Hazardous Waste Storage
“Store the waste in a manner that does not threaten human health or the environment”

Env-Hw 506
In this Chapter…

• Container Requirements
• “90-Day” Storage
• “Satellite” Storage
• “Outdoor” Storage
Tanks & Containers

Hazardous Wastes Must be stored in either Tanks (265 Subpart J) or Containers (265 Subpart I)
Tanks

Hazardous Wastes Stored in Tanks

Tanks are stationary
Size does not matter
Big...
…Or small
Containers

Containers are portable
Size does not matter
Container Management

Good Condition

Closed and Sealed

Chemically Compatible

Impervious Surface

Floor Drains and Sinks
Good Condition
Container Management

Good Condition

Closed and Sealed

Chemically Compatible

Impervious Surface

Floor Drains and Sinks
Closed and sealed
Container Management

Good Condition

Closed and Sealed

Chemically Compatible

Impervious Surface

Floor Drains and Sinks
Chemically Compatible

With container

What was in the container

What it is near
Chemically Compatible

With container

Acid in Glass container

NOT acid in a metal drum
Chemically Compatible

Hazardous waste must not be stored in an unwashed container that once held an incompatible Perchlorate container with waste Acetone
<table>
<thead>
<tr>
<th>Group 6-A</th>
<th>Group 6-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorates</td>
<td>Acetic acid and other organic acids</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Concentrated mineral acids</td>
</tr>
<tr>
<td>Chlorites</td>
<td>Group 2-A wastes</td>
</tr>
<tr>
<td>Chromic acid</td>
<td>Group 4-A wastes</td>
</tr>
<tr>
<td>Hyphochlorites</td>
<td>Other flammable and combustible wastes</td>
</tr>
<tr>
<td>Nitrates</td>
<td></td>
</tr>
<tr>
<td>Nitric acid, fuming</td>
<td></td>
</tr>
<tr>
<td><strong>Perchlorates</strong></td>
<td></td>
</tr>
<tr>
<td>Permanganates</td>
<td></td>
</tr>
<tr>
<td>Peroxides</td>
<td></td>
</tr>
<tr>
<td>Other strong oxidizers</td>
<td></td>
</tr>
</tbody>
</table>

Potential consequences: Fire, explosion, or violent reaction.
Ignitable can crusher

Drums of Ignitable Oxidizer Hazardous Waste

INCOMPATIBLE
(even though both are ignitable)
First, you must know what you have
Chemically Compatible

Storage containers that are near each other and hold incompatible waste must be separated by a dike, berm, wall or other device.
Container Management

Good Condition

Closed and Sealed

Chemically Compatible

Impervious Surface

Floor Drains and Sinks
Impervious Surface

Generally, Concrete or Asphalt
Container Management

Good Condition

Closed and Sealed

Chemically Compatible

Impervious Surface

Floor Drains and Sinks
Floor Drains

Use Secondary Containment
Lab Hood Sink
Storage Time

<90 days from first drop except for:

- Extension
- FQG Satellite Accumulation
FQG Storage Methods

• Two types of storage areas:
  – Satellite areas
    • Containers that take a while to fill
    • Generally the most common storage area
  – 90-day storage areas
    • Tanks
    • Containers filled in one event
    • Full containers moved there from a satellite area
Machine #1  Machine #2  Machine #3

90-day Storage Area

Multiple Satellite Areas
90-Day Areas

Potentially more waste, so definitely more rules
Lines on the floor aren’t required, but great idea!
“90-day” Container Marking

- “Hazardous Waste”
- Description of Contents
- Beginning Accumulation Date
- EPA or State Waste Code
- ACCESSIBLE

HAZARDOUS WASTE CONTENTS:

Acetone

DATE: 7/2/2016
WASTE CODE: F003
Mg$^{2+}$, Pb$^{++}$, Ag$^+$, Fe$^{++}$, Fe$^{++}$, Cu$^{+2}$, Cu$^{+1}$
Preparedness and Prevention Items

90-day storage areas only

- To prepare for (and prevent) emergencies
- To minimize the possibility of a hazardous waste release, fire, or explosion
- To protect human health and the environment
P&P Requirements @ 90-day areas

• Not more than 100 feet away
  – Accessible along a clear path

• Hazardous waste storage area equipment
  – Alarm system – to alert staff in the facility
  – Telephone – external communications
  – Portable fire control (fire extinguisher)
  – Spill control (speedi-dri or other)
  – Adequate water for fire control
  – Emergency telephone posting

• Test and Maintain these items
Emergency Posting

• At the Nearest Telephone
• Emergency Numbers of

  Emergency Coordinators (Home & Office)
  Fire Department
  Police Department
  Hospital

  Emergency Response Teams (State & Local)

• Location of Fire Extinguishers & Spill Control Material and Fire & Internal Alarms

• “No Smoking” signs must be placed where ignitable or reactive waste is stored
## PHONE POSTING - SAMPLE

### EMERGENCY RESPONSE NOTIFICATION LIST

<table>
<thead>
<tr>
<th>CONTACT</th>
<th>PHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>911</td>
</tr>
<tr>
<td>POLICE</td>
<td>911</td>
</tr>
<tr>
<td>AMBULANCE</td>
<td>(603) 555-1111</td>
</tr>
<tr>
<td>HOSPITAL</td>
<td>(603) 555-2222</td>
</tr>
<tr>
<td>NH DES Spill Response &amp; Complaint Investigation Section</td>
<td>(603) 271-3899</td>
</tr>
<tr>
<td>NH STATE POLICE</td>
<td>(603) 223-4381</td>
</tr>
<tr>
<td>NATIONAL RESPONSE CENTER</td>
<td>(800) 424-8802</td>
</tr>
<tr>
<td>ABC TRANSPORTER</td>
<td>(603) 555-3333</td>
</tr>
</tbody>
</table>

### EMERGENCY COORDINATORS

<table>
<thead>
<tr>
<th>CONTACT</th>
<th>PHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY - JOE GENERATOR</td>
<td>Work: EXT. 123</td>
</tr>
<tr>
<td>ALTERNATE #1 - ANITA C. PROFIT</td>
<td>Work: EXT. 456</td>
</tr>
<tr>
<td>ALTERNATE #2 - JOHN HAZLEAK</td>
<td>Work: EXT. 789</td>
</tr>
</tbody>
</table>
“NO SMOKING” SIGN
Ignitable or Reactive
P & P Requirements @ 90-day areas

• Adequate aisle space
  – Not less than 2 feet (adjacent)
NOT 2 Feet
P & P Requirements @ 90-day areas

- Arrangements with local authorities
  
  **Who?**
  - Fire, Police, Hospital, Contractors, DES
  
  **What?**
  - Facility layout
  - Hazardous wastes present
  - Suggest a tour
  - Get it in writing – at least the attempt!
## Storage Requirements

- Containers holding ignitable or reactive waste must be at least 50 feet from the facility’s property line.

What if your property is too narrow to be this far away?

Contact your local fire chief with a plan to prevent incidents.
Satellite Areas
Satellite Accumulation

May accumulate up to 55 gallons (or 1 quart of acute waste) > 90 days without a permit

No limit on # of satellite areas

Two General Requirements:

1. Under control of operator of process

2. “at or near” each point of generation

Operator trained every 3 years
“Control of the Operator”

• Located where operator can easily and routinely observe the container

• Operator trained to know the hazardous waste and operations of their process.
Satellite Accumulation

At or near POINT OF GENERATION
Satellite Container Marking

Words: HAZARDOUS WASTE

CONTENTS:

Acetone

DATE: 9/10/16
WASTE CODE: F003

When the first drop goes in

When the amount of hazardous waste reaches 55 gallons the container must be immediately marked with the Date and EPA or State Waste Code.
1. Satellite Container - Accumulation

Mark the container with the date when the accumulation limit is reached.

Move to 90-day storage area within 3 days.

Ship container to a TSDF within (≤) 90 days of the label date.
Outdoor Storage Requirements
Outdoor Storage

Hazardous waste stored outside must be at least 50 feet from surface waters.
Outdoor Storage Requirements

- 75’ from private wells
- Beyond the protective radius of any public water supply well
- 50’ from storm drains
Outdoor Storage

Under Cover if Outside
Under Cover?
Significant rust

Melting into the ground
Secondary Containment

- All hazardous waste containers shall have secondary containment
- Whichever is larger:
  - 110% volume of largest container; or
  - 10% of Total Volume
- Secondary containment must also be covered from elements
Outdoor Storage Security Measures

- An artificial or natural barrier, which completely surrounds the storage area

- A means to control entry at all times

- A sign with

<table>
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<th>DANGER</th>
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<tbody>
<tr>
<td>Unauthorized Personnel</td>
</tr>
<tr>
<td>Keep Out</td>
</tr>
</tbody>
</table>

at each entrance
An artificial or natural barrier, which completely surrounds the storage area.
A means to control entry at all times
A sign with these words at each entrance

DANGER
HAZARDOUS WASTE STORAGE AREA
UNAUTHORIZED PERSONS KEEP OUT

NO SMOKING
Transportation Requirements

- Transporter must posses-

1. A current NH Hazardous Waste Transporter Registration Number: “TNH 1234”

2. EPA ID Number – NHD012345678
Transportation Requirements

- USDOT Says: All “HazMat employees” must be trained every 3 years

- **HazMat Employee** - A person who in the course of employment directly affects hazardous material transportation safety.

  Examples:

  1. Loads, unloads or handles hazmat
  2. Prepares hazmat for transportation including paperwork (manifests, BOLs)
  3. Responsible for the safety of transporting hazmat
  4. Transports hazardous materials
USDOT Training Materials

http://www.phmsa.dot.gov/hazmat/training/publications/modules