

# Hazardous Waste Tanks and Containers

**EPA RCRA Inspector  
Workshop 2007**

# Accumulation Time

- 40 CFR 262.34/335.69(a) – Generators may accumulate hazardous waste onsite in either a 90 day (LQG) or 180/270 day (SQG) accumulation unit without having to obtain a RCRA permit provided:
  1. The waste is placed in containers / tanks and the generator complies with Subpart I, AA, BB, CC.
  2. The waste is placed in containment buildings and the generator complies with 40 CFR 265 Subpart DD.
  3. The accumulation start date is clearly marked and visible for inspection.
  4. The container/tank is clearly marked with the words “hazardous waste”.
  5. The generator complies with the requirements for owners or operators in Subparts C and D in 265 and 40 CFR 268.7(a)(5) {i.e. contingency plan, preparedness and prevention}.

# Containers

- 40 CFR Chapter 260.10 and 30 TAC Chapter 335.1, defines containers as any portable device in which a material is stored, transported, treated, disposed of, or other-wised handled.

# Containers (cont.)

- Examples of containers include the following:
  - rail cars
  - tanker trucks
  - roll-on/roll-off transport boxes
  - steel, plastic, and fiberboard drums of assorted sizes
  - small buckets
  - cans
  - laboratory test tubes

# Management Standards for Hazardous Waste Containers

- 40 CFR 264.171/265.171 – Containers must be in good condition.
- 40 CFR 264.172/265.172 – Construction of containers or liners must be compatible with the waste placed in them.
- 40 CFR 264.173/265.173 – Containers must be closed at all times, except when adding or removing waste.
- 40 CFR 264.174/265.175 – Containers must be inspected weekly for leaks or other deterioration.

# Management Standards for Hazardous Waste Containers

- 264.176/265.176 – Containers holding D001 ignitable or D003 reactive waste must be located at least 15 meters (50 feet) from the facility's property line.
- 264.177/265.177 – Incompatible waste must not be placed in the same container. Containers of incompatible wastes must be segregated by dikes, walls, berms or other devices.
- 264.179/265.178 – Hazardous waste in containers must conform with air emission standards of Part 264/265, Subparts AA, BB, and CC.

# Types of Containers



# Types of Containers



# Satellite Accumulation

40 CFR 262.34(c)(1)/30TAC 335.69(d)

a generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste in containers at or near the point of generation

# Management Standards for Hazardous Waste Satellite Accumulation Containers

40 CFR 262.34(c)(1)(i)(ii)/30 TAC 335.69(d)(1) –

1. containers must be in good condition.
2. waste must be compatible with the containers.
3. closed except when adding or removing waste.
4. containers are marked “hazardous waste” or labeled as to its contents.

# Management Standards for Hazardous Waste Satellite Accumulation Containers

- 40 CFR 262.34(c)(2)/30 TAC 335.69(e) – generators accumulating hazardous waste in excess of 55 gallon or one quart of acutely hazardous waste must:
  1. mark the beginning date of excess accumulation.
  2. remove excess waste within three days
  
- 30 TAC 335.9(a)(1)(g) – requires a generator to maintain a record of the location of each satellite accumulation area.

# Hazardous Waste Tanks



# Tanks

- 40 CFR 260.10
- defines a hazardous waste tank as a stationary device
- designed to contain an accumulation of hazardous waste
- constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

# Tank Systems

## Federal Tank Standards

- **40 CFR Part 264 Subpart J**  
Permitted Facility Tank
- **40 CFR Part 265 Subpart J**  
Interim Status Facilities Tanks  
90/180/270-Day Accumulation Tanks  
(Through 40 CFR 262.34)

# TANKS

Tank System Definition: 40 CFR 260.10

- Hazardous waste storage or treatment tank and its associated ancillary equipment and containment system

# TANKS

What are hazardous waste tanks?

- Tank systems used for storing or treating any hazardous wastes

Aboveground

On ground

In ground

Underground

# Tank Systems

Why are they regulated?

- Manage large quantities of hazardous waste
- Difficult to detect leaks
- The potential for environmental harm

# Management Standards for Hazardous Waste Tanks

- 264/265.191 – Integrity assessments for existing tank systems via Professional Engineer (PE) - certified check of design standards, leak test, or other integrity examinations.
- 264/265.192 – New tank design and installation standards (e.g., corrosion protection, PE certification, equipment inspections, tightness check, etc)

# Management Standards for Hazardous Waste Tanks (cont.)

- 264/265.193 – Secondary containment with release detection for tank and ancillary equipment.
- 264/265.194 – General operating procedures must be maintained to prevent spills, overflow, ruptures, leaks, corrosion, and other equipment failures.

# Management Standards for Hazardous Waste Tanks

- 265.195/335.152(8) - The owner and operator must inspect tanks and ancillary equipment each operating day.
- 264/265.196/335.152(8) - The owner or operator must respond to any leaks or spills from the tank and/or tank system.
- 264/265.198/335.152(8) - Ignitable or reactive waste must not be placed in a tank system unless specific conditions are met.

# Management Standards for Hazardous Waste Tanks (cont.)

- 264/265.199/335.152(8) – Incompatible materials must not be placed in the same tank system unless general requirements for ignitable reactive or compatible waste are complied with.
- 264.200/265.202/335.152(8) - The owners or operators of hazardous waste tanks must comply with 265 Subparts AA, BB, and CC relating to organic air emission standards

# Tanks

## Existing Tanks Systems

- Tank Systems already in operation on July 14, 1986















# TANKS

## New Tank Systems

- Tank systems installed or put in use after July 14, 1986
  - PE Certification Requirements 40 CFR 264/265.192
    - [Can also be systems installed before July 14, 1986 (Faxback 12920, 13174)]

# Tanks



# ANCILLARY EQUIPMENT

Definition: 40 CFR 260.10

- Any device including, but not limited to, piping, fittings, flanges, valves, and pumps
- Used to distribute, meter, or control the flow of hazardous waste
- From point of generation to a storage or treatment tank or tanks, between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal offsite



# Ancillary Equipment Examples

- Piping, valves, pumps, and other material transfer equipment normally used for process activities
  - Occasional transfer operations during washout/cleanout
  - Transfer materials that are sometimes recycled and sometimes disposed

# ANCILLARY EQUIPMENT (cont.)

## Examples

- Piping used in loading/unloading station for raw materials, but also used to unload hazardous waste
  - Ancillary Equipment [Faxback 13790, 14469]
  
- Floor drains and outdoor trenches to hazardous waste tank
  - Ancillary Equipment [Faxback 12829]

# Secondary Containment Applicability

- Permitted TSD Facilities
- Interim Status Facilities
- Large Quantity Generators

# Secondary Containment Applicability

## ■ Not Required For:

- Tanks with hazardous waste that contain no free liquids [40 CFR 264/265.190(a)]
- Tanks located inside a building with an impermeable floor
- Small Quantity Generators (except for limited circumstances)

# Secondary Containment

Technical Requirements 40 CFR 264/265.193(b)

- Secondary containment systems must be:
  - Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system
  - Capable of detecting and collecting releases and accumulated liquids until the collected material is removed

# Secondary Containment Performance Standards

- Sloped or otherwise operated to drain and remove liquids within 24 hours
- On a good foundation
- Constructed of, or lined with, materials that:
  - Compatible with the hazardous waste that enter the system
  - Have sufficient strength and thickness to prevent failure

# Secondary Containment Types

- External Liner
- Vault
- Double-walled Tank

# Secondary Containment (cont.)

- Liners and Vaults must be designed or operated to contain 100% of the largest tank;
- Designed or operated to prevent run-on or infiltration of precipitation or if capacity of secondary containment permits, sufficient to contain precipitation from a 25-year, 24-hour rainfall event.

# Secondary Containment (cont.)

- Liners should be free of cracks, gaps, holes, gouges, etc. Also, prevent lateral as well as vertical migration of waste.
- Vaults should be provided with an impermeable interior coating or lining that is compatible with waste and prevent migration of waste into concrete









# Secondary Containment

## Ancillary Equipment

- Pumps, valves, flanges, fittings, etc. require secondary containment

- 40 CFR 264/265.193(f)

- Jacketing
    - Double-walled piping
    - Trenches underneath the equipment







# Secondary Containment

## Ancillary Equipment

- Equipment which does not require secondary containment
  - Aboveground piping
  - Pipe runs with all welded fittings
  - Sealless or magnetic-coupling pumps
  - Sealless valves
  - Pressurized aboveground piping systems with automatic shut-off devices

# Secondary Containment

## Release Detection

- Daily visual inspection
- Built-in continuous leak detection equipment
- Controls to prevent spills from tanks or secondary containment
  - Spill prevention
  - Overfill prevention
  - Adequate freeboard space

# Secondary Containment

## Response to Leaks and Spills

- Cease the flow of hazardous waste into the system
- Determine the cause of the release
- Remove necessary amount of waste to facilitate inspection and repair
- Remove waste from secondary containment within 24 hours
- Repair equipment before placing back into service

# Facility Inspection Requirements

40 CFR 264/265.195

Inspect	Permitted / Interim TSD Facilities and LQGs	SQGs
Aboveground portions of tank system for corrosion or releases of waste	Each operating day	Weekly
Data gathered from monitoring and leak detection equipment	Each operating day	Each operating day
Construction materials and areas surrounding externally accessible portions of tank system, including secondary containment system, for signs of erosion and/or waste releases (including lining)	Each operating day	Weekly
Inspect ancillary equipment not required to have secondary containment	Every day	Not required
Inspect overflow/spill control equipment to ensure system is in good working order	Each operating day	Each operating day
Inspect cathodic protection systems for proper operation	w/in 6 months of installation, annually thereafter	Not required
Inspect sources of impressed current of proper operation	Every other month	Not required
Inspect level of the waste in the tank to ensure adequate freeboard (2 feet)	Not required	Each operating day

# Facility Inspection Requirements

## Documentation

### ■ Document Inspections

- Date and Time of Inspection
- Name of Inspector
- Record Observations (e.g., leaking, cracked)
- Nature of repairs or actions initiated

# Closure and Post-closure Care

- The owner must remove or decontaminate all waste residues, soils, structures, and equipment and manage as a hazardous waste
- Closure Plan, closure activities, closure-cost estimates, and financial responsibility complies with Subchapters G and H
- If soil cannot be removed or decontaminated?
  - owner must close the tank system as a landfill and perform post-closure in accordance with the closure and post-closure requirements of a landfill; Subchapters G and H still apply

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