

# Combustible Dust

## Industry Update

Sponsored by **TECGEN®** Protective Apparel

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# Dust Explosion History

Dust explosions over 25 years have killed 119 people and injured 718.

Late 70's: Series of devastating dust grain explosions – 59 killed, 49 injured – Led to a new LAW.

**February 2008:** Imperial Sugar plant explosion. Killed 13, severely burned dozens.

# Dust Explosion History

Newspaper reports from EMS personnel, “***We saw hideously burned men stumbling out of the plant, some with no skin at all, some with skin dripping off of them.***”

**This threat is real and protective measures are need to mitigate injury.**

# Imperial Sugar



Devastating effects of a combustible dust explosion.

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# What is OSHA doing?



Activity is increasing...

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# Combustible Dust National Emphasis Program (NEP)

*Issued October 18, 2007*

- Policies and procedures
- Inspecting workplaces that create or handle combustible dust
- Causes of deflagrations, fires, or explosions
- Inspection guidelines
- Sample Citations – PPE specified



# What Industries are Affected?

Food	Agriculture	Food Processing
Forest Products	Paper Products	Plastics
Pesticides	Wood	Pharmaceuticals
Recycling Operations	Rubber	Dyes
Soap Products	Furniture	Coal
Dried Blood	Textiles	Metals

Fossil Fuel Power Generators  
Sugar & Spice Pulverizes  
Aluminum, Chromium, Iron, Magnesium, and Zinc Metals  
Sawmills

# OSHA Activities Increase

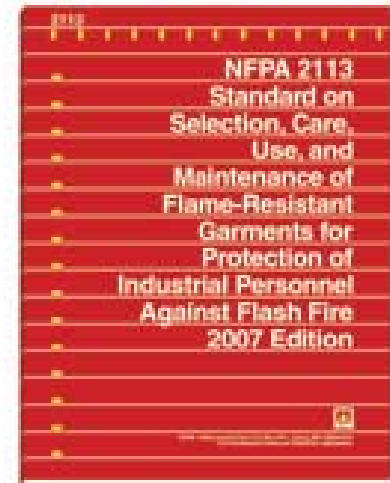
- Combustible Dust Related Fines
  - M&B Metal Products - \$4000 (Reactive)
  - Domino Sugars - \$44,000 (Reactive)
  - HP Pelzer - \$37,500 (Dust) \$135,000 (Total)
    - Note: HP Pelzer was a PROACTIVE Citation
- OSHA Educational Efforts
  - NIOSH & OSHA teaming up
  - Educational workshops are popping up

# Standards / Regulations

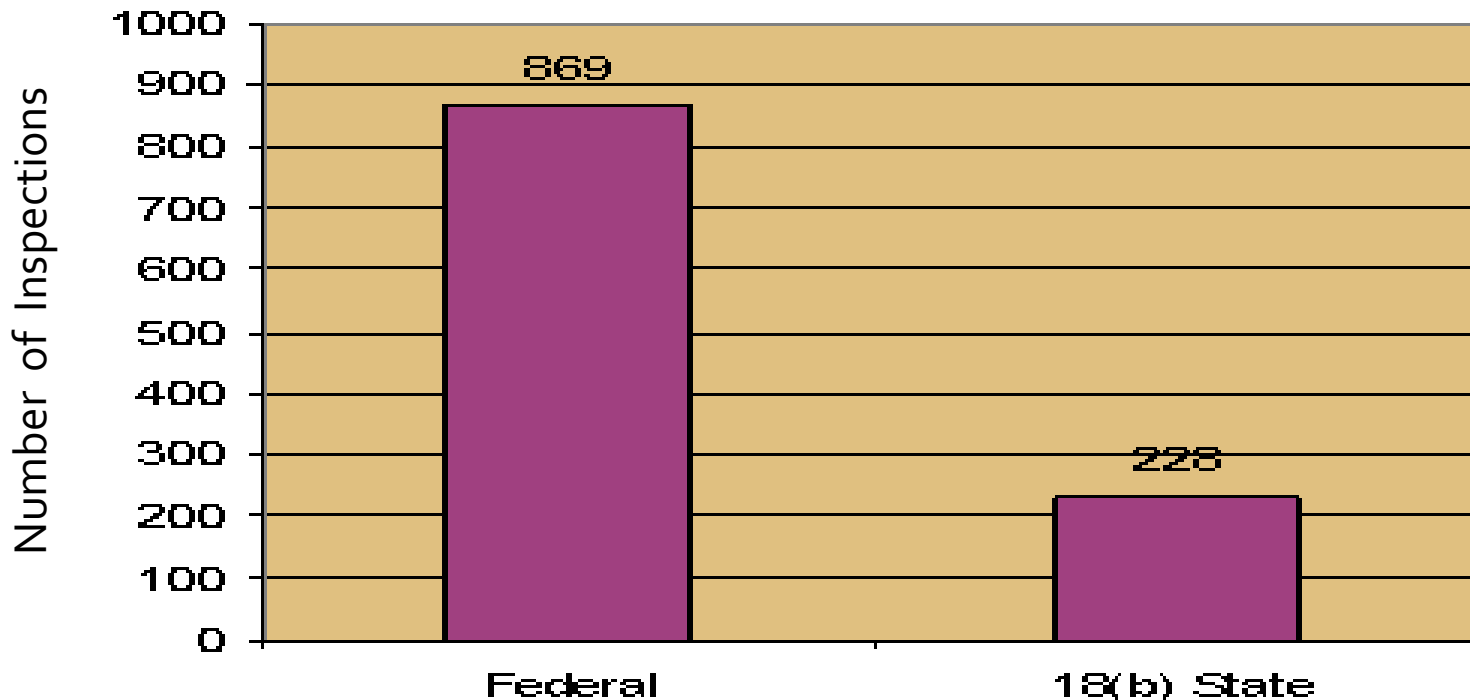


OSHA 1910.132:  
Occupational Safety and  
Health Standards  
(General Duty Clause)

NFPA 2113 - Standard on Selection,  
Care, Use, and Maintenance of Flame  
Resistant Garments for Protection of  
Industrial Personnel Against Flash Fire



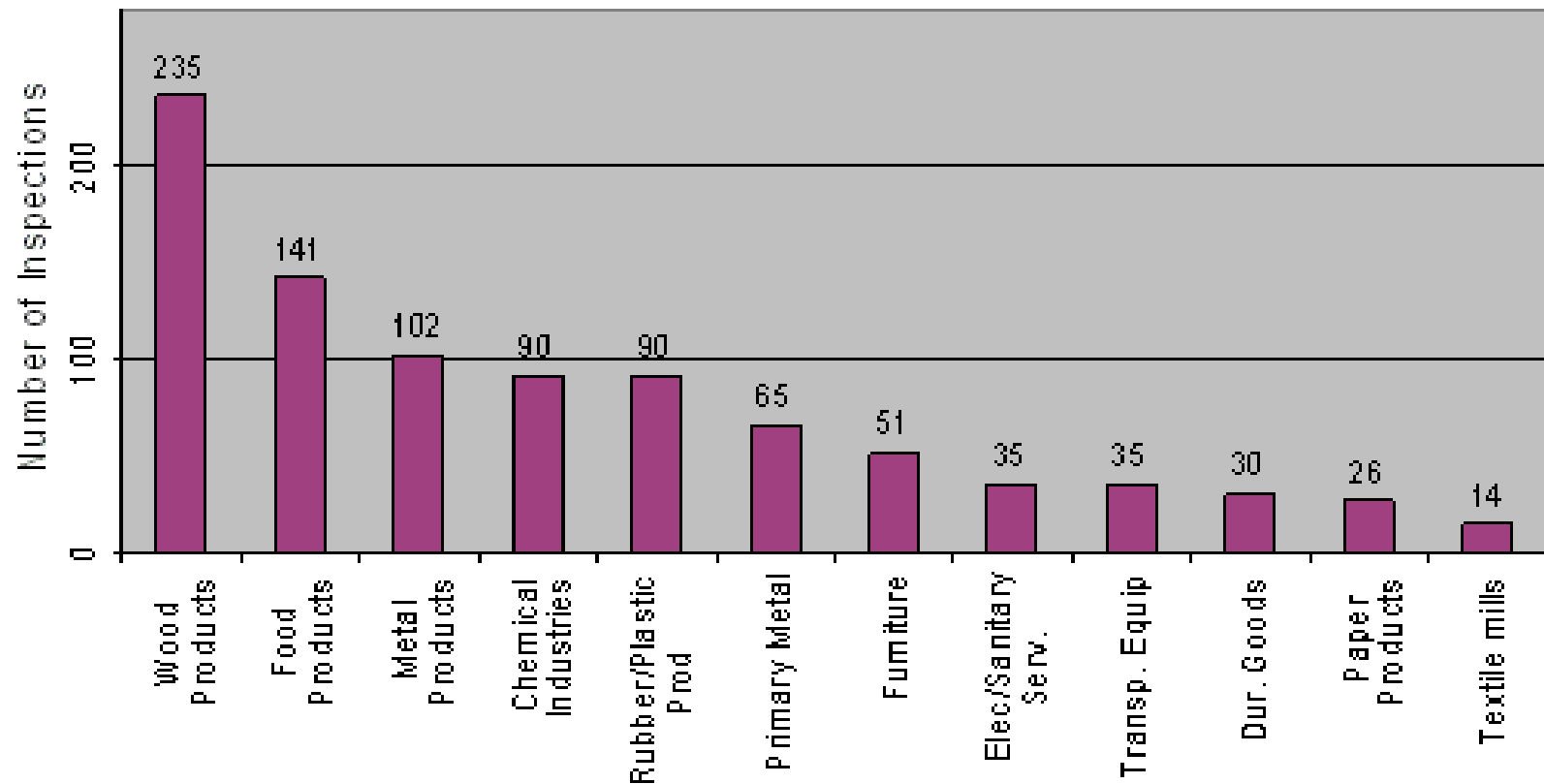
# OSHA NEP Status Report



Source: OSHA NEP Status Report Oct.  
2009

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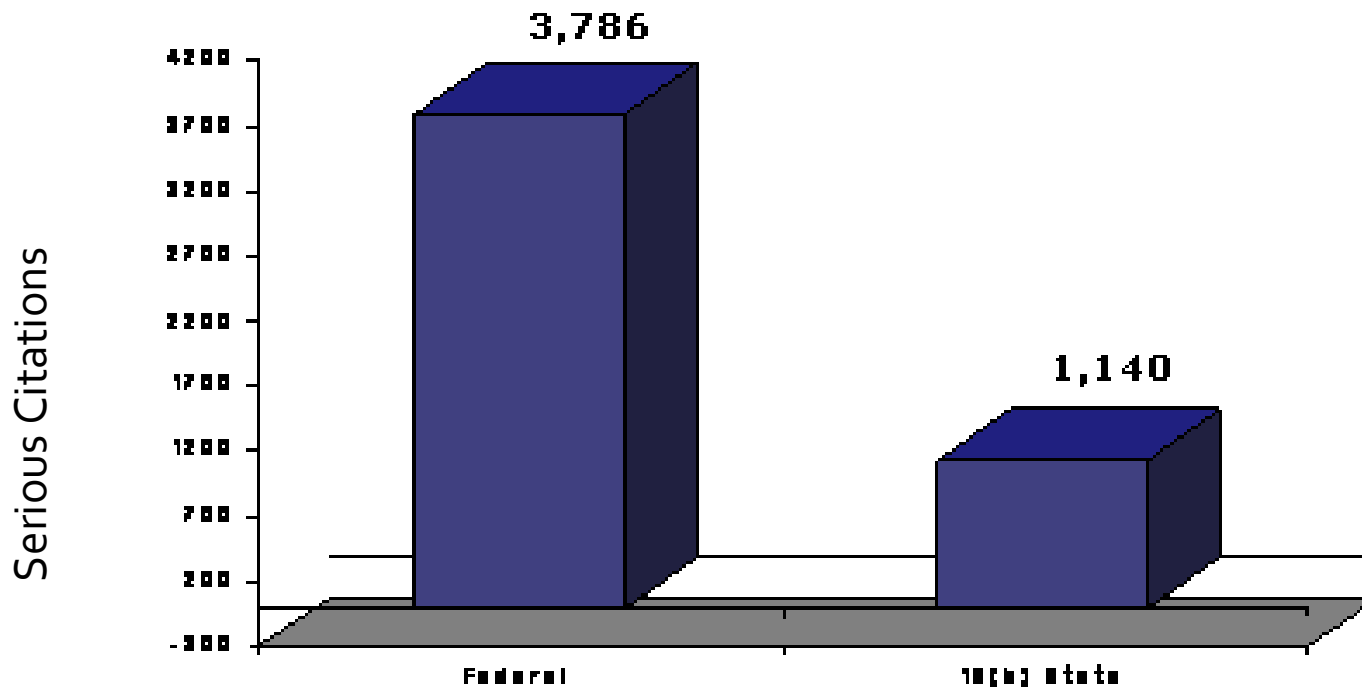
# Types of Industry Inspected



Source: OSHA NEP Status Report Oct. 2009

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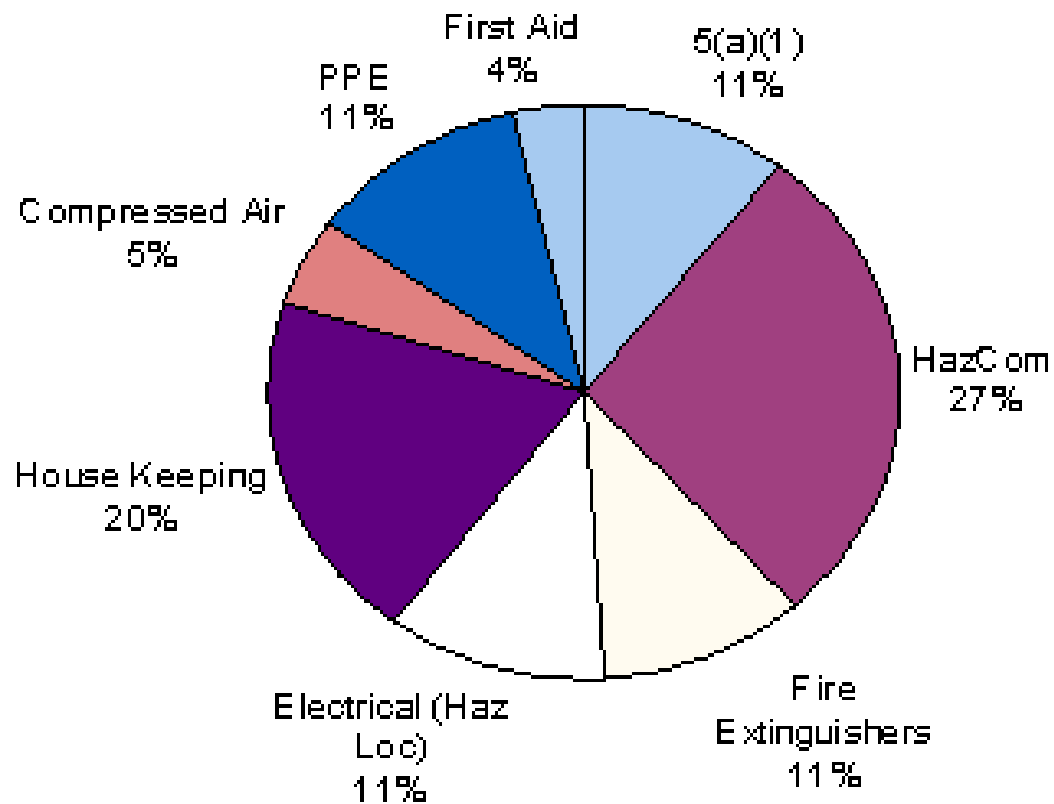
# OSHA - "Serious" Citations



Source: OSHA NEP Status Report Oct. 2009

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# Citation Classifications



Source: OSHA NEP Status Report Oct. 2009

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# OSHA Current Status

- New Law is in the “works”
- Public “Written” Comment
  - January 2010
- Stakeholder Meetings
  - 2 meetings complete
  - Next meeting – April 21, 2010 – Chicago
- Estimated timeline
  - 12-18 months

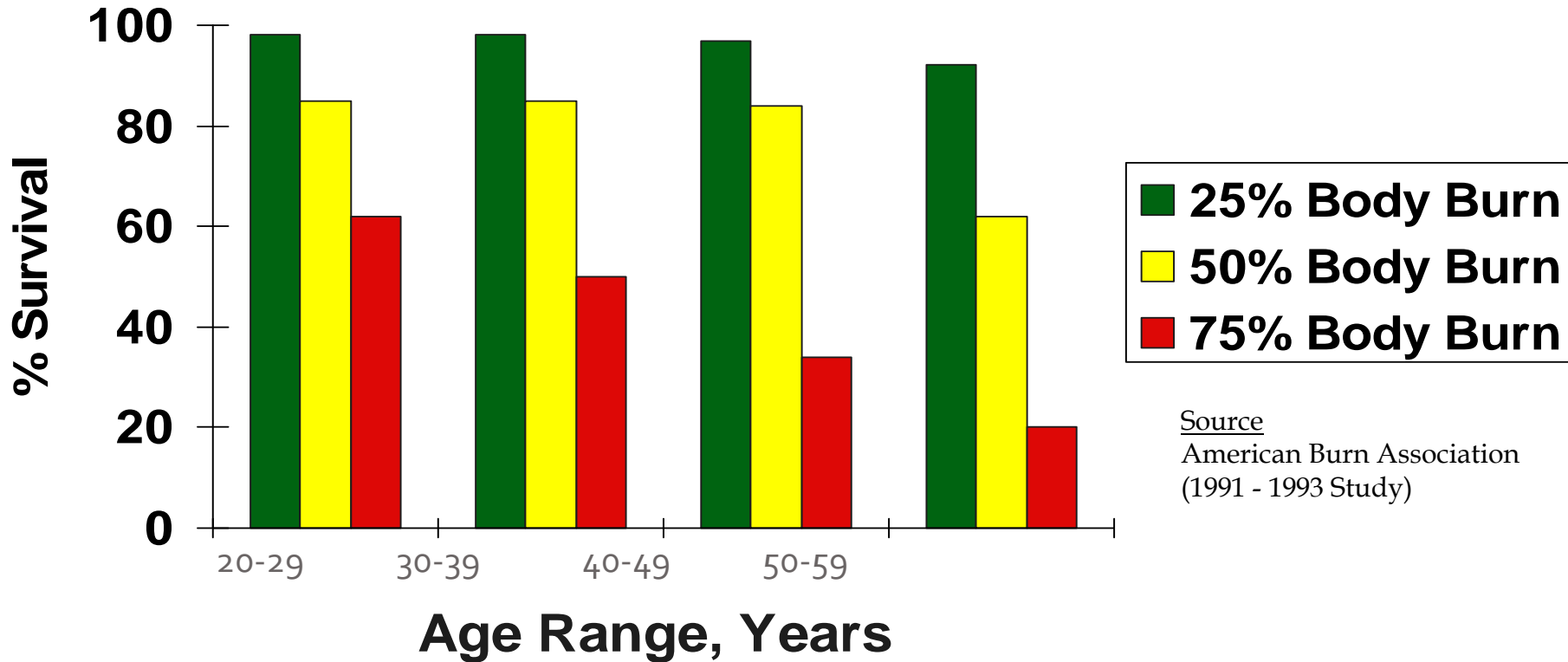
# Flame Resistant Fabrics

- **Everyday wearing apparel will ignite and burn**
- **Polyester will burn, melt and drip**



- **Flame resistant protective apparel is designed to self extinguish almost immediately.**

# Chances of Survival from Burn Injury



Source  
American Burn Association  
(1991 - 1993 Study)

Goal: minimize burn injury level

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# Flame Resistant Fabric Types

## Chemically Treated

FR properties are added by chemical processes  
Properties are bonded and permanent  
Avoid Hydrogen Peroxide and Chlorine Bleach

## Inherent

A synthetic (man made) fiber  
Essential characteristic of the fiber is FR  
Born to “Not Burn”  
Avoid Chlorine Bleach – Strength Loss

# Flame Resistant Fabrics

Tecasafe Plus™



**NOMEX®**



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# Making the “Right” Choice

Making the “right” choice for you and your specific application requires research and full understanding of the hazard protection requirements.

Your choice should be based on:

A good balance between:

Performance, Comfort, Durability, Cost.

# Selection – Care – Maintenance

Once protective requirement is established:

Determine:

Comfort requirements

Fit requirements

Durability requirements

Perhaps “one” fabric does not fit all!

# Selection – Care – Maintenance

Ask your potential supplier these questions:

1. Is the fabric suitable for the hazard?
2. Do you have in-depth knowledge of the properties of this product?
3. Is this fabric certified / tested based on UL procedures and guidelines?

# Care & Maintenance

Review your entire program

Understand WHAT maintenance actually is:

- Repair requirements

- Cleaning requirements

- Inspection requirements

Understand ALL care labels

Talk to your supplier

# Care & Maintenance

**Consult the “Experts”**

**ASTM (American Society of Testing Materials)**

**ASTM F- 1449**

**New ASTM guidelines for Home Laundering**

**Use Common Sense**

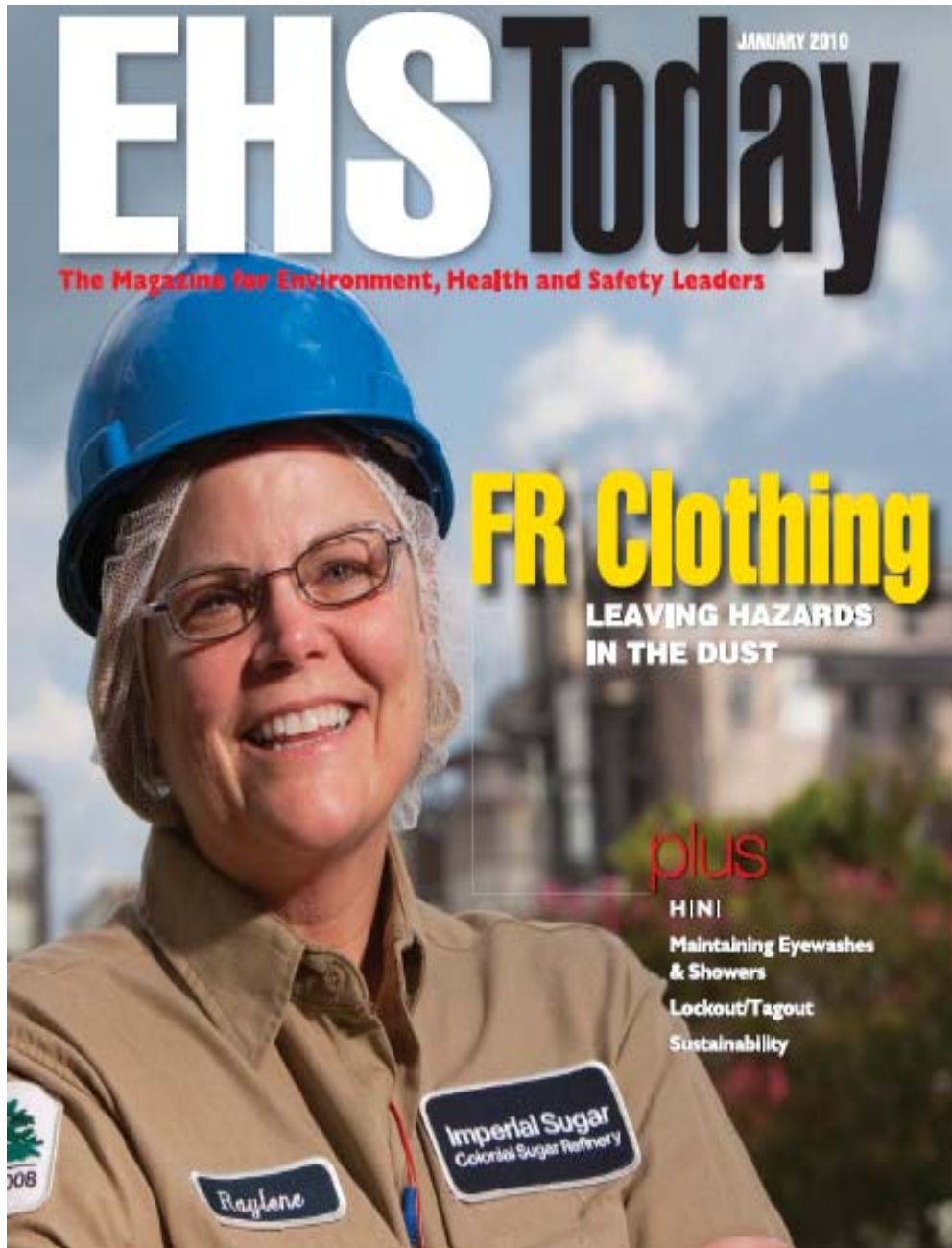
**Make the “RIGHT” choice – Someone’s LIFE depends on it!**

Sources Utilized:  
2009 National Burn Report  
JMS Burn Center, Augusta GA

# Imperial Sugar Analysis

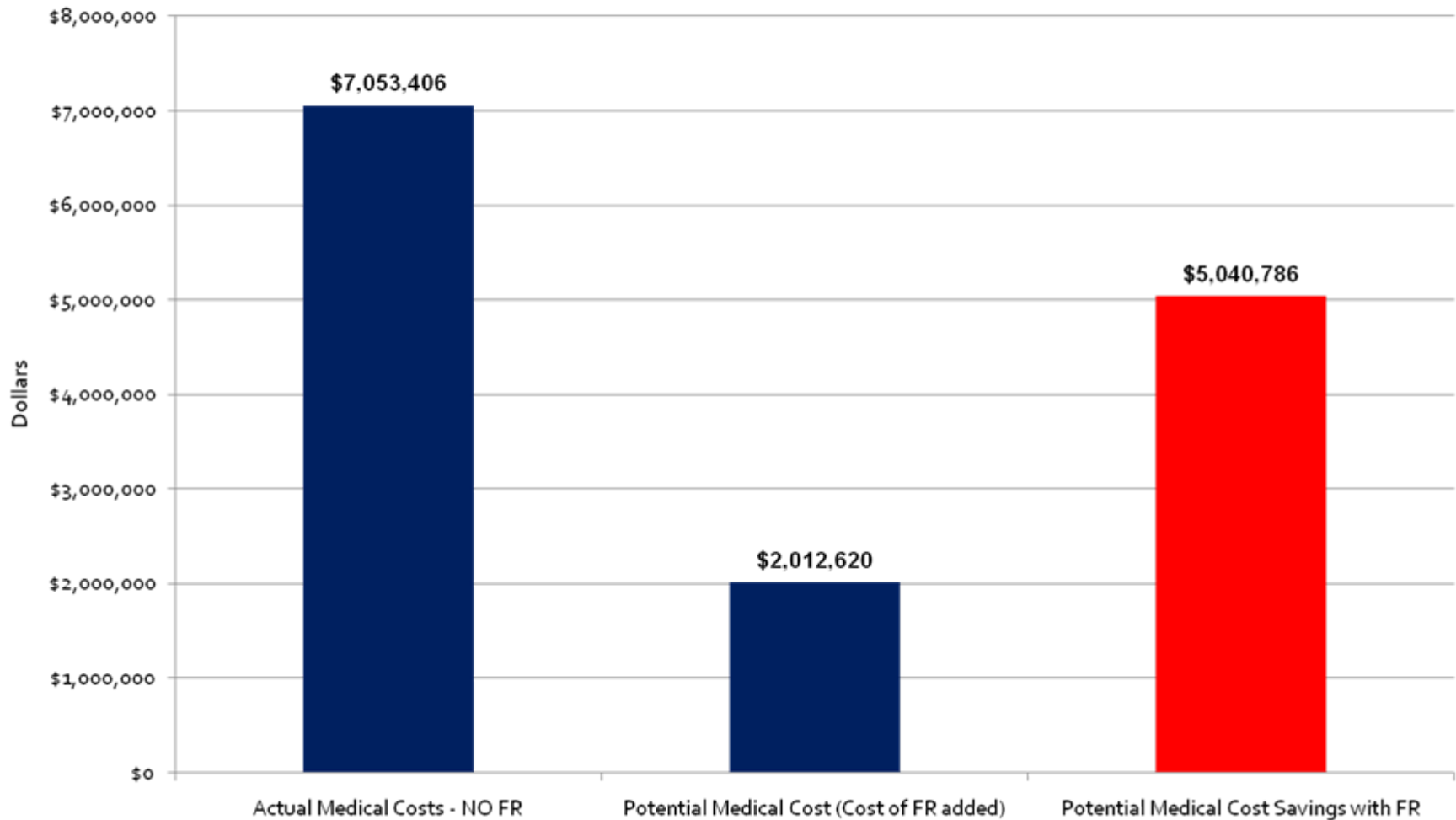
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# Treatment Cost Analysis



# Questions

# For More Information!



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