

Report of the Deputy Chief Fire Officer

Minimising Firefighter Exposure to Carcinogens – Service Update

Purpose of Report

1. To provide an update regarding measures being taken to minimise the risk of carcinogens to firefighters.
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Recommendation

It is recommended that current and planned measures being taken by the Service to minimise the risk of carcinogens to firefighters is noted.

Introduction and Background

2. In July 2022 the International Agency for Research on Cancer (IARC), the cancer agency of the World Health Organisation (WHO), classified occupational exposure as a firefighter as carcinogenic to humans. This followed several recent academic reports, including *'Minimising firefighters' exposure to toxic fire effluents. Interim Best Practice Report'*, commissioned by the Fire Brigades Union, conducted by the University of Central Lancashire and published in November 2020.
3. In response to this report the National Fire Chiefs Council (NFCC) released a position statement stating that the *'NFCC are committed to understanding, through evidenced based research, any risks to firefighters and supports a proportionate response to seek improvements and reduce risk where necessary'*.
4. The NFCC encouraged Fire and Rescue Services (FRS) to reduce the risk, so far as reasonably practicable, including decontamination procedures, training, Personal Protective Equipment (PPE) cleaning, measures to avoid cross contamination, and reduction of secondary exposure.
5. The Service have always taken a proactive response to firefighter safety from carcinogens, including the measures described above. This work began in 2016 led by the NFCC national Health and Safety Committee and the Service has been actively pursuing measures to reduce exposure since then. In addition, the Operational Policy Department completed a review, to establish the Service position in relation to this report, in order to identify current good practise and any potential areas for improvement.

6. The review identified that the Service have implemented a significant number of safety measures since 2016, including PPE and Respiratory Protective Equipment (RPE) provision, decontamination procedures, welfare and cleaning facilities, health screening, safety procedures and training.
7. This proactive approach is demonstrated in the review summary, which identified 156 areas for consideration; and concluded that the Service had comprehensive evidence in 103 areas, evidence in 36 and there were 17 areas for further consideration. The results are summarised in the table below:

Description	Comprehensive evidence	Evidence	Areas for consideration
Personal Protective Equipment	6	3	2
Fire Incident: Minimising Contamination	29	3	1
Return to the workplace from Fire Incidents	33	15	5
Breathing Apparatus (BA) Workshops: Contamination Control	7	1	2
Training Centres: Contamination Control	8	4	4
Vehicles: Additional Considerations	6	2	1
Health Screening	4	4	1
Pregnancy, Maternity and Fertility	8	1	0
Training and Awareness	2	3	1
Totals	103	36	17

8. The following table expands on the 17 areas for consideration, identified through the review, and current measure in place to mitigate the risk. A more detailed action plan to address the 17 areas is shown in Appendix 1:

Safety measures implemented by the Service

9. The following points provide an overview of actions taken by the Service to support safety measures highlighted by the review. A detailed overview of measures implemented by the Service can be seen in Appendix 2.

- **Personal Protective Equipment (PPE)** – Sufficient PPE has been provided, including spares, with a procedure in place to bag/seal contaminated PPE. Local and professional cleaning procedures in place.
- **Respiratory Protective Equipment (RPE)** – Breathing apparatus (BA), respirators and compressors provided with procedures in place. Face fit tests completed for all staff.
- **Decontamination** – Risk Assessments, guidance and procedures in place to decontaminate PPE, equipment and vehicles at incidents, training venues and stations.
- **Welfare** – washing facilities at incidents (welfare vehicle), wipes for both skin and equipment on appliances and showers at all Service locations and training venues.
- **Health Screening** - medicals including lung function screening for operational staff, annual medicals for BA Instructors, VO2 max tested at annual fitness test, and healthcare referrals.
- **Training** – BA Refresher and Compartment Fire Behaviour Training (CFBT) training programme in place. Risk assessments completed, respirators available for staff and instructors, and clean burn training in place.
- **Guidance** – posters, training risk assessments, safety briefs and guidance available.
- **BA Workshops** – ventilated, clean, PPE and RPE available.
- **Fire Investigation (FI)** – PPE and RPE issued, paper suits and cleaning equipment available, 2 sets of FI kit issued.
- **Pregnancy, Maternity and Fertility** - Pregnancy and Maternity policy in place protecting pregnant staff and nursing mothers, including breastfeeding areas and breast milk storage.

Additional areas under review

10. The following provides an overview of areas where evidence is available, however further measures are now being considered to support the Response strategy:
 - **PPE** – consideration for moisture wicking undergarments and changes of clothes.
 - **Decontamination** – 6mm decontamination bags, use of sealed storage for all contaminated PPE, and station signage.
 - **Exposure logs** – expansion of use of existing exposure logs (water / hazmats etc.)

- **Stations** – air monitoring, laundry facilities on all stations, zoned areas.
- **PPE** – professional cleaning to include gloves and RPE for BA technicians
- **Healthcare provider** – informed of increased cancer risk for firefighters
- **Pregnancy, Maternity and Fertility** - Risk Assessment checklist made available on new SharePoint.

Area for consideration	Current measures in place to mitigate the risk
3 areas proposing air monitoring / filtration assessments at Service locations	Station and equipment cleaning procedures in place. PPE available for staff to utilise
3 areas proposing the use of 'contamination zoning' on Service locations	PPE and procedures in place to manage contaminated equipment and PPE
2 areas proposing additional refresher training for staff	Training, awareness previously provided to all operational staff
2 areas proposing outdoor hanging for lightly contaminated PPE	Facilities in place to air tight bag contaminated PPE and send for professional cleaning
1 area proposing Health screening for BA technicians	Health screening procedures established for other staff
1 area proposing BA sets not stored in appliance cabs	Facilities available to clean BA sets at incidents and air tight bag contaminated sets, as required
1 area proposing air filtration systems on appliances	Pollen filters and air circulation controls fitted to current appliances
1 area proposing air tight storage for contaminated hose	Facilities to clean hose at incidents and transport in lockers
1 area proposing drying room signage for PPE only	Signage and awareness required
1 area proposing cotton liner gloves	Cleaning and welfare facilities available at incidents and Service locations
1 area proposing disposable overshoes for Fire Investigation (FI) Officers	Cleaning facilities available at incidents on request.

Summary

11. The Service has completed a review against the findings of the '*Minimising firefighters' exposure to toxic fire effluents. Interim Best Practice Report*'. The analysis found that the Service have implemented a significant number of proactive steps to minimise the risk of carcinogens to firefighters.
12. Potential areas for improvement have also been identified, and an Action Plan has been agreed with Strategic Leads to discharge actions where reasonably practicable.
13. In addition, a working group has been established, consisting of operational staff, Health and Safety Union representatives and Health and Safety staff. This group have created a refresher training package, which will be delivered to all operational staff from July 2023. This group will also be supporting stations with risk assessments and control measures, such as signage and guidance posters.

Corporate Considerations

Resource Implications (identify any financial, legal, property or human resources issues)	Response staff are required to support the working group, to deliver training, assess locations and implement control measures
Strategic Policy Links & Core Code of Ethics (Identify how proposals link with current priorities & policy framework and align to the Core Code of Ethics)	This links to staff competence, and availability requirements of the Response Strategy; develop and Train in the People Strategy; and Integrity and Leadership of the CCoE.
Risk Management / Health & Safety (identify any risks, the proposed control measures and risk evaluation scores).	Carcinogenic risks identified and an action plan agreed to discharge risks where practicable.
Consultation (identify any public or other consultation that has been carried out on this matter)	Proposed consultation with the Fire Brigades Union on the review and action plan
Equalities (has an Equalities Impact Assessment been completed? If not, why not?)	n/a

Data Protection Impact Assessment (where personal data is processed a DPIA must be completed to ensure compliant handling)	Procedures in place for safeguarding health screening staff information
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Supporting Information

Appendix 1 – Action Plan for areas of potential improvement

Appendix 2 – Overview of measures implemented by the Service

Appendix 1 - Areas of potential improvement - Action Plan for consideration

GC Operational Logistics			
Potential Area for Improvement	Air filtration, PPE, storage, laundry facilities		
HWFRS Action	Assigned to	Target Date	
Future procurement of Fire gloves to consider meeting the requirements of BS EN 374-3	GC Ops Logs	On-going	
Automated disinfectant dispenser in cab	GC Ops Logs	Q4 23/24	
Future procurement of Fire Appliances to consider high efficiency particulate air filter in appliance cabs	GC Ops Logs	On-going	
Future procurement of Fire Appliances to consider creation of non-BA seats i.e. external BA compartments	GC Ops Logs	2024/5	
Future procurement to consider moisture wicking undergarments, designed to be worn beneath PPE	GC Ops Logs	Q4 23/24	
Future procurement to consider cotton liner gloves to reduce exposure to debris	GC Ops Logs	Q2 24/25	
Provide 6mm thick bags for contaminated PPE and equipment, including BA sets	GC Ops Logs	Q2 23/24	
Provision of airtight storage containers for hose	GC Ops Logs	Q3 23/24	
Sealed containers, replacing bags for PPE sent to Bristol for cleaning	GC Ops Logs	Q2 23/24	
Change of clothes available at an incident	GC Ops Logs	Q4 23/24	
Locations to be assessed to provide laundry facilities for base layers	GC Ops Logs	Q4 23/24	
Strategic lead	AC Assets		

GC Operational Logistics		
Potential Area for Improvement	Air monitoring and filtration, cleaning, RPE, welfare facilities PPE	
HWFRS Action		
HWFRS Action	Assigned to	Target Date
Provision of air quality monitoring (stations and training facilities)	GC Ops Logs	Q4 23/24
Locations to be assessed to provide external ventilated hanging areas for slightly contaminated (slight smell of smoke) PPE (stations & training)	GC Districts	Q3 23/24
Future cleaning contracts to consider professional cleaning service for gloves	GC Ops Logs	Q4 23/24
Air filtration in 'clean' areas (stations and training facilities), if at risk of contamination	GC Ops Logs	Q4 23/24
Investigate additional welfare facilities at Defford, including base layer washing facilities	GC Ops Logs	Q4 23/24
Provide respiratory protection for BA Technicians	GC Ops Logs	Q3 23/24
Investigate the requirement to provide additional hooded tunics for Breathing Apparatus Instructors	GC Ops Logs	Q4 23/24
Consider and Industrial BA set cleaning machine in future procurement	GC Ops Logs	Q4 23/24
Provide heavy duty nitrile gloves and disposable overshoes for Fire Investigation Officers	GC Ops Logs	Q3 23/24
Strategic lead	AC Assets	

GC Operational Policy		
Potential Area for Improvement	H&S procedures, training, signage, exposure monitoring	
HWFRS Action		
	Assigned to	Target Date
Hazmats exposure logs to be utilised for carcinogenic hazards	H&S Advisor	Q2 23/24
Risk assessed waste disposal procedure for contaminated waste	H&S Advisor	Q2 23/24
Station / Technician room signage designating clean and dirty zones (possibly red, amber and green zones)	H&S Advisor	Q2 23/24
Signage designating drying rooms only suitable for PPE	H&S Advisor	Q2 23/24
Exposure monitoring of BA Technicians - <i>completed</i>	HR	Q1 23/24
Contamination zone signage at Strategic Training Facilities	H&S Advisor	Q2 23/24
CTR training package regarding long term exposure to fire debris - <i>completed</i>	Working Group	Q1 23/24
On-site posters / documentation highlighting risks and control measures	Working Group	Q2 23/24
Strategic lead	AC Protection	

GC District Commanders

Potential Area for Improvement

Training

HWFRS Action	Assigned to	Target Date
Refresher awareness training for staff on hazards and standards, including showering, PPE storage and transporting contaminated PPE and equipment	DC West Dist.	Q3 23/24
Training on the acute and chronic toxicants produced by fires for all personnel	DC West Dist.	Q3 23/24
Training to include BA Technicians	DC West Dist.	Q3 23/24

Strategic lead

AC Response

Head of Human Resources		
Potential Area for Improvement	Health screening and pregnancy and maternity	
HWFRS Action		
	Assigned to	Target Date
Update healthcare provider of increased cancer risks - <i>completed</i>	Head of HR	Q1 23/24
Annual health screening for operational staff, including BA Technicians	Head of HR	Q2 23/24
Pregnancy and Maternity Risk Assessment checklist made available on new SharePoint - <i>completed</i>	Head of HR	Q1 23/24
Strategic lead	AC Prevention	

Appendix 2 - Overview of measures implemented by the Service

Personal Protective Equipment

PPE

- **Helmets** - all have removable padding, cleaning function available through Bristol and a spare stock of helmets is available on stations
- **Flash hoods** – two Nomex flash hoods provided for operational staff
- **Fire Gloves** - two pairs of Southcombe Firemaster gloves, meeting EN659 standard provided for operational staff
- **Gauntlets** – 4 pairs provided on appliances, meeting hazardous material standard EN374-3

Respiratory Protection

- **Self-Contained Breathing Apparatus (BA)** - Draeger PSS 7000 BA provided for operational staff
- **Respirators** – Draeger FPS 7000 respirators available on fire appliances
- **Face fit** - Testing completed for all operational crews and those that enter the inner cordon
- **BA Compressors** – all BA compressors serviced in line with manufacturer's instructions

Appliance and appliance bay

- **Decontamination wipes** – available in appliance cabs, which can be wiped down
- **External BA compartments** – available in Compact appliances
- **Contaminated BA sets** – facility available to double bag BA sets on all appliances

Fire Incident: Minimising Contamination

- **Risk Assessments (RA)** – RA database in place
- **Decontamination guidance** – CTR training packages and Mobile Data Terminals guidance available to staff
- **Decontamination tools** – Stage 1 decontamination on appliances, Bristol double bagging procedures, re-robe packs available.
- **Workplace decontamination facilities** – BA Servicing rooms available on all stations
- **Sufficient personnel to decontaminate** – ability to request additional personnel in place
- **Hazard and decontamination briefing** – training and incident briefings take place, including eating and drinking guidance
- **Designated decontamination zones** – covered in firefighting, IC and Hazmats training
- **PPE checks** – inspection guidance available, PPE checks carried out at start of shift
- **Personal decontamination** – wipes available, welfare vehicles have washing and changing facilities, showers available on all stations/training facilities, posters reminding staff to shower
- **Hazard briefing** – Intel available, BA crew and OIC briefing, Safety Officers

- **Incident zones** – appliances park away from hot zone, hot zone PPE level set at scene, crews upwind where possible, hazmat training in place
- **Personal issue drinks bottles** – decontamination wipes also available to clean bottles
- **PPE should fit well** – personnel issue PPE fitted by Bristol, quarterly PPE audit completed

Return to the workplace from Fire Incidents

- **Clean boots** – ability to do this at the incident ground
- **BA Service Room** – marked and kept clean as part of station work routines
- **BA set cleaning** – in line with manufactures instructions and equipment safety file
- **BA checks** - include cleanliness
- **PPE storage** – designated area, moved away from appliance room and clean areas
- **Station cleaning** – in place through cleaners and station work routines
- **PPE cleaning** – Bristol total care cleaning package in place
- **Washing machines** – available on some stations
- **PPE log book** - maintained for all items of PPE for all staff
- **Kit and boot bags** – provided for all personnel
- **Velcro straps** – on tunics to allow gloves to hang free
- **Disposable gloves** – available at all locations
- **Vehicle cleaning** – facilities and standards in place
- **Appliance pollen filters** – inspected during the annual service
- **Cleaning facilities** – available to clean equipment stowed in appliance cabs

BA Workshops: Contamination Control

- **Ventilated and clean BA service room** (air conditioning and windows)
- **BA sets** - returned clean
- **RPE and PPE** available to handle impounded sets which may be dirty
- **Cleanliness posters** in place

Training Centres: Contamination Control

- **Clean burn** plywood and untreated timber, including minimal glue Oriented Strand Board
- **Respirators** – available to delegates (on their appliance) and instructors (personal issue)
- **Risk assessments**, including a safety brief in place
- **Shower facilities** available at all STF's
- **BA face masks** cleaned in line with manufacturers guidance

Vehicles: Additional Considerations

- **PPE and RPE** issued to Fire Investigation officers
- **Disposable paper suits** provided
- **Fire Investigations kit** - 2 sets of issued

Health Screening

- **3 yearly medicals** for operational staff
- **Annual medicals** for BA Instructors
- **Lung function screened** during 3 year medical and VO2 tested during annual fitness test
- **Additional healthcare referrals** available

Pregnancy, Maternity and Fertility

- **Pregnancy and Maternity policy** in place protecting pregnant staff and nursing mothers
- **Breastfeeding** - private areas available on stations for breastfeeding
- **Refrigerated storage** available for breast milk

Training and Awareness

- **BA Refresher and CFBT** training programme in place