contaminated PPE & Equipment

REMEMBER

Just because the SW Rules state a facility is authorized to take the waste, you still need to VERIFY with your vendor to make sure they will take the waste.

* Just because the SW Rules state a facility is authorized to take the waste, you still need to VERIFY with the facility to make sure they will take the waste.

Point of Generation

Residential
(Homeowner or Contractor Generated)

Commercial

Demolition Activities

Routine maintenance, construction, remodeling, rehabilitation work or lead abatement

Hazardous Waste

Solid Waste (upon a HW Determination)

Refer to "Commercial" Point of Generation

HHW Exemption applies. Recommend implementing BMPs.

SW Landfill*

C&D Processor*

SW Landfill*

C&D Processor*

Incinerator



Lead-Based Paint Waste Concerns: Solutions

Tips to Prevent Receipt of C&D Debris Containing LBP

- Provide customers with Fact Sheet HW-22
- Ask customers for their inspection paperwork
- Have options available

You were gifted it, now what?

- Know your facility!!!!
- Where is your C&D Debris going?
 - Landfill
 - Incinerator
 - C&D Processing and Treatment Facility





PCBs

PCBs Concerns

- Potential human health effects
 - Cancer
 - Immune system suppression
 - Liver damage
 - Endocrine disruption
 - Damage to the reproductive and nervous system
- Primary exposure is ingestion.



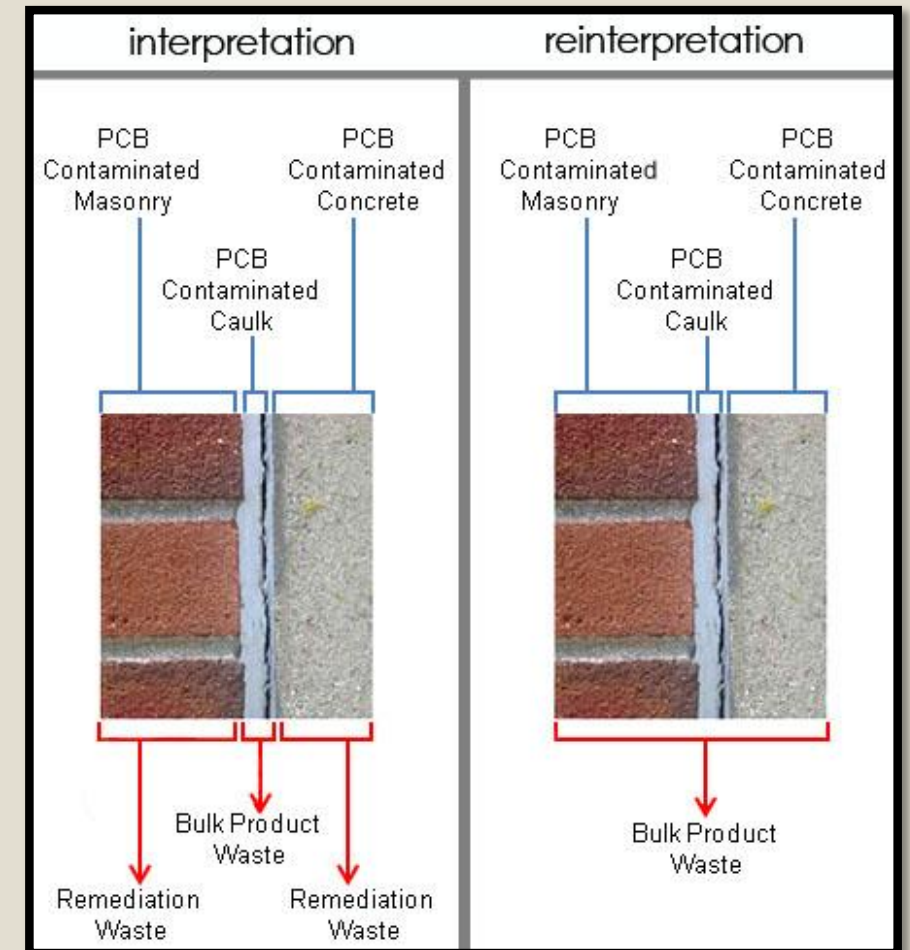
PCBs Concerns: Where & How?

Where to find PCBs

- Paint
 - Caulk
 - Fluorescent Light Ballasts
 - Transformers
 - Other
- There is guidance from EPA on handling and disposing of PCBs. [40 CFR Part 761](#)
 - Toxic Substance Control Act (TSCA) permits facilities to dispose and store PCBs.

PCBs Concerns: Paint & Caulking

- Plasticizer added to paint and caulking
- Seal joints between bricks and around windows.
- Caulk may actually contain up to 30% PCBs
- PCBs in caulk and paint move into other materials
 - Indoor air and dust
 - Adjacent Wood, cement and brick
 - Soil outside building
 - On-site and off-site catch basin sediments



PCBs Concerns: Solutions

Tips to Prevent Receipt of C&D Debris Containing PCBs

- Ask customer to provide you with an inspection report clearing them of PCBs
- Do NOT accept used oil from a business. This includes contractors.
- Ballasts should not go into Scrap Metal until they have been looked at for clearance.

You were Gifted it, now what?

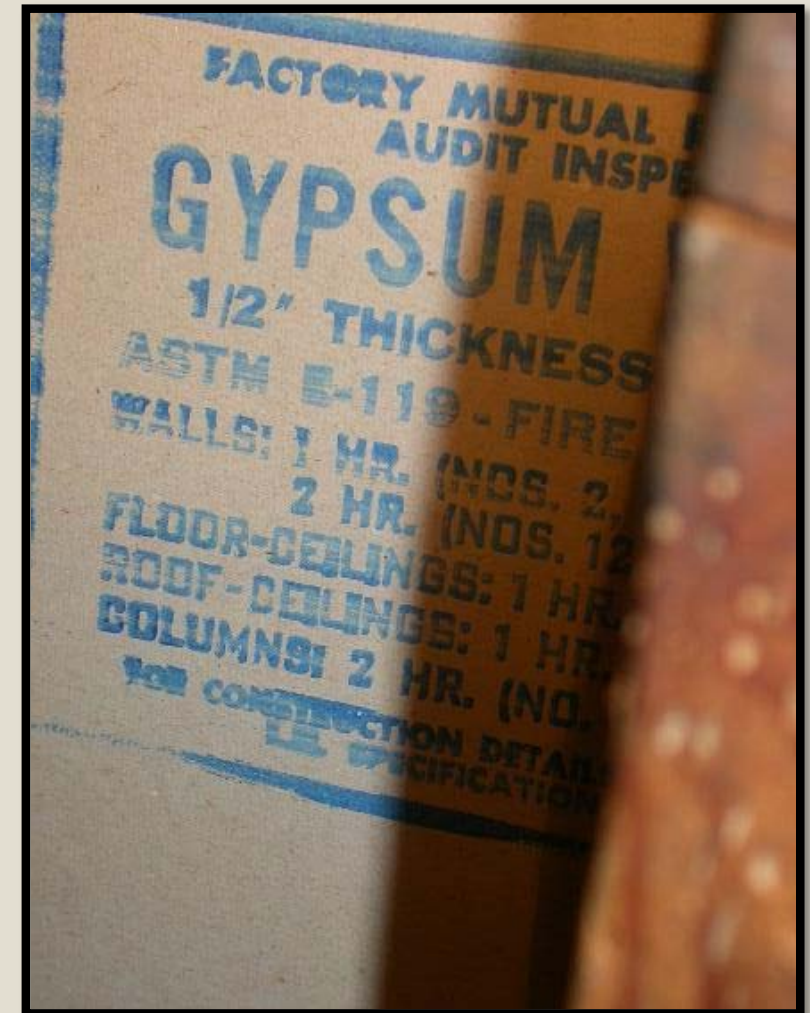
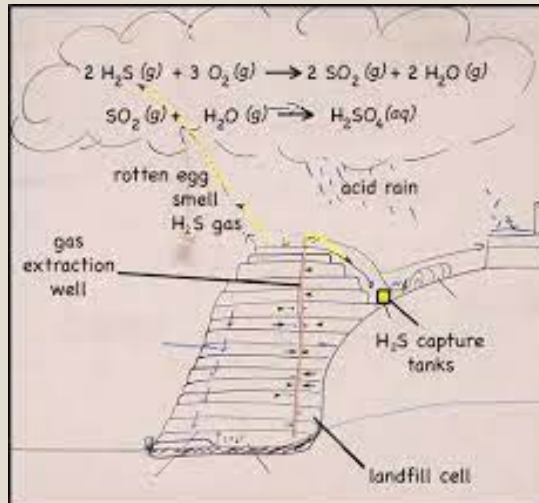
- Some PCB waste can go into the solid waste landfill in NH.
- You MUST check with the disposal facility to make sure that they do not have specifications for receipt of the waste.
- Toxic Substance Control Act (TSCA)
 - One approved disposal and storage location in NH in Dover.



GYPSUM BOARD

Gypsum Board Concerns

- The biggest concern regarding gypsum board is not that it is hazardous but that it is a nuisance.
 - Release of Hydrogen Sulfide (H_2S) gas (rotten egg smell)
 - Dust
 - Contributes to Acid Rain



Gypsum Board Concerns: Solutions

Tips to Proper Management

- KEEP. IT. DRY.
- KEEP IT DRY!!!!
- Send drywall to a process and treatment facility for recycling rather than to a landfill for disposal.
- Separate it out from other C&D, if possible.





STORM DEBRIS

Be prepared for it!

Storm Debris

Options

- Carry On Per Usual
- Obtain an Emergency Permit per Env-Sw 313
- Divert waste to another facility

Things to Consider


- Neighboring Facilities
- Memorandum of Understanding
- Staffing
- Insurance coverage
- Volunteers
- Existing permit
- Vendor contacts

Have a PLAN!!!



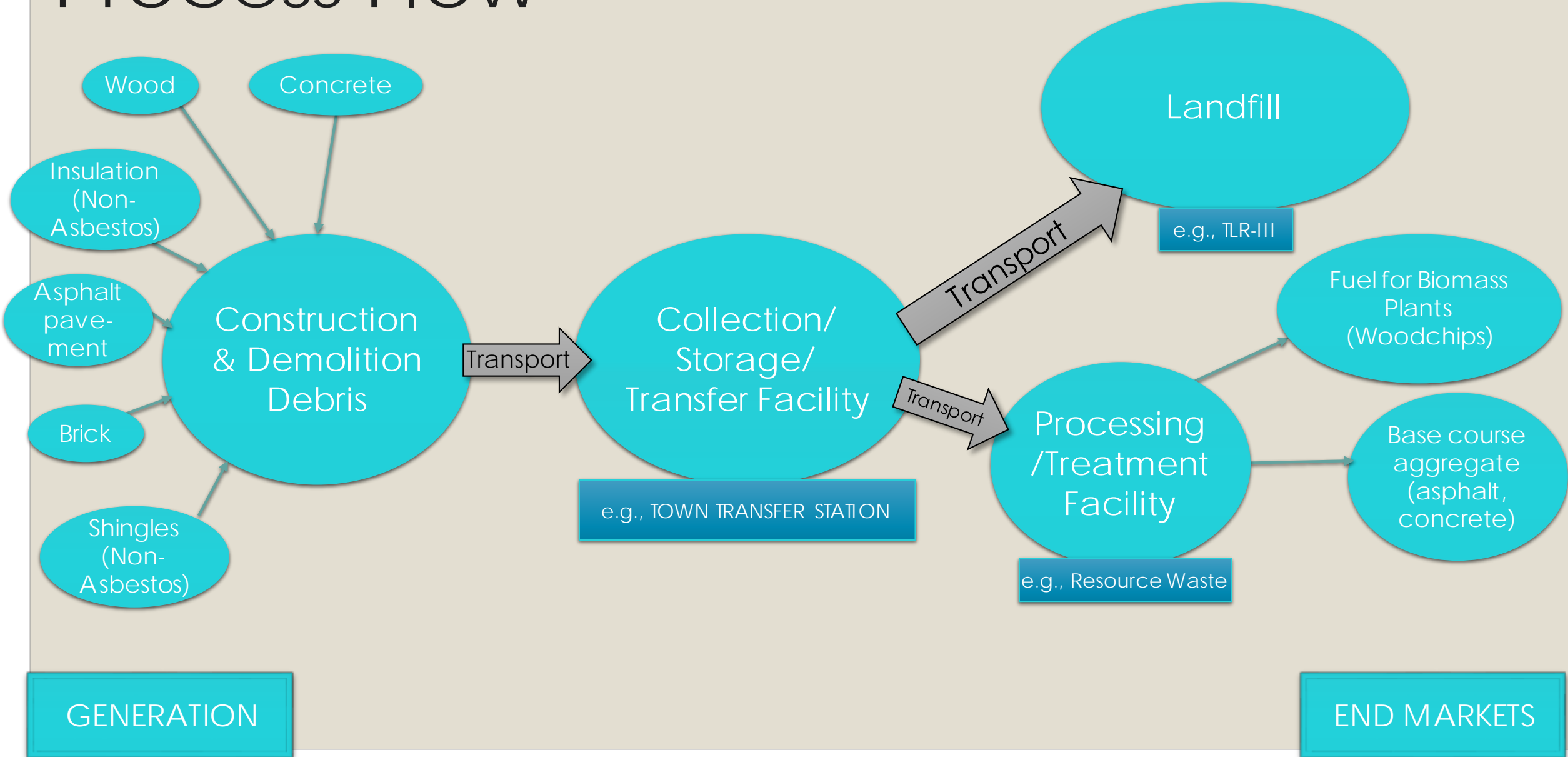
What we know...

- The Frequency of Extreme Weather Events is Increasing
- Your Facilities Will Be Affected
- Your Families Will Be Affected
- Your Customers Will Be Affected
- Be Transparent
- Be Prepared



BACK TO BASICS

Process Flow



Proper Storage of C&D

Landfill

- No need to separate
- Dry wall should be kept dry

Process & Treatment

- Separated by material type
- Keep it dry
- Each end market facility may have their own requirements

All of the collection, storage and transfer requirements need to be included in your Operating Plan. In order to keep these updated and correct, it is up to YOU to keep the Operating Plan updated!!!

Cost of Contamination



Not just Monetary...

- Waste returned to your facility at your cost
- Fines
- Compliance Issues/Lose Vendors
- Loss of Permit
- Loss of License
- Safety of workers
- Hazardous Waste



RESOURCE WASTE SERVICES

Fred Bruneau, Environmental Compliance Manager



New Hampshire Department of Environmental Services **C&D Workshop**

July 16, 2021

- New England's largest processor of construction and demolition (C&D) material
- An integrated network of five strategically located facilities in New England that process a wide variety of waste material and recover a high percentage of that material into high-quality end products for reuse
- Wholly owned by ReEnergy Holdings LLC, a renewable energy and waste services company based in Albany, NY
- Known for our commitment to safety and environmental compliance and for our innovative approach to material processing



- NH's largest construction and demolition debris (CDD) processing facility
- Committed to safety and regulatory compliance
- Located in Salem and Epping
- 98 employees at seasonal peak (corporate, transportation and across two facilities); supporting hundreds more indirect jobs
- 335,000 tons processed in 2020, with approx. 79% of that material recycled, recovered or beneficially reused
- Recovered materials include: wood fuel for electricity generation; fiberboard manufacturing; new cardboard; drywall for land application; recycled plastic and metal products; asphalt paving; and miscellaneous construction materials and soil substitutes.
- Commenced operation in 1994; acquired by ReSource in 2009



Five RWS HQ'd in NH:

1. ReSource Waste Services of Salem Inc., 89 Lowell Road, Salem NH
2. ReSource Waste Services of Epping Inc., 270 Exeter Road, Epping NH
3. ReSource Waste Services Trucking Inc., located in Salem, which conducts independent hauling for customers and also hauls ReSource Waste Services' recycled products to end markets.
4. ReSource Waste Services Metal Recycling LLC in Salem which specializes in the recovery of ferrous and non-ferrous metals.
5. ReSource Waste Services Hauling LLC, in Salem, which is the company's new waste collection division, providing roll-off container service to the region.



- In 2017, a 803-kilowatt solar array was developed on 3.7 acres of idled land adjacent to (and owned by) the Epping facility.
- The solar array was one of the largest developed to date in the state of New Hampshire.
- The solar project generates 100% of facility's electricity needs, is expected to provide long-term energy costs savings while reducing the facility's carbon footprint through the use of renewable electricity.
- The project is participating in the New Hampshire Net Metering Program
- Expecting a similar solar energy project at our Salem NH site following a closure plan improvement of our existing landfill.



Authorized Waste

Mixed CDD:

- Treated & Untreated Wood
- Asphalt, Brick & Concrete
- Metal
- Insulation
- Wire
- Glass
- Drywall
- Cardboard
- Carpet
- Stumps

Prohibited Waste

- Hazardous Waste
- Asbestos
- Contaminated Soils
- Sewage
- Liquid Waste
- Medical Waste
- Gaseous Waste



**Inbound Waste
 (Primarily Mixed
 C&D)**



Strict controls in place to regulate waste flow and optimize processing

Inbound waste carefully routed within each facility depending on mix (e.g. wood versus metal)

**ReEnergy
 Proprietary
 Processing**



Processing equipment includes:

- Picking stations
- Magnets
- Grinders
- Trommels
- De-stoners
- Shaker tables
- Hammer mills
- Eddy Currents



Various Woods

Feedstock for medium density fiberboard manufacturing; low-cost, high BTU fuel for electricity generation

Cover Chip

Road base in landfill; minimizes purchase of virgin materials

Shingles

Road base in landfill; minimizes purchase of virgin materials

Fines

Daily cover/shaping and grading in landfills; minimizes need to purchase soil

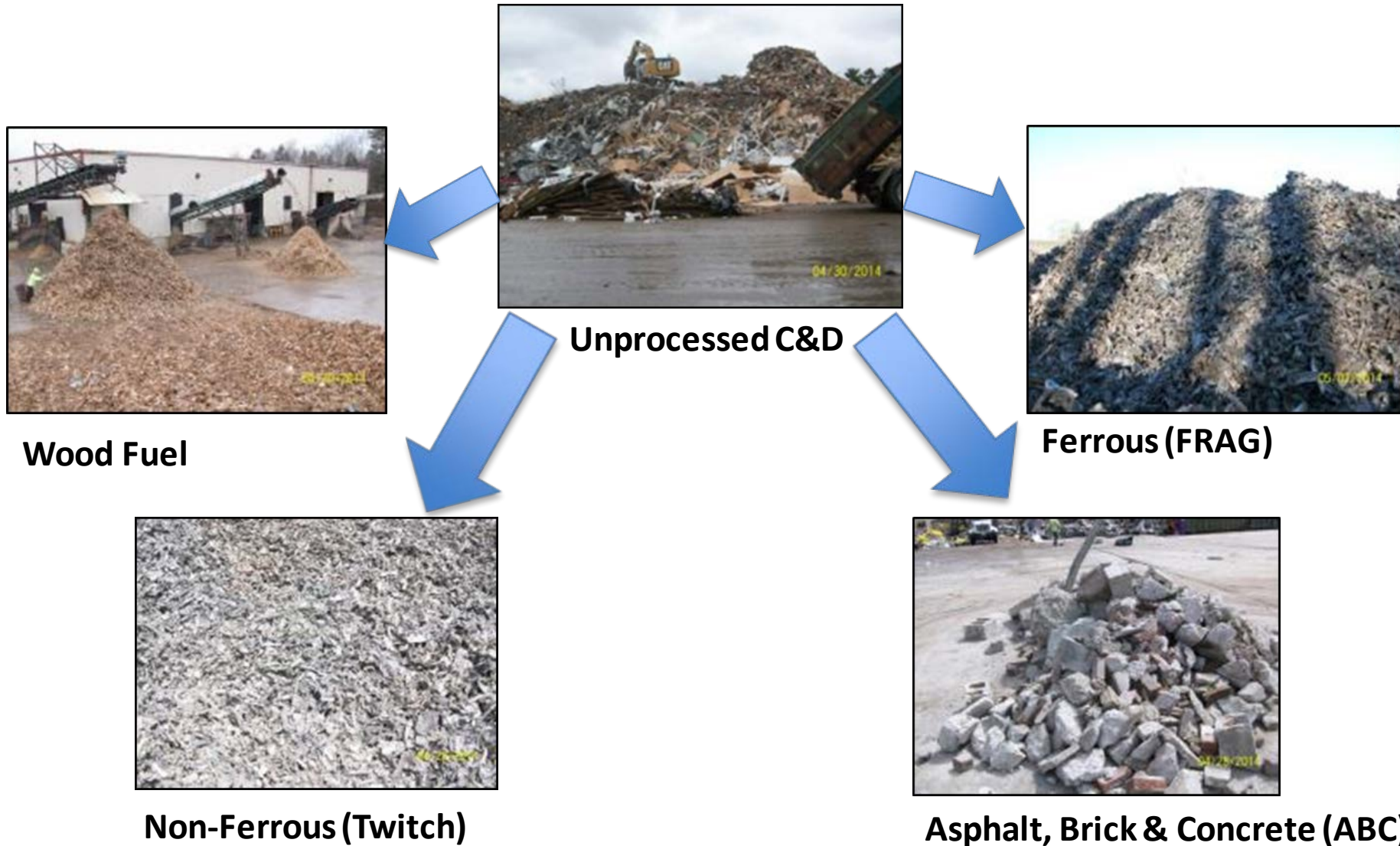
Ferrous & Non-Ferrous Metals

Sale of metal to open market; value enhancement by advanced processing of ferrous and non-ferrous metals

Asphalt Brick Concrete

Fill material used in roadwork









**Oversized Bulky Waste
(OBW)**



Unprocessed C&D



Dirt Fines



Cover Chip

What are the “easiest” materials to recycle?

- Wood, Metal, Cardboard and Concrete
- Materials with a reliable marketplace

What are the “difficult” materials?

- Painted drywall
- Treated wood
- Insulation

Things you can do to improve the waste stream:

- Bring in your material source separated
- Avoid double handling of materials



The majority of C&D in NH goes to landfills when it should be coming to our facilities!

How to contact us:

David DeVito, Regional Manager: ddevito@resource-waste.com; (603) 894-9800

Fred Bruneau, Environmental Compliance Manager: fbruneau@resource-waste.com; (603) 894-9800

Kevin Murphy, Sales Manager: kmurphy@resource-waste.com; (774) 407-0007

THANK YOU



DHHS LEAD ABATEMENT PROGRAM



HEALTHY HOMES

& LEAD POISONING PREVENTION PROGRAM



NH DIVISION OF
Public Health Services

Improving health, preventing disease, reducing costs *for all*
Department of Health and Human Services



Speakers

- ▶ Ross Malcolm

Environmental Lead Inspector

- ▶ Michael Doherty

Environmental Compliance and Licensing

- ▶ Healthy Homes and Lead Poisoning

- ▶ Prevention Program (HHLPPP)

Lead Abatement and Renovations

- ▶ Lead Abatement and Renovations from households:
 - multi-family and single family residences generate similar wastes;
 - both homeowners and contractors dispose of C&D Debris;
- ▶ If unsure of the origin of the waste, ask the transporter;
- ▶ If not from a residence, considered commercial.

Lead Abatement and Renovations

- ▶ NHDES and EPA have an agreement to allow C&D Debris into landfills/transfer stations,

–HOWEVER–

- ▶ Individual private and municipal landfills/transfer stations may have policies or local Rules that are more strict than EPA/DES rules and regulations (never less stringent)
- ▶ When in doubt, call your local management, or company (if private), for guidance

NHDES Fact Sheet HW-22

Management of Lead Based Paint Waste

ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3500 • www.des.nh.gov

HW-22

2020

Management of Lead-Based Paint Waste

Purpose

The New Hampshire Department of Environmental Services (NHDES) receives many inquiries concerning the regulatory status of lead-based paint waste in New Hampshire. The regulatory status and subsequent disposal of lead-based paint waste has been an environmental and economic concern for a long time in New Hampshire, as well as on the regional and national levels. After NHDES' thorough review of the issues involved, the state's Hazardous Waste Rules (Env-Hw 100-1200), and the position of the US Environmental Protection Agency, NHDES has summarized the regulatory status of lead-based paint waste as follows.

Background

Childhood lead poisoning continues to be a major, preventable environmental health problem in the United States today. One of the most significant sources of exposure is lead-based paint since many buildings (both public and private), especially those built before 1978, contain lead-based paint on interior and exterior walls, window sills and other surfaces accessible to children. To reduce a child's exposure to lead in the home, the removal of all the lead-based paint from the home may sometimes be conducted in a process called lead abatement. The New Hampshire Department of Health and Human Services, Division of Public Health Services (DHHS) is responsible for lead poisoning prevention and control. DHHS maintains a Healthy Homes and Lead Poisoning Prevention Program, which can be reached at 1-800-897-LEAD (in-state) or (603)271-4507, for information and guidance on the subject of lead poisoning and proper lead abatement methods.

NHDES regulates the disposal of lead-based paint waste, which may be generated when a building undergoes routine residential maintenance, construction, remodeling, rehabilitation work, lead abatement, or when structures, such as bridges, are repainted. The waste consists of lead-based paint chips, dust, debris, sludge and building parts, such as doors, window frames and painted woodwork. The management of lead-based paint waste generated from households and residences, public and commercial buildings, and structures are covered in this fact sheet.

Households and Residences

Whenever a homeowner or contractor generates any lead-based paint waste from routine



Ross Malcolm 271-4786
ross.a.malcolm@dhhs.nh.gov

Michael Doherty 271-7011
michael.g.doherty@dhhs.nh.gov

Healthy Homes and Lead Poisoning
Prevention Program Main number: 271-4507
nhleadprogram@dhhs.nh.gov



NH DIVISION OF
Public Health Services

Improving health, preventing disease, reducing costs *for all*
Department of Health and Human Services





GUIDANCE

What to do Now?



- Determine what the make up of YOUR C&D Debris is.
- Talk with Vendor or Disposal Facility for options.
- Educate yourself, staff and decision makers.
- Educate your residents and customers.
- Update the facility's Operating Plan.

Handouts

- Contact sheet for hazardous building materials (e.g., asbestos, LBP, PCBs)
- C&D BMPs
- C&D Self-Inspection Checklists
- HW-22
- Fact Sheet ARD-59
- List of Asbestos Contractors and Inspectors
- Fact Sheet CO-23: Management of Collected Debris Following Severe Storm Events

Speakers

- Tara Mae Albert, SWOT Coordinator, NHDES
 - Tara.M.Albert@des.nh.gov
- Fred Bruneau, Environmental Compliance Manager, ReSource Waste Services
 - Fbruneau@resource-waste.com
- Ross Malcolm, Environmental Lead Inspector, NH DHHS
 - Ross.A.Malcolm@dhhs.nh.gov
- Michael Doherty, healthy Homes & Lead Poisoning Prevention Program, NH DHHS
 - Michael.G.doherty@dhhs.nh.gov

Construction & Demolition Debris Resources

General Construction & Demolition Debris

Self-Inspection Guide Sheet: Construction & Demolition Debris

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/swmb-sichecklist-cd.pdf>)

BMPs for Construction Demolition:

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/bmp-construction-demo.pdf>

C&D Debris: Materials of Concern

HW-22: Management of Lead-Based Paint Waste

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/hw-22.pdf>)

ARD-59 Asbestos: What Home Owners, Contractors, Property Managers and Landlords need to know

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/ard-59.pdf>)

Asbestos Site Identification Photos

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/ads-siteidentificationphotos.pdf>

List of Asbestos Contractors: <https://www4.des.state.nh.us/OnestopPub/Air/ContractorLists/Web-AbatementContractors.pdf>

CO-23: Management of Collected Debris Following Severe Storm Events

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/co-23.pdf>)

CO-19: Fluorescent Lighting Facts and Clean-Up Procedures for Broken Bulbs

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/co-19.pdf>)

CO-20: Frequently Asked Questions on Open Burning

(<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/co-20.pdf>)

PCB Abatement and Disposal (<https://www.epa.gov/pcbs/steps-safe-pcb-abatement-activities>)

Disposal and Storage of Polychlorinated Biphenyl (PCB) Waste (<https://www.epa.gov/pcbs/disposal-and-storage-polychlorinated-biphenyl-pcb-waste>)