Risk Assessment (revised)

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CONTENTS

INTRODUCTION

Standards of performance of PPE

Fire-fighters attend locations every day which can present a whole range of hazards dependent on the type of incident and the environment in which the incident occurs. One level of protective clothing conforming to a specific set of European/British standards may not be suitable or adequate for the range of incidents encountered.

Further, it is not always possible to relate the performance levels achieved in laboratory testing to protection levels under actual use conditions because the thermal hazards and wet/dry conditions may be very different.

The European Standard defines minimum performance requirements and test methods for individual items. However, when considering the selection and use of PPE for operational activities, acceptance of a 'minimum' standard should be avoided at all costs. Performance of the complete ensemble should be the major factor.

As such the Collaborative PPE framework offers not only 'standard' structural firefighting PPE but offers alternative solutions: -

- Layered jacket
- Rescue jacket

Some of the standards specify the principal characteristics required for an item of equipment with regard to the level of protection, comfort and durability. These characteristics are identified as requirements for fighting fires in structures and therefore they are not intended to meet the needs of special applications.

The regulations state that sufficient information, instruction and training are provided for users and this should include any limitations in the use of the PPE.

Following recent technological advances and the improvements made in the field of textiles and design, there may now be a point at which the additional benefits and protection provided by these new garments themselves pose a threat to the wearer.

PPE that allows wearers to advance deeper into a risk area, but gives no warning that the garment itself is reaching failure point, will put fire-fighters lives at risk. Thus it may be necessary to develop other methods of sampling the working environment at incidents so that risks those fire fighters are exposed to can be continuously assessed.

General

An important aspect which requires deliberation during the selection process is the nature of the job and the demands that it places on the fire-fighter. This means giving consideration to factors such as the physical effort required to complete the work; length of time that the PPE may need to be worn: and the need for adequate visibility and communication.

PPE is widely regarded as the last line of defence against a range of workplace hazards. However, PPE such as fire-fighting clothing can only provide effective protection if it is selected and used properly.

There are a number of problems in relation to the provision and use of PPE. In particular, there is concern that employees may not use PPE effectively because: -

- they have not been properly trained in how to use it safely
- the equipment is not suitable i.e. 'fit for purpose' (correct size) or
- the equipment has not been maintained in accordance with the manufacturer's instructions
- the equipment is not being stored correctly

It is important that employers ensure all wearers are given the required information, instruction and training in the use, care and maintenance of their PPE.

The instruction and training is to include: -

- An explanation of the risks present at operational incidents and why PPE is needed
- Instruction on the selection, use and storage of PPE
- How to recognise defects in PPE and arrangements for reporting them
- The operation, performance and limitations of the equipment
- Other factors that might affect the protection provided by the PPE
- How to correctly fit, wear and remove the equipment
- How to inspect and if necessary, test the equipment
- How to carry out basic maintenance, such as cleaning
- The importance of storing the equipment correctly

Future considerations as an outcome of this risk assessment

During this risk assessment process it has been the consensus of this Technical Committee that there needs to be a fundamental re-think into Personal Protective Equipment (PPE) for fire-fighters.

With a broad range of operational activities, including technical rescues, medical emergencies and wildland fire fighting in hot weather; as well as traditional fire-fighting the committee recognised that it was both financially and practically (e.g. stowage) prohibitive to have PPE for each activity.

Therefore, it was common sense to try to combine as many of the required characteristics of the PPE as possible. In the main this has not been achievable due to differences in performance levels between British Standards such as BS 469 'Protective Clothing for firefighting' and BS EN 15614:2007 ' Fire-fighters Requirements for Wildland Clothing'.

The committee felt that there was a requirement for further research to be undertaken to see if new designs could be developed that would allow a combination of different protection levels dependent upon the activities being undertaken. This solution may require a complete re-think of station/work wear which may need to work in combination with any newly developed system of protection.

The committee agreed that this matter was best taken forward through the National Fire Chiefs Council Association (NFCC) representative on the British Standards committees.

RISK ASSESSMENT

Scope

This assessment deals primarily with the provision of PPE at a full range of operational activities.

The Personal Protective Equipment at Work Regulations 1992 details the legislative requirements for both employers and employees.

Activities, which involve specific or significant hazards, are covered in National Operational Guidance https://www.ukfrs.com/

Risk Management

The level of risks which fire-fighters are exposed to depends upon a number of related factors which include control measures to mitigate those risks such as: -

- Operational guidance used
- Level of supervision and quality of communication
- The impact of training on the skills and knowledge of fire-fighters
- The suitability of appliances and equipment (including PPE)

The aim, at this stage, is to reduce the risks to fire-fighters as far as is reasonably practicable. When considering the control measures in this assessment it must be noted that they refer to the minimum requirements for PPE in general, they do not affect or restrict any more specific equipment assessments carried out, or any future developments in equipment standards.

When considering control measures a range of options are available and these should be considered in the following order: -

- Elimination of the risk
- Isolation of the risk
- Substitution of the risk with a lesser risk
- Control of the risk by engineering or other means
- Control of the risk by applying safe systems of work

Generic Hazards

Identified operational hazards have been compiled in the following list. These are referred to as 'generic' because this is the smallest number of operational hazards that can usefully be considered. It is believed that all hazards to which fire-fighters may be exposed to can be categorised within one or more of the generic hazards.

- Temperature
- Irrespirable atmosphere
- Weather conditions
- Working environment
- Collisions
- Hazardous materials
- Machinery
- Smoke and fire gases
- Electricity
- Animals
- People
- Manual handling
- Equipment
- Noise
- Vibration
- Physical
- Contamination

Specific Hazards

For the purposes of determining the levels of risk associated with hazards, it is sensible to further clarify them into specific hazards. It should be recognised that any list of such specific hazards cannot be, and is not intended to be, exhaustive.

Rather it can be used as a starting point for risk assessment. Similarly, it needs to be recognised that specific hazards can, in turn, be further sub-divided although common sense needs to be applied in determining the degree of useful sub-division.

The generic hazards are further sub-divided into specific risks in the following tables: -

Generic Hazard: Temperature	
Specific Hazard	**Sub Division**
Extreme Heat	• Conducted heat • Convective heat • Radiated heat • Steam contact (combination of above) • Reactive chemicals (exothermic)
Extreme Cold	• Cryogenic materials • Decompressing gases • Evaporating liquids • Ice • Cold water • Wind chill • Very cold metal objects
Generic Hazard: Irrespirable Atmosphere	
Oxygen deficient	• Oxygen deficient
Normal oxygen content	• Toxic • Dust/particulate • Flammable • Stench • Bio-Hazard • Submersion • Aerosols • Heat and steam • Cryogenics • Radiation
Oxygen Enriched	• Oxygen Enrichment
Generic Hazard: Weather Conditions	
Weather	• Hot/Humid • Cold/Dry • High winds • Wind chill • Rain, sleet, hail, snow and ice • Fog • Day/night (visibility)
Generic Hazard: Working Environment	
Terrain	• Bodies of water • Soft ground • Undergrowth • Poor underfoot conditions • Inadequate hard standing for appliance or equipment • Hills
Height	• Ladder work • Aerial appliances • Working at height • Loopholes • Holes in floors
Unstable structures	• Falling structural materials • Collapse due to structural overload • Imposed loading (firefighting water) •

Confined spaces	• Sewers • Tunnels • Convoluted construction • Collapse
Generic Hazard: Collisions	
Personnel striking objects	• Motor vehicles or rail accidents • Falls from height
Objects striking personnel	• Moving vehicles • Items falling from height • Unrestrained vehicular loads (stowage)
Generic Hazard: Hazardous Materials	
Flammable liquids	• Contained (storage, piped, transportation) • Leaking
Poisonous substances	• Solids • Liquids (see also toxic gases)
Flammable solids	• Finely divided (storage, piped, transportation) • Course grained bulk storage
Corrosive substances	• Solids (storage, piped, transportation) • Liquids (storage, piped, transportation) • Gases (storage, piped, transportation)
Flammable gases	• Pressurised containers • Dissolved • Piped • Vaporised from liquid • Sublimated from solids • Product of reactants
Organic peroxides	• Various physical forms
Toxic gases	• Pressurised containers • Dissolved • Piped • Vaporised from liquid • Sublimated from solids • Product of reactants
Oxidising substances	• Various physical forms
Spontaneously combustible materials	• Various
Biological hazards	• Airborne pathogens • Waterborne pathogens • Inoculums • Carried by vector (animal/human)
Ionising and non-ionising radiation hazards	• Alpha and Beta particles (Radiation) • High intensity UV/IR • X-ray/gamma ray/Neutron • High flux microwaves • lasers
High Intensity Magnetic Field	• Magnetron apparatus (medical equipment)
Explosives	• High explosives • Deflagrating explosives
Strobe light source	• Seizure

Generic Hazard: Machinery	
Moving parts	• Disc cutting wheel • Cutting jaws • Rotating shafts/wheels/pulleys • Pistons • Cutting blades • Presses • Escalators/travellators • Conveyor belts • Vibrating equipment
Generic Hazard: Smoke and Fire Gases	
Smoke and Fire Gases	• Visibility reduced that prevents other hazards being recognised • Toxicity
Physical barrier	• Object screening another hazard
Generic Hazard: Electricity	
Electricity	• Lightning strike • Static discharge • DC currents • AC currents • Uninterrupted power supplies
Generic Hazard: Animals	
Animals	• Physical injury (bites, stings, scratches) • Infective agents (pathogens) • Psychological impact • Incapacity from illness • Illness due to heat stress • Physiological loading • Human factors and decision making
Generic Hazard: People	
People	• Physical injury • Infective agents (pathogens) • Psychological impact • Incapacity from illness • Illness due to heat stress • Physiological loading • Human factors and decision making
Generic Hazard: Manual Handling	
Ergonomic effects of weight of object on body	• Bulk of object • Weight of object • Location/position of object
Generic Hazard: Equipment	
Operational equipment	• Incorrect selection • Incorrect use • Failure • Stability
Generic Hazard: Noise	
Noise – short term effects	• Exposure to noise over a short period of time resulting in short term hearing effects. The noise regulations provide detailed guidance
Noise – long term effects	• Exposure to noise over a longer period of time resulting in permanent hearing loss The noise regulations provide detailed guidance.

Noise – peak exposure	• Exposure to a peak level of noise e.g. explosion. This can cause permanent hearing loss. The noise regulations provide detailed guidance
Generic Hazard: Vibration	
Hand arm vibration	• Regular exposure to hand-arm vibration can cause a range of conditions known as Hand Arm Vibration Syndrome (HAVS) which include the condition known as vibration white finger and carpal tunnel syndrome. The vibration regulations provide detailed guidance.
Whole body	• Stand on appliances such as large pumps/engines
Generic Hazard: Physical Hazards	
Trip hazards	• Rubble • Hose • Uneven ground • Stairs
Cut hazards	• Blades • Sharp edges • Broken glass
Penetration hazards	• Sharps (hypodermic needles) • Nails • Building materials • Blades • Sharp edges
Catch hazards	• Any protruding object with a hard physical presence
Slip hazards	• Wet • Icy • Low friction (slippery surfaces)
Generic Hazard: Contamination	
Absorption	• Exposure of skin
Inhalation	• Smoke and fire gases
Ingestion	• Eating and smoking
Trauma	• Open wounds

System used to determine PPE requirement

In determining what is required from PPE it is necessary to use a means that is systematic and ensures, as far as possible, that all the variables have been accounted for. A simple determining of requirements on a subjective basis is not enough.

The system used takes into account the PPE requirements generated by the activities undertaken.

Step One
This involves the identification of an area of the body that requires protection.

Step Two
Consider the hazards that may affect the body area selected in 'Step One' and an activity selected in 'Step Two'.

For this the generic and specific hazard list *(above)* used, this allowed a systematic consideration of potential hazards.

Step Three
Consider the activity, which is to be carried out.

Step Four
Consider the particular qualities required in a particular piece of PPE.

This will identify the standards required and also any issues surrounding the 'suitable and sufficient' requirements of the regulations i.e. thermal protection, compatibility etc…

Step Five
Where possible group activities with similar PPE requirements, if more than one group of activities is identified it may be appropriate to consider a level of PPE for each group.

Step Six
Using a relatively objective system from the development of specifications should allow freedom to consider innovative solutions.

Risk Assessment process

The table below identifies the areas of the body that require protection (Step 1), it uses the Hazard groups identified on page 10 (and the subsequent tables) as the considered hazards (Step 2) and the information on the table is the considered result judged by the Collaborative PPE technical Committee. This table is then expanded upon in the following detailed risk assessment that covers Steps 3, 4 and 5 of the risk assessment process.

Step 2	Step 1						
Generic Hazards	**Area of Body**					**PPE Ensemble (Whole Body)**	**Comments**
	Head	**Torso/ Arm**	**Legs**	**Foot**	**Hand**		
Temperature	✓	✓	✓	✓	✓	✓	
Irrespirable atmosphere	×	×	×	×	×	×	Covered by other protective devices
Weather conditions	✓	✓	✓	✓	✓	✓	
Working environment	✓	✓	✓	✓	✓	✓	
Collisions	✓	✓	✓	✓	✓	✓	
Hazardous materials	✓	✓	✓	✓	✓	✓	In addition with respiratory protection
Machinery	✓	✓	✓	✓	✓	✓	
Smoke and fire gases	✓	✓	✓	✓	✓	✓	
Electricity	✓	✓	✓	✓	✓	✓	
Animals	✓	✓	✓	✓	✓	✓	
People	✓	✓	✓	✓	✓	✓	
Manual handling	✓	✓	✓	✓	✓	✓	
Equipment	✓	✓	✓	✓	✓	✓	
Noise	✓	×	×	×	×	×	
Vibration	×	✓	✓	✓	✓	✓	
Physical	✓	✓	✓	✓	✓	✓	
Contamination *	✓	✓	✓	✓	✓	✓	

* The risk of exposure to contaminants is an emerging issue and further evidence is being investigated both Nationally by NFCC and Internationally. Many of the controls are through improved SOPs and working practices along with better use of RPE.

Should any relevant standards change to include new performance requirements this risk assessment and subsequent specification may need to be revised.

RISK ASSESSMENT (RA1)

Ref No:

Initial Risk Assessment	✓	Review		Please place a ✓ in the relevant box			
Venue/Premises		Off Site Venue/Premises		Activity		COSHH	
Fire		Equipment		Manual Handling		DSE	
Vibration		Noise		PPE	✓	Other	

1. To ensure that, as per regulation 6 of the PPE Regulations 1992, an assessment is made to determine whether the personal protective equipment provided will be suitable for a broad range of day to day activities undertaken by firefighters. This includes structural firefighting, outdoor fires and emergency special services. It **does not** include specialist activity such as Urban Search and Rescue, Animal Rescue, Water Rescue (working near water is considered) and Hazardous Material protection such as Gas Tight Suits.

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
To provide suitable **head** protection for fire-fighters whilst undertaking duties at a broad range of operational activities (as detailed by identified generic hazards).	Risk of receiving burns or scalds from heat.	All firefighters that undertake operational duties and training for such.	Information, Instruction and Training, National Operational Guidance, Safe Operating Procedures, Incident Command System.	**4**	**4**	**16**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911 Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic. In combination fire hood	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							should be used with a fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision.				
	Risk of receiving injury from cold.			**4**	**3**	**12**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic. In combination fire hood should be used with a fire helmet conforming to BS EN 443 (type B) complete with	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision.				
	Risk of receiving injury due to Weather Conditions			**3**	**2**	**6**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic. In combination fire hood should be used with a fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision.				
	Risk of receiving injury due to working environment. Including working at height.			**5**	**3**	**15**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility, side impact protection and vision.	**2**	**2**	**4**	
	Risk of receiving injury due to collision or being struck by blunt, sharp or pointed objects.			**5**	**4**	**20**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility, side impact protection and vision.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
	Risk of receiving injury through exposure to Hazardous materials. Up to Initial Operational Response (IOR) expectation.			**4**	**4**	**16**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic. Easy to decontaminate. A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - chemical resistance and easy to decontaminate.	**3**	**3**	**9**	**Yes**

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
	Risk of receiving injury from machinery.			**4**	**4**	**16**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic. In combination fire hood should be used with a fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision. Face/ eye protection, impact resistance. To allow hair to be worn up and prevent entanglement.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
	Risk of injury from smoke and fire gases			**4**	**3**	**12**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic and ease of decontamination In combination fire hood should be used with a fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision. Face/ eye protection, impact resistance and ease of	**3**	**3**	**6**	RA2 - RPE

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							decontamination. To allow hair to be worn up and prevent entanglement.				
	Risk from receiving injury from short term contact with electrical conductors.			**5**	**5**	**25**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Electrical resistance	**2**	**2**	**4**	
	Risk of receiving injury from animals.			**4**	**3**	**12**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - impact protection, face/eye protection, good vision.	**3**	**2**	**6**	
	Risk of receiving injury from people.			**3**	**3**	**9**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							Specific fire helmet characteristics: - impact protection, face/eye protection, good vision and retention system release.				
	Risk of receiving injury whilst manual handling.			**3**	**2**	**6**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - impact protection, face/eye protection, good vision.	**2**	**2**	**4**	
	Risk of receiving injury from equipment.			**4**	**4**	**16**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - impact protection, face/eye protection, good vision.	**2**	**2**	**4**	
	Risk of receiving injury from noise.			**2**	**2**	**4**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							Specific fire helmet characteristics: - Must be compatibility with hearing protection.				
	Risk of receiving injury from physical hazards.			**4**	**4**	**16**	A fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - impact protection, face/eye protection, good vision.	**2**	**2**	**4**	
	Risk of receiving injury from contamination.			**4**	**4**	**16**	Head should be protected from the effects of the hazards by a provision of a fire hood conforming to BS EN 13911. Specific fire hood characteristics: - thermal protection, wicking properties and breathable. The yolk of the fire hood must allow full head movement without compromising the interfaces with the helmet, RPE facemask and tunic and ease of decontamination.	**3**	**2**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
				L	S	R		L	S	R	
							In combination fire hood should be used with a fire helmet conforming to BS EN 443 (type B) complete with full face visor conforming to BS EN 14458 to include both internal eye guard and face guard. Specific fire helmet characteristics: - Close fitting for use in confined spaces, easy to adjust, comfortable, good audibility and vision. Face/ eye protection, impact resistance and ease of decontamination. To allow hair to be worn up and prevent entanglement. RPE will need to be considered in mitigation of this risk.				

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
To provide suitable protection for the **torso, arms and legs** of fire-fighters undertaking duties at a broad range of operational activities (as detailed by identified generic hazards).	Risk of receiving burns or scalds from heat.	All firefighters that undertake operational duties and training for such.	Information, Instruction and Training, National Operational Guidance, Safe Operating Procedures, Incident Command System.	**4**	**4**	**16**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469, Level 2 Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble. UK FRSs believe that the heat and flame minimum protection levels within EN 469 do not adequately protect their firefighters and as such require performance levels above those at level 2. Equally, conscious of the increase in heat and flame protection; UK FRSs require better 'breathability' (water vapour resistance) of their firefighting garments to mitigate the physiological effects of wearing this type of PPE.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury from cold.			**4**	**3**	**12**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic and compatible with all other elements of a firefighters ensemble.	**1**	**2**	**2**	
	Risk of receiving injury due to weather conditions.			**3**	**2**	**6**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, and water resistant compatible with all other elements of a firefighters ensemble. Tear, abrasion and puncture resistance.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury due to working environment.			**3**	**3**	**9**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble. Tear, abrasion and puncture resistance.	**2**	**2**	**4**	
	Risk of receiving injury due to collision or being struck by blunt, sharp or pointed objects.			**4**	**3**	**12**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble. Tear, abrasion and puncture resistance.	**3**	**2**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury through exposure to Hazardous materials. Up to Initial Operational Response (IOR) expectation.			**4**	**4**	**16**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Resistance to liquid chemical, moisture barrier. **NB. Additional Chemical Protection Clothing (CPC) may be required following expectations of IORP and dependant on nature of incident.**	**2**	**3**	**6**	
	Risk of receiving injury from machinery.			**4**	**3**	**12**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble.	**3**	**2**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
							Clothing should be appropriately sized and well maintained to prevent it from being loose and baggy and a snag hazard.				
	Risk of receiving injury from smoke and fire gases.			**4**	**3**	**12**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble.	**3**	**2**	**6**	
	Risk from receiving injury from short term contact with electrical conductors.			**5**	**5**	**25**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble.	**2**	**3**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury from animals.			**4**	**3**	**12**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble.	**2**	**3**	**6**	
	Risk of receiving injury from people.			**3**	**3**	**9**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble.	**2**	**3**	**6**	
	Risk of receiving injury whilst manual handling.			**2**	**2**	**4**	Should not have a significant detrimental effect to activity.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury from equipment.			**4**	**4**	**16**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble. Clothing should be appropriately sized and well maintained to prevent it from being loose and baggy and a snag hazard.	**2**	**2**	**4**	
	Risk of receiving injury from vibration.			**3**	**2**	**6**	Controlled by occupational exposure limits.	**3**	**2**	**6**	
	Risk of receiving injury from physical hazards.			**3**	**3**	**9**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively,	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
							ergonomic, compatible with all other elements of a firefighters ensemble.				
	Risk of receiving injury from contamination.			**4**	**4**	**16**	Torso, arms and legs should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 469. Specific protective clothing characteristics: - Thermal protection, breathable, manage moisture effectively, ergonomic, compatible with all other elements of a firefighters ensemble. See note on page 12.	**3**	**3**	**9**	RA 2

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
To provide **foot and ankle** protection for fire-fighters whilst undertaking duties at a broad range of operational activities (as detailed by identified generic hazards).	Risk of receiving burns or scalds from heat.	All firefighters that undertake operational duties and training for such.	Information, Instruction and Training, National Operational Guidance, Safe Operating Procedures, Incident Command System.	**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser	**2**	**2**	**4**	
	Risk of receiving injury from cold.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser	**2**	**2**	**4**	
	Risk of receiving injury due to weather.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, ankle support, toe cap protection, slip resistance, mid sole protection (puncture), water resistant.	**2**	**3**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury due to working environment.			**4**	**3**	**12**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, ankle support, toe cap protection, slip resistance, mid sole protection (puncture), water resistant.	**2**	**3**	**6**	
	Risk of receiving injury due to collision or being struck by blunt, sharp or pointed objects.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, ankle support, toe cap protection, slip resistance, mid sole protection (puncture), tear strength and impact resistant. NB. Standard may not provide sufficient puncture protection through sole.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury through exposure to Hazardous materials. Up to Initial Operational Response (IOR) expectation.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, slip resistance, chemical resistant, water resistant, easy to decontaminate/clean.	**2**	**2**	**4**	
	Risk of receiving injury from machinery.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: - ankle support, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk from receiving injury from smoke and fire gases.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: - ankle support, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	
	Risk from receiving injury from short term contact with electrical conductors.			**5**	**4**	**20**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, anti static/electrical resistance	**2**	**2**	**4**	
	Risk of receiving injury from animals.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, toe	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
							cap protection, slip resistance, mid sole protection (puncture), impact resistant.				
	Risk of receiving injury from people.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	
	Risk of receiving injury whilst manual handling.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, metatarsal protection, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury from equipment.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, metatarsal protection, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	
	Risk of receiving injury from vibration.			**3**	**2**	**6**	Controlled by occupational exposure limits.	**3**	**2**	**6**	
	Risk of receiving injury from physical hazards.			**4**	**4**	**16**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, metatarsal protection, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury from contamination.			**3**	**3**	**9**	Foot and ankle should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 15090 Specific footwear characteristics: -Thermal protection, compatibility with trouser, ankle support, metatarsal protection, toe cap protection, slip resistance, mid sole protection (puncture), impact resistant.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
To provide adequate protection to fire-fighters **hands and wrists** whilst undertaking duties at a broad range of operational activities (as detailed by identified generic hazards).	Risk of receiving burns or scalds from heat.	All firefighters that undertake operational duties and training for such.	Information, Instruction and Training, National Operational Guidance, Safe Operating Procedures, Incident Command System.	**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection	**2**	**2**	**4**	
	Risk of receiving injury from cold.			**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection.	**2**	**2**	**4**	
	Risk of receiving injury due to weather.			**3**	**3**	**9**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of injury due to working environment.			**3**	**3**	**9**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity	**2**	**2**	**4**	
	Risk of receiving injury due to collision or being struck by blunt, sharp or pointed objects.			**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity	**2**	**3**	**6**	
	Risk of receiving injury through exposure to Hazardous materials. Up to Initial Operational Response (IOR) expectation.			**5**	**4**	**20**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity, resistant to	**2**	**3**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
							liquid chemicals, easy to decontaminate/clean, blood borne pathogen protection				
	Risk of receiving injury from machinery.			**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity	**2**	**2**	**4**	
	Risk of receiving injury from smoke and fire gases			**3**	**3**	**9**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity	**2**	**2**	**4**	
	Risk from receiving injury from short term contact with electrical conductors. Low voltage only. High voltage protection is subject to additional PPE			**5**	**5**	**25**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water	**2**	**3**	**6**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
							resistant, cut resistant, tear resistant, puncture resistant, good dexterity				
	Risk of receiving injury from animals.			**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity, blood borne pathogen protection.	**2**	**2**	**4**	
	Risk of receiving injury from people.			**3**	**3**	**9**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
	Risk of receiving injury whilst manual handling.			**2**	**3**	**6**	Should not have a significant detrimental effect to activity.	**2**	**2**	**4**	
	Risk of receiving injury from equipment.			**4**	**4**	**16**	Hands and wrists should be protected from the effects of the hazards by a provision of clothing conforming to BS EN 659 Specific glove characteristics: - thermal protection, water resistant, cut resistant, tear resistant, puncture resistant, good dexterity	**2**	**2**	**4**	
	Risk of receiving injury from vibration			**3**	**2**	**6**	Controlled by occupational exposure limits.	**2**	**2**	**4**	

2. Task	3. Hazard & Outcome(s)	4. Risk Groups	5. Control Measures In Place prior to wearing PPE	6. Level Of Risk			7. PPE required control measure	8. Level Of Risk			9. RA2 Required *(Individual FRS Only)*
To provide adequate protection to the **whole body** of the fire-fighter whilst undertaking duties at a broad range of operational activities (as detailed by identified generic hazards).	Risk of sustaining injury due to poor fitting, incompatible or inappropriate PPE that may result in injury.	All firefighters that undertake operational duties and training for such.	Information, Instruction and Training, National Operational Guidance, Safe Operating Procedures, Incident Command System.	**4**	**3**	**12**	PD ISO/TR 21808 Guidance on the selection, use, care and maintenance of PPE designed to provide protection for firefighters. PPE at Work Regulations 1992	**2**	**2**	**4**	
To provide and maintain PPE in an efficient state, in efficient working order and in good repair (i.e. 'fit for purpose').	Personnel receiving injuries arising from poorly maintained, damaged or inefficient PPE.			**3**	**4**	**12**	PD ISO/TR 21808 Guidance on the selection, use, care and maintenance of PPE designed to provide protection for firefighters. PPE at Work Regulations 1992.	**2**	**3**	**6**	

10. **Technical References:**	11. **Associated GRA's**
See Section 1	National Operational Guidance

12.	Name	Signature	Date	Review Date
Lead Officer	Brett Egan		**26/11/2018**	
Health & Safety				
Accredited Safety Rep				**Nov 2020**

RISK ASSESSMENT ACTION PLAN (RA2)

(To be completed by individual Fire & Rescue Service if required)

Ref No:
Same as RA1

For Moderate or High Risk, detail any further control measures required.

ACTION REQUIRED TO FURTHER REDUCE RISK

Task (From RA1)	Current Level Of Risk			Control Measures Required	Projected Risk Value		
	L	S	R		L	S	R

	Name	Signature	Date	Review Date
Lead officer	**Brett Egan**			
Health & Safety Rep				
Accredited Safety Rep (Consulted)				

Please note: this additional Risk Assessment Action Plan is for each Fire and Rescue Service to complete as appropriate

Overarching Characteristics of good Fire-fighters Personal Protective Equipment

- Gender specific, where appropriate
- A good range and depth of sizes to avoid bespoke or special requirement
- Compatibility with all other elements of a firefighting ensemble and any other equipment likely to be used in conjunction with the ensemble.
- Ergonomic and not add to physiological stress
- Robust and durable, in the foreseeable conditions in which a firefighter operates – reducing the requirement for repair/replacement.
- Ease of decontamination/cleaning
- Ease of donning and doffing
- Ease of adjustment, maintenance and servicing (if applicable)

RISK CALCULATOR

Risk is the chance that harm will be caused by a hazard. It is measured in terms of severity, likelihood & population affected.

A simple approach to quantifying risk is to define measures of severity and likelihood such as the descriptors given below. This allows the construction of a risk matrix which can be used as the basis of identifying acceptable and unacceptable risk. The PPE Technical group agrees that a low or moderate level of risk is acceptable.

Severity x Likelihood = Risk

MEASURES OF SEVERITY (CONSEQUENCE)

LEVEL	DESCRIPTOR	DESCRIPTION
1	Negligible	Minor local first aid treatment (e.g. minor cuts/abrasions) causing minimal work interruption
2	Minor	Injury requiring formal first aider treatment causing interruption of work for 7 days or less. Moderate financial loss
3	Serious	RIDDOR over 7 day lost-time injuries. Medical treatment required. Moderate environmental implications. High financial loss. Moderate loss of reputation. Moderate business interruption.
4	Major	RIDDOR specified injuries. Permanent Injuries. High environmental implications. Major financial loss. Major loss of reputation. Major business interruption.
5	Fatalities	Single or multiple deaths involving any persons.

MEASURES OF LIKELIHOOD (PROBABILITY)

LEVEL	DESCRIPTOR	CHANCE	DESCRIPTION
1	Very unlikely	0 to 20%	The injury may occur only in exceptional circumstances.
2	Unlikely	21 to 40%	The injury could occur at some time.
3	Moderate	41 to 60%	The injury should occur at some time.
4	Likely	61 to 80%	The injury is expected to occur in most circumstances.
5	Certain	81 to 100%	The injury will occur in most circumstances.

RISK ASSESSMENT MATRIX - LEVEL OF RISK

Fatalities	**5**	**10**	**15**	**20**	**25**
Major	**4**	**8**	**12**	**16**	**20**
Serious	**3**	**6**	**9**	**12**	**15**
Minor	**2**	**4**	**6**	**8**	**10**
Negligible	**1**	**2**	**3**	**4**	**5**
↑ **SEVERITY**	**Very Unlikely**	**Unlikely**	**Moderate**	**Likely**	**Certain**
	LIKELIHOOD →				

KEY: Low risk | Moderate risk | Significant risk | High risk