527 CMR 33.00
Hazardous Materials Processing
Part Two: Are You Ready?

About the Presenter

Mr. Walton has more than 20 years experience and is responsible for development of engineering design reports, construction plans, equipment installation specifications, and permitting in support of environmental engineering design projects at industrial and large-scale commercial facilities. He also provides senior level oversight of environmental auditing projects, guidance in the development of environmental management programs, and consulting related to the evaluation and mitigation of environmental risk at industrial sites.

His experience includes design and consulting in wastewater treatment, air pollution control, spill prevention, process piping and instrumentation, storage tanks, hazardous waste management, industrial water re-use, sustainability, and construction for a broad variety of industries. Mr. Walton holds a B.S. in Civil Engineering from Worcester Polytechnic Institute (WPI).
Webinar Agenda

• Purpose and scope of 527 CMR 33
• Applicability
• Permit category determinations
• Compliance requirements

Brief Review of Proposed Regulation

• Purpose
  – To protect the public and emergency response personnel from the risks of fire and explosion
  – To enhance emergency response personnel’s knowledge of risks in their communities
  – To establish a permitting program for hazardous material processing

• Scope
  – Any process that uses or produces a hazardous material
Getting Ready - Overview

• Determine applicability
• Determine permit category and compliance deadlines
• Update plans and policies
• Implement applicable program requirements

Applicability

• Any “process” regardless of size…
• …which uses or produces a hazardous material with an NFPA 704 Hazard Rating of 3 or 4
• There are some exemptions
  – NFPA = National Fire Protection Association
What is Meant by “Process”

Process or processing means...

a sequence of operations in which the sequence can be inclusive of heating, cooling, mixing, distilling, compressing, and pressurizing and chemical operations, such as polymerization, oxidation and reduction. The sequence can involve, but is not limited to preparation, separation, combination, purification, or any actions that cause a change in state, energy content or chemical composition.

NFPA Hazard Rating

- To determine the hazard rating:
  - Consult MSDS or manufacturer
  - Review NFPA 704 Hazard definitions
    - www.NFPA.org/catalog
  - Note that NFPA 704 rating not always the same as HMIS rating

HMIS = Hazardous Materials Identification System
Exemptions

- Motor vehicle service stations 527 CMR 5.00
- Construction and maintenance in accordance with 527 CMR 14.00
- Pre-mixed products in accordance with manufacturer’s instructions or product designed and labeled for retail sale
- Healthcare professional offices or facilities under supervision of licensed medical doctor or veterinarian
  THIS EXEMPTION DOES NOT APPLY TO HOSPITALS!
- Retail facilities – pharmacies, hardware stores, department stores restaurants
- Refrigeration systems with refrigerant other than ammonia or LPG
- Processing or treatment of potable water and sanitary wastewater
- Grade I and II wastewater treatment operations
- Consumption of fuels for operation of equipment – generators, torches, and consumptive use boilers
- Storage of hazardous materials in atmospheric vessels without the benefit of chilling, refrigeration, or heat

- Processing of hazardous materials with an NFPA 704 hazard rating of 1 or 2
- Hazardous waste activities
- Biological and medical activities regulated by DPH
- Handling and use of liquid nitrogen cooling systems at atmospheric pressure
- Handling and repackaging of products regulated by 527 CMR 14.00
- Use of inert gas
- Swimming pools regulated by 105 CMR 435
- Air pollution control devices that are a component of a process regulated under 310 CMR 7.00
- Production and handling of explosives and fireworks regulated under 527 CMR 2.00, 527 CMR 13.00, and 527 CMR 16.00
- Equipment, process, handling, storage or use of compounds, liquids, pesticides, fertilizers, or soil treatments regulated under 527 CMR 35.00, 527 CMR 37.00 and 248 CMR

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Applicability - Review

- Start with a chemical inventory
- Identify hazardous chemicals (NFPA Rating 3 or 4)
- Map chemicals to processes
- Check exemptions

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Polling Question

1. Do you have a chemical inventory that includes NFPA 704 hazard rating information?

Category Determinations

- Correct category determinations are critical!
- Five categories
- Generally determined by process vessel size
- Application deadlines and compliance requirements differ by category
Category Descriptions

- **Category 1**
  - Process which involves or produces a hazardous material which occurs in a vessel that is less than or equal to 2.5 gallons
- **Category 2**
  - ...in a vessel greater than 2.5 gallons but less than or equal to 60 gallons
- **Category 3**
  - ...in a vessel greater than 60 gallons but less than or equal to 300 gallons, or a process that is conducted in an area that is classified as an H-occupancy per the Massachusetts Building Code
- **Category 4**
  - ...in a vessel greater than 300 gallons but not Category 5
- **Category 5**
  - ...in a vessel equal to or in excess of the threshold quantities of OSHA PSM or EPA RMP and regulated by that standard

PSM and RMP

**Permit Application Deadlines**

- Category 5 – January 1, 2013
- Category 4 – June 1, 2013
- Category 2 and 3 – January 1, 2014

**Category 3 and H-Occupancy**

- All non-exempt processes in these areas are **at least** Category 3 processes
- Based on storage or use of hazardous materials
- Structures or portions of structures may be H-occupancy
- Massachusetts State Building Code
  - 780 CMR 3.00
  - Tables 307.7(1) and (2)
H-Occupancy Example

• Class I Flammable Liquid (example 99% IPA)
  – Threshold for Storage: 30 gallons
  – Threshold for Use in Closed Systems: 30 gallons
  – Threshold for Use in Open Systems: 10 gallons
• Allowable quantities doubled for buildings equipped with automatic sprinkler systems
• If stored in approved cabinets, allowable quantity may be doubled again

Category 5

• May have a Category 5 size vessel but not be subject to PSM/RMP
  – This is not a Category 5 process per the regulation
• May be PSM/RMP but not a Category 5 size vessel
  – This is not a Category 5 process per the regulation
Category 5

- Must meet vessel size criteria and be subject to PSM or RMP
- If applicable, must implement and self-certify compliance with PSM or RMP

Polling Question

2. Do you have any process areas that are classified as H-occupancies?
Permit Process

• Submit application to local fire department by deadline
  – Application available on DFS Website

• Fire department will conduct on site review of processes and documentation

Preparing for Compliance

• For Categories 1 and 2
  – Review and update HazComm Program
  – Review and update Chemical Hygiene Plan (if applicable)
  – Make sure flammable storage permits/licenses are current
  – Develop documented policy for compliance with 527 CMR 14
  – Establish an Emergency Response Plan and submit to the fire department
Category 3 Compliance

- All Category 2 compliance requirements, plus
  - Hazard Evaluation Policy
  - Process Hazard Evaluations
    - Written evaluation
    - Identifies hazards – including adjacent vessels
    - Determines preventive, protective and safety control measures

Category 4 Compliance

- All Category 3 compliance requirements, plus
  - Limited Process Safety Program Policy
  - Limited Process Safety Program for Category 4 processes
    - Process information (MSDS, P&IDs)
    - Facility suitability (building code compliance)
    - Process Hazard Safety Analysis
    - Written procedures
    - Written Training Program
    - Written Records Management Program
    - Internal review every three years
Emergency Response Planning

• Start with existing plans
  – Emergency Response Plans per 29 CFR 1910.120
  – Hazardous Waste Contingency Plan per 310 CMR 30

Emergency Response Planning

• Include additional requirements per 527 CMR 33.06
  – Emergency coordinator(s) available on-site within one hour
  – Facility floor plan showing storage areas, volumes and location of emergency equipment
  – Shutdown procedures
Shutdown Procedures

- For Category 3, 4, 5 processes that would pose a risk to the public in the event of loss of any controls
  - Must establish a protocol with local fire department for safe shutdown
  - Protocol must include facility liaison to meet with Incident Commander upon arrival

Getting Ready - Review

- Identify hazardous materials
- Categorize processes
- Review permit application deadlines
- Category 5 – Audit RMP/PSM programs
- Category 4 – Implement Limited Process Safety Program
- Category 3 – Prepare Hazard Evaluations
- All categories – Review and update policies
Questions

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