LTE's Response

FLAME-RESISTANT CLOTHING AND THE OILFIELD

Oilfield Safety – OSHA's Stats

- Fatality Rate is 5 times the national average
- Between 1997 and 2003 16% of the fatalities occurring in the oilfield were related to fire and explosion (OSHA)

OSHA's Response

- Enforcement Policy for Flame-Resistant Clothing in Oil and Gas Drilling, Well Servicing and Production-Related Operations
- Issued March 19, 2010 by Richard Fairfax, Director of Enforcement Programs
- Intended to clarify OSHA's policy for citing the general industry standard for personal protective equipment (29 CFR 1910.132(a)) for failure to provide and use FRC

Hazard Assessment

- Basic requirement of conducting a Job Hazard Analysis (JHA) followed by a Personal Protective Equipment Assessment (PPEA) to determine the potential need for protective equipment against flash fire hazards under 29 CFR 1910.132(a).

OSHA's Unique Position

- OSHA concluded that engineering and administrative controls serve to reduce, but not eliminate flash fire hazards.
- OSHA concluded that employers are required to provide and ensure the proper use of FRC in specific situations.

Drilling Operations

- Prior to and during drilling in active hydrocarbon zones.
- In areas where “kicks” can be expected.
- Until above situations are controlled by the cementing of casing.

Well Servicing Operations

- During any open hole operations.
- Fracturing or perforating a well.
- Flow testing, blowing down or venting a well.
- Any operation where the wellhead or wellbore is under pressure.

Production Related Operations

- Maintenance of production equipment.
- Equipment start-up.
- Line breaking or valve changes.
- Tank gauging.
- Hydrocarbon and produced water transfer operations.
- Hot work operations.

OSHA Citations

- 1910.132
  - (b) maintenance of PPE
    - Will not cite for dirty FRC unless no plan for replacement
    - Will not cite for lack of certification of maintenance (Cal OSHA will)
  - (c) proper design/selection (label)
  - (d) no hazard assessment *
  - (e) defective & damaged PPE

FRC Selection

per NFPA 2113

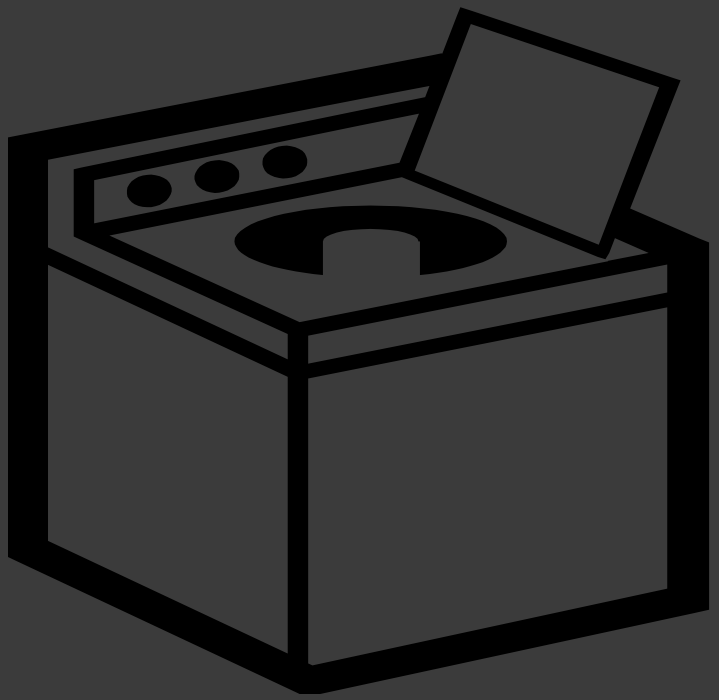
- 3 sec. DuPont manikin burn test (ASTM F1930 or F1506) with < 50% body burn or spaced thermal protective rating (TTP) > 25.3 J/cm^2 (6.0 cal/cm^2) and contact TTP > 12.6 J/cm^2 (3.0 cal/cm^2).
- Cover upper and lower body and flammable under layers.
- Avoid meltable closure systems.
- Offer minimal interference with the work, but not tight-fitting.
- Minimize non-flame resistant heraldry on exterior (logos, name tags, artwork, etc.)

FRC Use
per NFPA 2113

- FRC as outermost garment.
- Collars closed.
- Sleeves and cuffs down and secured.
- FRC or non-melting undergarments next to skin.
- Employee instruction.
- Other PPE as determined by JHA.

FRC Care – Cleaning

per NFPA 2113



- FRC shall be cleaned according to manufacturer's recommendations.
  - Dry-cleaned by a non-chemical means.
  - Washed using warm water and non-astringent liquid soap.
  - Dried using low heat only.
- Washed or dry-cleaned at least once prior to initial use.
- Washed or dry-cleaned with such frequency so as to prevent build-up of contaminants that reduce flame resistance.

FRC Care – Storage

per NFPA 2113

- Stored per manufacturer's recommendations.
- Not stored in sunlight.
- Cleaned and dried before storage.
- Stored in well ventilated area and not with personal items.

FRC Care – Maintenance
per NFPA 2113

- Employees shall inspect FRC after each cleaning and any instances of potential damage.
- FRC shall only be repaired per manufacturer's recommendations; otherwise FRC shall be replaced if not passing inspection.

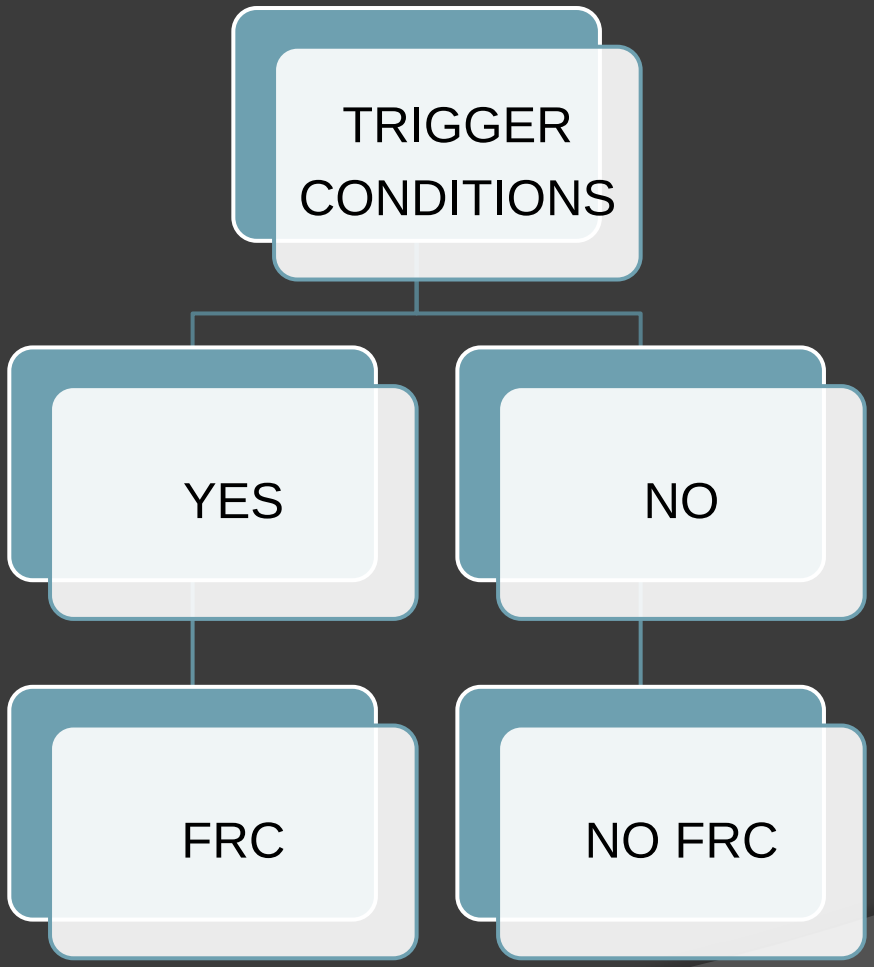
LTE POLICY

- When a potential for a flash fire to occur at a worksite exists, it may be necessary to protect employees by using flame-resistant clothing (FRC) to be in compliance with OSHA general industry standard for personal protective equipment (PPE), 29 CFR 1910.132(a).

LTE POLICY

- It is understood that the use of FRC is not a substitute for engineering and/or administrative methods aimed at reducing exposure potential for people working in potential flash fire areas. A complete health and safety risk assessment should be completed per the requirements outlined in LTE's HASP (Section 100-22) in order to determine what appropriate measures must be taken.
- It is also understood that the use of FRC may be dictated by client policy and procedures even though it is LTE's belief that a flash fire potential does not exist.

FRC Selection



FRC Selection

- Trigger Conditions
  - Intrusive activities – drilling, fracing, flow testing, work-over, open pipe or equipment
  - Open Energized Electrical
  - Environmental Sampling
    - Free product or sheen on groundwater
    - VOC reading > 1,000 ppm
    - LEL reading > 10%
    - Methane > 2 mg/L
  - Client Requirements

LTE SOLUTION

- Arvada
  - Aramark
    - 40 coveralls always available
    - $1.40/pair/week ($56.00/week)
    - 5% laundry charge/week ($2.80/week)
- Outlying offices
  - Purchase 2 pair per employee
  - Launder at approved cleaner or personally

FRC INSPECTION CHECKLIST

- Does FRC have any tears, rips or holes?
- Does FRC exhibit areas more than 2 inches in diameter of permanent staining?
- Are FRC fasteners missing, bent, broken or non-functional?
- ***If the answer to any of the above is yes, FRC must be repaired or replaced before any further use.***

Jeffrey M. Citrone

- Director Health & Safety Compliance, CIH, CSP, REA, PG
- jcitrone@ltenv.com
- 720-384-6040