Fire Protection
Initial
Terminal Objective

Identify the established basic fire safety and fire protection systems.
Enabling Objectives

- EO 1
  - Identify the five classes of fire
- EO 2
  - Identify the different types of fire extinguishers
- EO 3
  - Identify proper use of fire extinguishers
- EO 4
  - Identify proper procedures for reporting a fire and other emergencies
- EO 5
  - Identify life safety objectives of a fire event
Enabling Objectives

• EO 6
  – Identify types of fire barriers
• EO 7
  – Identify lessons learned from industrial fires
• EO 8
  – Identify transient fire load
• EO 9
  – Identify fire protection systems
• EO 10
  – Identify smoking policy
Pantex Fire Department

• State of Texas certified Firefighters/EMT’s
• On duty 24 hours a day, 365 days per year

• Contact Numbers:
  – EMERGENCY - 477-3333
  – Non-Emergency - 477-4454

• Fire Department Support Team –
  – Plant employee volunteers who are trained to assist in the event of emergencies.
Classifications of Fires (EO1)

• Class A
  – Ordinary combustibles
  – Leaves an ash product
    • Wood
    • Paper
    • Leaves
    • Some Plastics
Classifications of Fires (EO1)

- **Class B**
  - Flammable liquids
  - Things stored in barrels
  - Hydrocarbons
    - Gasoline
    - Diesel
    - Solvents
Classifications of Fires (EO1)

- **Class C**
  - Electrically energized
Classifications of Fires (EO1)

• **Class D**
  – Combustible Metals
    • Sodium, Magnesium, Lithium
  – These fires liberate tremendous amounts of energy and react unpredictably when extinguishing agents are applied
Classifications of Fires (EO 1)

• Class K
  – Kitchen fires
  • Cooking oils and fats
Types of Fire Extinguishers (EO2)

- Multipurpose ABC Dry Chemical
Types of Fire Extinguishers (EO2)

- Pressurized Water Fire Extinguisher – Class A fires only
Types of Fire Extinguishers (EO2)

• Class D – Metal Fire Only
• Dry Powder
  – For flammable metals
    • REMEMBER …
      – Only to be used by personnel with specialized training
Types of Fire Extinguishers (EO2)

- Class K fires only
- Wet Chemical
Types of Fire Extinguishers (EO2)

- Carbon Dioxide *can be* an **asphyxiating** agent
  - Carbon Dioxide Fire Extinguishers are not used as a **principal** extinguishing agent at any DOE Facility
Types of Fire Extinguishers (EO2)

- Halotron is used in specified areas. It is a fixed system.
Proper Use of a Fire Extinguisher (EO3)

- At no time let the fire block your exit
- Check the gauge
- At approximately 8-12 feet from the fire, place the fire extinguisher on the floor
- Use the **PASS** method to operate the fire extinguisher
Proper Use of a Fire Extinguisher (EO3)

- **Pass** Method
  - **Pull** the pin from the handle
    - (Discharge a small amount of the agent to ensure operability)
  - **Aim** the nozzle at the base of the fire
  - **Squeeze** the discharge handle
  - **Sweep** the nozzle back and forth at the base of the fire
Proper Use of a Fire Extinguisher (EO3)

- Decision Time
  - If the fire is small (wastebasket...)
  - Use appropriate fire extinguisher for extinguishment
  - If there is any doubt ...
    - Activate fire suppression system (if applicable) and go to ... *Your muster station*
Proper Use of a Fire Extinguisher (EO3)

- If the fire is large
  - Activate manual fire suppression (if applicable) system as you leave the area
  - Evacuate the facility immediately (close doors)
  - Go to ...

*Your muster station unless otherwise required to stay in the area (shelter in place)*
Procedures For Reporting a Fire (EO4)

• Notify personnel in the affected area by pulling the manual fire alarm and/or yelling …

**Fire !!!**

• Notify the Fire Department by calling …

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Life Safety Objectives (EO5)

- Life safety of personnel in the area.
- Life safety of the person using the extinguisher.
- Preservation of structures.
- Preservation of the environment.
Types of Fire Barriers (EO6)

• Fire Walls
  – Designed for stability as well as fire resistance
  – Must contain the fire and products of combustion on the side of origin
    • Smoke
    • Heat
    • Fire gasses
  – Cannot be breached without proper engineering and approval
Types of Fire Barriers (EO6)

• Fire Doors
  – Fire doors or, “opening protectors”, are an essential component in maintaining the integrity of the fire-resistive barriers that have openings.
  – Rated and provide protection for openings in fire walls
  – The doors include the frame and hardware
Types of Fire Barriers (EO6)

• Fire Doors cont.
  – Cables, chains, rollers, fusible links, and other moving parts cannot be painted or otherwise damaged.
  – Cables and/or chains on sliding doors must be in good working condition and operate properly
  – There cannot be any obstructions that may interfere with the fire door’s operation.
Types of Fire Barriers (EO6)
Types of Fire Barriers (EO6)

- Fire Dampers
  - Normally located in enclosed spaces such as air ducts and air handlers
Types of Fire Barriers (EO6)

- Ceiling Tiles
  - Rated and *must be in place* to contain heated gasses, smoke, and flame to the area of origin
Requirements for fire barriers

- There are no hazards to employees from a fire
- No threat to the public/environment will result from a fire
- DOE programs will not suffer unacceptable delays because of fire
- Property damage will be held to a minimum
Types of Fire Barriers (EO6)

- What you should do if fire barriers are found damaged or inoperable?
  - Notify your immediate supervisor
  - Call the Fire Department at 477-4454 and report the problem to the Shift Officer
Lessons Learned From Industrial Fires (EO7)

• A fire door blocked open in a chemical lab allowed a fire to extend unchecked …
  – $ 2 Million Loss

• Breached fire wall in a school …
  – $ 1 Million Loss

• Inoperative fire door closures in an office building …
  – $ 1 Million Loss
Identify Transient Fire Load (EO8)

• Transient Fire Load
  – Any combustible material which can be moved in and out of the work area
    • Paper
    • Cardboard boxes
    • Packing materials and shipping palates
    • Flammable materials or products

**NOTE:** When visiting a bay or cell, maintain control of all combustibles that you bring in; take them out when you leave.
Identify Transient Fire Load (EO8)

- Pantex Plant promotes safe work practices and fire prevention through good housekeeping
- Excessive accumulation of transient fire loading could overwhelm a fire protection system
- Transient fire loading can be found in all areas of the plant
Identify Transient Fire Load (EO8)

- Flammable storage cabinets are utilized for flammable and combustible materials
Sprinkler systems are for protection of facilities and equipment

- Dry Pipe Sprinkler System
  - For buildings subject to freezing temperatures
- Wet Pipe Sprinkler System
  - For heated buildings

Sprinkler System Risers
- Always located in a heated area
Identify Fire Protection Systems (EO9)

• Sprinkler System Head Activation
  – Normal activation temperature of heads is 165° F
  – Fusible links that have been painted will not operate properly and need to be replaced.
  – Sprinkler Heads
Identify Fire Protection Systems (EO9)

• Deluge Systems
  – Designed for the protection of **PERSONNEL** located in high-hazard operation areas
Identify Fire Protection Systems (EO9)

• Manual Pull Boxes
  – Manual fire alarm systems for sending alarm signals to the Fire Department
  – If you smell smoke, activate a manual pull box
Identify Fire Protection Systems (EO9)

- Manual Deluge Activation Switch
Identify Fire Protection Systems (EO9)

- When the fire alarm bell sounds, YOU should …
  - Evacuate to assigned Muster Station
  - Ensure accountability is documented
  - Stay in the Muster Station until “all clear” is given from a supervisor, the Fire Department, or Security Police Officer
Identify Smoking Policy (EO10)

- No open flame materials allowed on plant site (matches, lighters)
- Must smoke in designated areas only where electronic lighting devices are installed