
OMS CP 32-00-01 - Fire Resistant Workwear Practice

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| Authority: | OMS Document Review Forum | Custodian: | Safety Advisor |
| Scope: | Canada SPU | Issuing Dept. | HSSE |
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1.0 Scope

- 1.1 This standard applies to all BP Canada SPU and Canadian Natural Gas Liquids BU employees, contractors, and other visiting personnel doing work on BP premises and work sites.

2.0 Purpose

- 2.1 The fire resistant workwear (FRW) program is designed to emphasize and enhance employee safety, through ensuring the use of appropriate personal protective workwear in potentially hazardous areas, by reducing the risk of thermal burns.

3.0 General Provisions

- 3.1 Fire resistant workwear must not be used as a substitute for proper job planning or minimizing potential hazards.
- 3.2 This policy is based on material contained within the Canadian General Standards Board, **CGSB 155.20, "Workwear for Protection Against Hydrocarbon Flash Fire" and **CGSB 155.21, "Recommended practices for the Provision and Use of Workwear for Protection Against Flash Fire", and the Canadian Association of Petroleum Producers (CAPP), Consumer Guideline for the Selection of Fire Resistant Workwear for Protection Against Hydrocarbon Flash fires.
- 3.3 The outermost garments must be fire resistant and shall have reflective striping as per the specifications outlined in Appendix IV of this policy. BP Canada requires that all employees, contractors wear fire resistant/retardant outerwear with reflective striping while working on BP worksites. Visibility is a safety requirement. See Alberta OH&S GSR Section 18, or B.C. WCB OH&S regulations section 8.24, 8.31., and Saskatchewan and Ontario Applicable Regulations. FRW coveralls are prone to damage from sparks, welders and welder's helpers may wear FRW CarHarts or Leathers but the recommended garment for welders is FRW Excel Brown Duck.

4.0 Limitations of Fire Resistant Work Wear:

- 4.1 The protective garments addressed in **CGSB 155.20, and outlined in Appendix II of this policy, provide a measure of protection against unplanned exposure to hydrocarbon flash fire (approximately 84 kw/m²) for relatively short periods of time, typically three seconds or less. Protective garments may serve to reduce the severity of burn injury as a result of a flash fire and may not completely prevent an injury. Garments that continue to burn after a flash fire incident are hazardous.

5.0 Use of Protective Workwear

- 5.1 The protective work wear should provide a good functional fit for maximum protection and comfort on the job. Users should be aware that the fit of the garment could have a direct influence on how much protection can be provided by a particular garment. For example, a garment that is too loose or too tight will not offer maximum FR protection.

- 5.2 The protective work wear must be worn properly. The zipper must be worn closed and sleeves and cuffs worn down and secured. For maximum protection collar should be worn closed.
- 5.3 Single layer protective garments are more effective when worn over an additional layer of clothing (See Appendix I)
- 5.4 Protective neck, head, hand and foot coverings should be worn if the occupational hazard warrants their use.
- 5.5 Certain synthetics or synthetic blends worn as undergarments may not be appropriate for use under fire resistant workwear, as the transferred heat from a flash fire may cause them to melt. Undergarments with melt resistant properties are required (e.g. cotton, aramid, wool). See Appendix I.

- 5.6 Rainwear, high visibility vests and garments shall be in accordance with applicable sections of **CGSB 155.20.

a) Applications where disposable garments could be used are to protect regular FRW from extremely dirty jobs (e.g., tank cleaning, equipment tear down), or other fabric degrading jobs (e.g., painting).

WARNING: - Disposable garments shall only be worn over fire resistant garments and must meet the flame resistant test and be approved as outlined in**CGSB 155.20. They are not intended to be the primary garment for workers.

NOTE: The outer most primary garment in any protective ensemble shall not be made of any fabric that burns, melts, or drips. The use of a garment that burns, melts, or drips that is worn over a Fire Resistant garment may contribute to the severity of a burn injury.

6.0 Where Fire Resistant Workwear Is Required

- 6.1 Fire resistant work wear shall be worn whenever an employee enters a BP worksite where there is foreseeable exposure for a hydrocarbon flash fire or an explosion from combustible gas or natural gas liquids is present.
- 6.2 These foreseeable hazardous areas include but are not limited to:
 - Service rig operations
 - Gas plants
 - Pipelines, pump stations
 - Oil batteries
 - Natural gas liquids facilities
 - Aircraft refueling operations
 - Laboratories
 - Wellheads
 - Construction sites
 - Drilling rig operations
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- 6.3 If, following a documented (e.g. MOC) site-specific hazard evaluation, by the BP representative or designate in charge, it is determined that there is no foreseeable exposure to an accidental release of explosive, or flammable mixtures, (e.g. an office setting or while driving company vehicles), these areas or tasks of

exception where fire resistant workwear is not required, will be exempt.

7.0 Fire Resistant Work Wear Material Selection and Ordering

- 7.1 BP Canada identifies the preferred material and garment selection for its workers, through contractual agreements with a garment manufacturer. (See Appendix II).
- 7.2 All fire resistant workwear selected for use must meet or exceed the requirements established in the Canadian General Standards Board, **CGSB 155.20, "Workwear for Protection Against Hydrocarbon Flash Fire".
- 7.3 Use form OMS CF 32-00-01 (available through OMS Navigator: <http://omsnavigator.bpweb.bp.com>) to order workwear. Obtain appropriate approval prior to faxing to supplier.

8.0 Fire Resistant Work Wear Provisions

- 8.1 Management, either local or within a Performance Unit, must develop a site specific policy that addresses the following points:
 - Employee eligibility for FRW
 - Type of garments (See Appendix II)
 - Quantity of garments
 - Frequency of replacement and process for handling
 - Approval process for purchasing FRW garment(s)
 - How garments will be repaired in their area
 - Handling of garment maintenance, and
 - Other sections of this policy as applicable

9.0 Employee Responsibilities

- 9.1 Ensures that all work is conducted in accordance with approved procedures, equipment and training.
- 9.2 Maintains assigned fire resistant workwear in a proper manner, e.g. sleeves rolled down, to ensure maximum protection.

10.0 Employee Training

- 10.1 As an important part of using personal protective equipment employees must be familiar with:
 - When and why FRW is required to be worn
 - The capabilities and limitations of FRW use
 - Proper garment care
 - The proper wearing of the garments
 - The potential hazards associated with the use of non-fire resistant workwear in a flash fire situation
- 10.2 As with all employees training, this should be documented on individual training records or safety meeting attendance minutes.

11.0 Contractor and Visitor Requirements

- 11.1 Contractors are required to wear fire resistant workwear at all times and under the same conditions as that
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of BP staff.

- 11.2 Fire resistant work wear worn by contractors must meet or exceed the requirements of **CGSB 155.20, or as outlined in local area site-specific requirements for contractors.
- 11.3 Unless prior contractual arrangements are made with BP, contractors are required to have a fire resistant workwear policy that complies with the applicable safety regulations as detailed in Operating Policy.
- 11.4 Unless defined in the site-specific fire resistant workwear policy, a visitor is defined as a person who normally is not employed at the specific work location.
- 11.5 Visitors unless otherwise instructed by a local area site specific fire resistant work wear guideline, must wear fire resistant work wear at all times.

12.0 Maintenance of Protective Work Wear

- 12.1 To ensure proper repair and maximum garment longevity, repairs and approved alterations to fire resistant workwear will be handled on a local basis, as required, at company expense.
- 12.2 Repairs should only be made with components, which comply with the original garment's specifications and construction.
- 12.3 Adequate decontamination of protective workwear, according to the manufacturer's recommendations, by laundering or dry-cleaning is imperative in order to maintain flame resistance and thermal protection. Where oily soil is present, periodic dry cleaning of garments may be necessary in order to remove flammable contaminants or contaminants which may impair the flame resistance. The site-specific FRW policy should also address this item.
- 12.4 When laundering protective garments, launder sufficiently to prevent build up of hard to remove stains, which could reduce flame resistance. Pre-treat oily stains by either rubbing liquid detergent or powdered detergent mixed with water into the stain or use a pre-wash product recommended for oil stains. Use a heavy-duty liquid or powdered laundry detergent and the hottest water recommended on the garment label. It is harder to remove oily soil with cool wash water
- 12.5 Follow all laundry precautions on the garment. There are products which will lessen the effectiveness of the flame resistance, in particular:
 - a) Whether the use of chlorine bleach is advised or should be avoided
 - b) Whether a heavy-duty soap can be used or laundering must be limited to a heavy-duty synthetic detergent
- 12.6 Unless otherwise decided by local management, the responsibility for keeping issued FRW reasonably clean and free of flammable or combustible materials that could degrade the fire resistant characteristics of the clothing will remain with the employee. All cleaning must be done in accordance with manufacturer's specifications.
- 12.7 See Static Electricity section for additional maintenance recommendations.

13.0 Static Electricity

- 13.1 The major static hazard is the body which can store a large static charge. It is imperative that in situations where static electricity poses a significant hazard that the body be grounded regardless of the type of

clothing worn. Clothing can generate static electricity of sufficient energy to ignite combustible atmospheres. It is important to minimize the build up of static electricity on work wear in order to prevent the clothing from becoming a source of ignition for a flash fire.

- 13.2 Workers should be grounded before entering a high-risk area to minimize the possibility of static build-up and discharge.
- 13.3 Workers should also avoid removing any garments while in the high-risk area. Friction of one fabric against another may contribute to the generation of electrical charge.
- 13.4 One approach to reduce the static build up on garments is to use an antistatic treatment during laundering. This treatment works by trapping water on the fabric to distribute the static charge through conductivity. The antistatic treatment must be added during each laundering according to the manufacturer’s directions.
- 13.5 Over drying in the dryer should be avoided to minimize static build up.

Appendix I

Clothing Worn Underneath Fire Resistant Workwear

Other material worn in conjunction with fire resistant workwear (e.g. clothing worn underneath) should not contribute to the injury of a worker in a hydrocarbon flash fire situation. While the outermost layer of workwear worn shall be of fire resistant material clothing worn underneath should be of a nonfusible type. That is, clothing that does not melt.

Examples of acceptable nonfusible materials that can be worn underneath fire resistant outerwear include:

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|--------|---------|---------|
| Cotton | Linen | Wool |
| Kermel | Viscose | Leather |
| Nomex | Proban | |

Appendix II

Fire Resistant Workwear Supplier

Bulwark Protective Apparel Inc., located in Edmonton, Alberta supplies all Fire Resistant Workwear to BP Canada Gas PU and NGL BU employees. Use form OMS CF 32-00-01 to order workwear.

The material garment selection (see below) and contractual arrangements have been approved by BP's Fire Resistant Workwear Committee (see Appendix III).

Approved Material and Garments

Listed below are the Blue colored garments that can be purchased as standard issue garments. Any other garments purchased must have management approval.

| Product | Style | Fabric |
|---|---------|--|
| One Gas Monitor Pocket | | Mesh or Solid |
| Unlined Coverall | CLB6RB | Excel FR Royal |
| Unlined Coverall | CNB6RB | Nomex IIIA Royal |
| Insulated Coverall | CLC8RB | Excel FR Royal |
| Insulated Bib Coverall | BLC8RB | Excel FR Royal |
| Button Front Shirt | SLU2LB | Excel FR Light Blue |
| Button Front Shirt | SLU2NV | Excel FR Navy |
| Button Front Shirt | SND6RB | Nomex IIIA Royal |
| Button Front Shirt | SND6NV | Nomex IIIA Navy |
| Pant Jean Style | PLJ8NV | Excel FR Navy |
| Pant Jean Style | PNJ8NV | Nomex IIIA Navy |
| Pant Jean Style | PNJ8RB | Nomex IIIA Royal |
| Insulated Parka | JLP8RB | Excel FR Royal |
| Insulated Bomber Jacket | JLR8RB | Excel FR Royal |
| Insulated Bomber Jacket | JNR8RB | Nomex IIIA Royal |
| Lined Bomber Jacket | JLJ8RB | Excel FR Royal |
| Lined Bomber Jacket | JNJ8RB | Nomex IIIA Royal |
| Men's Navy Fleece Hooded Jacket | SEH6NV | Excel FR Navy |
| Insulated Vest | LNS2NV | Nomex IIA Navy |
| Shopcoat | KEL2LB | Excel FR Light Blue |
| Hard Hat Hood | HLH2RB | Excel FR Royal |
| Hard Hat Liner | HNL2NV | Nomex IIIA Navy |
| Hard Hat Face Mask | HNM2NV | Nomex IIIA Navy |
| Balaclava | HNB2NA | Nomex IIIA Natural |
| Brown Duck Unlined Bib Overall | BLF8BD | Excel FR Brown Duck |
| Brown Duck Lined Bib Overall | BLN4BD | Excel FR Brown Duck |
| Brown Duck Lineman's Coat | JLC2BD | Excel FR Brown Duck |
| Traffic (orange) or Visitor (blue) vest | KNV20RB | Nomex IIIA Royal |
| Hi-Visibility Flame Resistant Rain Jacket | JXN2YE | Non-breathable FR 9.5 oz. PVC/NOMEX/Kevlar |

| | | |
|--|--------|--|
| Hi-Visibility Flame Resistant Rain Bib Overall | BXN2YE | Non-breathable FR 9.5 oz. PVC/NOMEX/Kevlar |
| Mock styled neck long sleeved FRW shirt | SEL2NV | Excel FR Navy |
| Regular Style Neck Long Sleeved FRW Shirt. | SEK2NV | Excel FR Navy |

Appendix III

BP Canada’s Fire Resistant Workwear Committee:

Chairman

- Bill Adam

Office
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403-233-1426
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Appendix IV

Refer to the table below for the minimum configuration for reflective striping on outermost garments for use by workers working for BP or on behalf of BP.

| Type of Worker: | Minimum Striping Requirements based on legislation below: |
|------------------------------|--|
| Alberta BP Employee | Workers Compensation Board of British Columbia |
| Alberta Full Time Equivalent | Workers Compensation Board of British Columbia |
| Contractor working in BC | Workers Compensation Board of British Columbia |
| Contractor working in AB | Occupational Health and Safety |

BC WCB Standard Protective Equipment Standard 2-1997 – High Visibility Garment -
<http://www2.worksafebc.com/Publications/OHSRegulation/WCBStandards.asp?ReportID=30947>

AB OH&S Personal Protective Equipment – Flame Resistant Clothing Part 18-
http://employment.alberta.ca/documents/WHS/WHS-LEG_ohsc_2006.pdf

Welders

Due to the fact that welders wear leathers on the upper portion of the chest, their garments will need to have an additional band of striping around the waist of their garments. This will ensure that the minimum required amount of striping shows when they are wearing leathers.

Revision Log

| Revision Date | Authority | Reviser | Revision Details |
|----------------------|--------------------|-------------------------|--|
| April 4/2001 | Tim Holt | GHSSER Committee Review | Issuing of Standard |
| October 31, 2002 | Regional President | GHSSER Committee Review | Editing text, change FRW fabric, expand garment options, clarification of 2.2.3, update garment list. |
| January 17, 2003 | Regional President | GHSSER Committee Review | Add order form, format |
| May 26, 2004 | HSSE Manager | Dennis Steciw | Change Fabric Selection |
| July 5, 2006 | EMS Coordinator | George Gao | Changed BU to PU, HSE to HSSE |
| Aug. 31, 2006 | HSSE Manager | Dennis Steciw | Change Fabric Selection |
| April 4, 2007 | EMS Coordinator | gHSSEr Review Forum | Changed Standard to a Practice, the spelling of "gHSSEr". Also edited section 2.2.3 Welders and welder's helpers are required to wear FRW, leaving CarHarts as an option if they are FRW. Changed the requirements for BP and FTE's to use BC striping requirements. Added an option of two more shirts. |
| November 28, 2007 | EMS Coordinator | Joanne Dezall | Revised Approved Material & Garments Table to include the rainwear. Table on Practice matches clothing listed on the FRW Order Form. |
| May 15, 2008 | EMS Coordinator | Joanne Dezall | Removed reference of employee that is no longer a member of the committee |
| January 19, 2009 | OMS Forum Review | Gretel Nitschke | Edited document from gHSSEr to OMS. Re-numbered, formatted, changed gHSSEr references within document to OMS. Removed hyperlinks, replaced with reference to OMS Navigator |