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To: Electric Utility Safety Professionals  
From: Robert Whittenberger, President, Tyndale Company, Inc.  
Ref: Revised OSHA 1910.269 for FR Clothing  
Date: April 11, 2014

On April 1, 2014, OSHA announced the final rule revising the 1910.269 standards for electric power generation, transmission and distribution. This revised rule implements significant changes to utilities' requirements for protecting workers from electric arcs and using flame resistant clothing, among other areas. The following FAQs are derived from the standard itself, as well as the accompanying preamble and other OSHA guidelines.

**Does the revised 1910.269 require FR clothing to be worn by employees?**

Yes, the employer shall ensure that the outer layer of clothing worn by an employee, except for certain head, hands and feet items, is flame resistant under any of the following conditions:

1. The employee is exposed to contact with energized circuit parts operating at more than 600 volts,
2. An electric arc could ignite flammable material in the work area that, in turn, could ignite the employee's clothing,
3. Molten metal or electric arcs from faulted conductors in the work area could ignite the employee's clothing, or
4. The incident heat energy estimate exceeds 2.0 cal/cm<sup>2</sup> (p. 390).

**Are employees required to wear FR pants as part of the revised standard?**

Yes, the employer shall ensure that each employee exposed to hazards from electric arcs wears protective clothing and other protective equipment with an arc rating greater than or equal to the heat energy estimate whenever that estimate exceeds 2.0 cal/cm<sup>2</sup>. "This protective equipment shall cover the employee's entire body," except for certain exemptions for hands, feet and head protection (p. 390).

**Is FR Clothing required by this standard considered PPE?**

Yes, "OSHA believes that it is reasonable and appropriate to treat FR and arc-rated clothing required under final paragraph (g) as PPE" (p. 182).

**Recognizing that FR will be PPE, is an allowance FR clothing program acceptable under this Final Rule?**

Yes, OSHA makes several statements indicating support of an allowance-based FR program. For instance, OSHA indicates in the *Costs for Providing Arc-Flash Protective Equipment* section that "the record indicates that annual employee stipends to cover all flame-resistant clothing..." (p. 287). By referencing that allowances/stipends are currently used to provide flame resistant clothing to



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employees, and not specifically prohibiting their future use, OSHA is implicitly acknowledging acceptance.

OSHA acknowledges considerable flexibility in the approaches employers can use to satisfy PPE requirements: “While it is true that most employers pay for most PPE most of the time, the practices for providing PPE are quite diverse. Many employers pay for some items and not for others, either as a matter of collective bargaining or long standing tradition. In some cases, costs are shared between employees and employers. In other workplaces, the employer pays for more expensive or technologically advanced PPE while requiring employees to pay for more common items. However, in some workplaces exactly the opposite is true” (p. 183).

### **Is Home Laundering of FR Clothing allowed under the new Final Rule?**

Yes, while the designation of FR Clothing as PPE requires additional employer oversight, it is clear that OSHA allows home laundering of FR Clothing. “OSHA concludes that there is no additional cost associated with laundering the flame-resistant clothing required by the final rule. First, as stated, the final rule does not require employers to launder protective clothing for employees; and, therefore, while employers may choose to launder protective clothing for their employees, the rule does not impose the cost of laundering on employers. Second, according to the record, employers or their employees can generally follow the manufacturers’ care instructions that come with the clothing (Tr. 305 – 306, 1373 – 1374), and there is generally no additional cost to employees over that of laundering normal (that is, non-flame-resistant) clothing” (p. 287).

### **What are the employer’s responsibilities for care and maintenance of FR clothing under the new rule?**

“To comply with §1910.132 or §1926.95, employers cannot simply instruct employees to follow manufacturers’ instructions. If employers rely on home laundering of the clothing, they must train their employees in proper laundering procedures and techniques, and employers must inspect the clothing on a regular basis to ensure that it is not in need of repair or replacement” (p. 187).

It is important to understand that engaging a laundry service does not exempt the employer for the responsibility to ensuring proper care of PPE. “The Agency is declining to adopt... [the] suggestion to require employers to have suppliers certify that each delivery of FR clothing is free of defects and contamination because OSHA believes that it is the employer’s responsibility to ensure proper maintenance of PPE... In any event, the responsibility for maintaining PPE rests squarely with the employer under existing OSHA standards” (p. 187).

Tyndale recommends implementing brief visual inspection of FR clothing as a standard component of job briefings. A simple visual check for excessive soil, wear-and-tear, holes and/or stains can be accomplished quickly, and is an effective method to meet this OSHA requirement. Tyndale offers training and guidance in helping employers inspect garments. Regardless of laundering method the employer is required to perform these inspections and has full responsibility.



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**What are the requirements for head protection?**

The revised rule requires:

- A face shield with a minimum arc rating of 8 cal/cm<sup>2</sup> for single-phase open-air exposures greater than 9 cal/cm<sup>2</sup> and three-phase exposures greater than 5 cal/cm<sup>2</sup>.
- Additionally, for single-phase exposures greater than 13 cal/cm<sup>2</sup> and three-phase exposures greater than 9 cal/cm<sup>2</sup>, an arc rated balaclava is required.
- The arc rating of the balaclava must be a minimum of 4 cal/cm<sup>2</sup> less than the exposure.
- For single-phase exposures of 8 cal/cm<sup>2</sup> or less, and three-phase exposures of 4 cal/cm<sup>2</sup> or less, no arc rated head protection is required (p. 376).

	None	Arc-Rated Faceshield with minimum rating of 8 cal/cm <sup>2</sup>	Arc-Rated Hood or Faceshield with Balaclava
Single-phase, open air	2 – 8 cal/cm <sup>2</sup>	9 – 12 cal/cm <sup>2</sup>	12 cal/cm <sup>2</sup> or higher
Three-phase	2 – 4 cal/cm <sup>2</sup>	5 – 8 cal/cm <sup>2</sup>	9 cal/cm <sup>2</sup> or higher

**What are the requirements for hand protection?**

(l)(8)(v)(A) “Arc-rated protection is not necessary for the employee’s hands when the employee is wearing rubber insulating gloves with protectors or, if the estimated incident energy is no more than 14 cal/cm<sup>2</sup>, heavy-duty leather work gloves with a weight of at least 407 gm/m<sup>2</sup>(12 oz/yd<sup>2</sup>).”

**What are the requirements for feet protection?**

(l)(8)(v)(B) “Arc-rated protection is not necessary for the employee’s feet when the employee is wearing heavy-duty work shoes or boots.” The OSHA 1910.132 PPE standard addresses payment for these boots in 1910.132(h)(2) “The employer is not required to pay for non-specialty safety-toe protective footwear (including steel-toe shoes or steel-toe boots) ..., provided that the employer permits such items to be worn off the job-site.” However, if the employer requires EH-Rated boots or dielectric overshoes, the employer may be required to pay for these items as PPE.

**How much will these changes to 1910.269 cost my employer?**

OSHA addresses the total estimated cost for FR clothing in the Final Rule. “The general PPE-payment rule, including all exceptions, applies to the FR and arc-rated clothing used to comply with this final rule” (p. 183). “OSHA notes that its estimate of eight sets is in the middle of the number of sets recommended by the commenters... the Agency is basing its estimates on a cost of \$1,534.00 per employee for eight sets of flame-resistant clothing (using the estimated cost of \$191.75 per set), or on an annualized cost of approximately \$452.88 per employee. The Agency believes this final estimate is reasonable and captures the average cost of all flame-resistant clothing required by the new provisions of the final standard” (p. 287).



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The most straightforward approach to meeting the PPE requirements for the revised Final Rule is to issue employee allowances of \$455.00 annually, and a new hire one-time allowance of \$1534.00. This approach ensures that the employer is providing sufficient PPE (from OSHA's perspective) at no cost to the employee, while allowing the employee the option to purchase specialized or enhanced flame-resistant apparel with his own funds at his discretion.

**When does the FR Clothing portion of the Final Rule take effect?**

Employers must complete the hazard assessment by January 1, 2015, and employees must wear the appropriate arc-flash PPE beginning April 1, 2015.