Learning Objectives

- Overview of NAICS in the NEP
- How NAICS were developed
- OSHA utilization of NAICS
- National Industries not referenced in OSHA Combustible Dust NEP
- Combustible Dust Hazard Awareness of Non-NEP industries
<table>
<thead>
<tr>
<th>Combustible Dust National Emphasis Program (NEP)</th>
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<tbody>
<tr>
<td>- Policies and procedures</td>
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<td>- Inspecting workplaces</td>
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<td>- That create or handle combustible dust</td>
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<tr>
<td>- Deflagrations, fires, or explosions</td>
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<td>- State plan participation not required</td>
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Combustible Dust Related
Explosions & Fires

- Combustible Dust National Emphasis Program (NEP)
  - Appendix D-1 More Frequent or High Consequence
  - Appendix D-2 Potential of Incidents
154+ combustible dust related fires and explosions in the manufacturing, utility, and non-manufacturing sectors (2008)
Who assigns NAICS?

- U.S. Census Bureau assigns
- Based on its primary activity
- Activity that generates the most revenue
North American Industry Classification System (NAICS)

- Collecting
- Analyzing
- Publishing statistical data
- Related to the U.S. business economy
How are NAICS used?

- Designed for statistical purposes
- Various administrative purposes
- Regulatory
- Contracting
- Taxation
- Other non-statistical purposes
OSHA Use of NAICS

- Economic activity into twenty industry sectors
- Five sectors are mainly goods-producing sectors
- Fifteen are entirely services-producing sectors.
NAICS and the OSHA Dust NEP

- Understanding the NAICS
- Results in understanding the Dust NEP
- Most facilities are not covered in the NEP
- OSHA State Plans voluntary NEP action

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Getting the Knack of the NAICS

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What is the NAICS structure?

• First two digits - Economic sector
• Third digit – Subsector
• Fourth digit - Industry group
• Fifth digit - NAICS industry
• Sixth digit - National industry (311211 Flour Milling)
NAICS Examples

- Subsector 325 Chemical Mfg
- Industry group 3251 Basic Chemical
- NAICS industry 32513 Synthetic Dye and Pigment Manufacturing
- National industry 325188 All Other Basic Inorganic Chemical Manufacturing
IS your Facility NAICS Listed in the OSHA Dust NEP?

- OSHA Dust (NEP) program
- Not required in State Plans
- State OSH Plans (strictly voluntary)
- Explosions and fires reoccurring
- NAICS not listed in the NEP
Appendix D-1

- More Frequent and/or
- High Consequence
- Combustible Dust Explosions/Fires
- 18 NAICS (National Industries)
Appendix D-1

- Utilities (1)
- Food (4)
- Wood Product (4)
- Chemical (3)
Appendix D-1

- Plastics/Rubber Product (1)
- Primary Metal Product (2)
- Fabricated Metal Product (1)
- Transportation Equipment (1)
Subsector 221 UTILITIES

- 221112 Fossil Fuel Electric Power Generation

D-1
More Frequent and/or High Consequence Combustible Dust Explosions/Fires

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Subsector 311 Food Manufacturing

- 311211 Flour Milling
- 311221 Wet Corn Milling
- 311312 Cane Sugar Refining
- 311313 Beet Sugar Manufacturing
Subsector 321 Wood Product Mfg

- 321113 Sawmills
- 321213 Engineered Wood Members
- 321219 Reconstituted Wood Product
- 321920 Wood Container and Pallet Mfg
Subsector 325 Chemical Mfg.

- 325412 Pharmaceutical Preparation
- 325510 Paint and Coatings
- 325998 All Other Miscellaneous Chemical Product and Preparation
Sub 326 Plastics/Rubber Products Mfg.

- 326291 Rubber Product Mfg. for Mechanical Use
Subsector 331 Primary Metal Mfg.

- 331314 Secondary Smelting and Alloying of Aluminum
- 331524 Aluminum Foundries (except Die-Casting)
Sub 332 Fabricated Metal Product Mfg

- 332813 Electroplating, Plating, Polishing, Anodizing, and Coloring
Sub 336 Transportation Equip Mfg

- 336322 Other Motor Vehicle Electrical and Electronic Equipment
Appendix D-2

- Utilities (1 national industry)
- Food Manufacturing (3)
- Textile Mills (4)
- Wood Product Manufacturing (4)
- Chemical Manufacturing (6)

Potential for Combustible Dust Explosions/Fires
Appendix D-2

- Plastics/Rubber Products
- Nonmetallic Mineral Product (1)
- Primary Metal Products (5)
- Fabricated Metal Products (6)
- Machinery Manufacturing (1)
Appendix D-2

- Electrical Equipment (2)
- Transportation Equipment (1)
- Furniture Related Product (3)
- Miscellaneous (1)
- Non-Manufacturing (4)
- Support Activities for Agriculture and Forestry (2)
What about the hundreds of other NAICS not listed in the NEP?

Over 50% Explosions and Fires that occurred in 2008 at facilities with NAICS not listed in the NEP.
Food Manufacturing
Non- NEP 76% incidents

- Dog and Cat Food Manufacturing
- Breakfast Cereal Manufacturing
- Dried and Dehydrated Food Mfg
- Dry, Condensed, and Evaporated Dairy Product Manufacturing
Dog and Cat Food Manufacturing

Grain dust explosion in a large storage tank. One person was injured in the explosion and airlifted to the burn unit.

Prior, 2006 fire caused an estimated $10 million in damage.
Breakfast Cereal Manufacturing

- Dust explosion.

- "A spark or a piece of hot metal got into the collector and ignited the flour and cereal particles that get sucked up inside."

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Explosion at a sugar beet plant
Machine exploded
Two workers injured

Non-NEP
Dry, Condensed, and Evaporated Dairy Product Manufacturing

- Explosion/fire. Building suffered some structural damage. The blaze was mostly contained by the facility's safety system.
- 1 Injury
Wood Product Mfg
Non-NEP 36% incidents

- Softwood Veneer and Plywood
- Other Millwork (including Flooring)
- Cut Stock, Resawing Lumber, and Planing
Other Millwork (including Flooring)

- Fire broke out in the dust control unit.
- The mill, was shut down because it can’t operate without functioning dust control devices

Non-NEP
Fire started in ducts that convey sawdust from machines out of the building.

One machine malfunctioned and caught a small duct on fire and the fire spread through the larger ducts.

Non-NEP
Paper Manufacturing
Non-NEP 100%

- Paper (except Newsprint) Mills
- Corrugated and Solid Fiber Box
- Setup Paperboard Box
- Coated and Laminated Paper
- Sanitary Paper Products
Coated and Laminated Paper Mfg

- Explosion/Fire
- Caused by a buildup of vapor
- Oven used to heat adhesive
- Hybrid dust/vapor
Dust collected on top of duct work
Welding near the area
Sparks flew and ignited the dust.
Fire department responds to similar calls at the plant anywhere from two to four times a year.
Paper (except Newsprint) Mills

- Fire in the grinding room
- Shut down production of paper machines
- Began in grinder motor
- Spread to nearby ductwork
Setup Paperboard Box Manufacturing

- Equipment, which grinds waste into a powder and sends it to a dust collection bin. Paper Dust Explosion
- Malfunctioned causing it to heat up, jam and send a spark through the ductwork
Chemical Manufacturing
Non-NEP 60% incidents

- Petrochemical Manufacturing
- Adhesive Manufacturing
Adhesive Manufacturing

- Explosion - Three workers escaped
- Auger motor inside a giant hopper filled with finely ground wood chips. Cause was believed to be from an electric motor
- Prior explosion
Plastics/Rubber Products Mfg
NEP Full Coverage

- Unlaminated Plastics Film/Sheet
- All Other Plastics Product Mfg
Primary Metal Mfg
Non-NEP 50% incidents

- Iron and Steel Mills
Iron and Steel Mills

- Chemical powder explosion
- No one injured in the blast
- Workers were in the plant at the time of the explosion

Non-NEP

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Fabricated Metal Product Mfg
Non-NEP  50% incidents

- Other Metal Valve and Pipe Fittings
Explosion erupted inside an enclosed dust collector in a metal-grinding room.

Small dust explosion occurred during the fire.
Machinery Manufacturing
Non-NEP 100%

- Machine Tool (Metal Forming Types)
- Conveyor and Conveying Equipment
- Pump and Pumping Equipment
Conveyor and Conveying Equipment Mfg

- (Demolition) Fire
- Two welders hospitalized for burns
- Ignited dust in roof filtering system.

Non-NEP
Fire started in a year-old dust collector in the southwest corner of the factory

Non-NEP
Furniture/Related Product Mfg
Non-NEP 33% incidents

- Institutional Furniture
- Showcase, Partition, Shelving
Showcase, Partition, Shelving
Non-NEP

- Fire involving a silo-like structure
- Filled with sawdust and other highly combustible material.
- Flames and smoke spewing from a "dust collector"
- Inside duct work collapsed
Dust collection in a silo had exploded

- Sparking a fire that spread to other parts of the building
Miscellaneous Mfg
Non-NEP 75% incidents

- Dental Equipment and Supplies
- Gasket, Packing, and Sealing Device Manufacturing
Gasket, Packing, and Sealing Devices

- Machine that grinds rubber, emitted sparks
- Dust collection system overheated
- Igniting fire
- Migrated to ventilation unit
- Prior fire year ago, dust grindings from rubber tubes
Titanium dust caught on fire in an interior dust collection system
Non-Manufacturing
Non-NEP 70% incidents

- Newspaper Publishers
- Solid Waste Collection
Newspaper Publishers

- Fire in the pressroom
- Caused apparently by a spark
- Spark of unknown origin
- Ignited paper dust inside the dust collector.
Where Should Resources be Directed?

OSHA NEP Compliance

or

Industry Prevention & Mitigation?
NFPA Combustible Dust Standards Coverage

- NFPA 654 – Wood
- NFPA 61- Food/Agricultural
- NFPA 484 - Metals
- NFPA 654 – Plastics, Chemicals, other
Thank You

Questions?

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