

Providing aircraft rescue and firefighting services during a pandemic event

The global aviation business was among the first industries to be immediately affected by the recent and ongoing Coronavirus pandemic. Airport Fire and Rescue Services worldwide are working hard to maintain their full operational readiness, enabling the continued movement of essential goods within the supply chain.



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While passenger traffic has virtually come to a standstill as a result of the Covid-19 virus, the requirement to move large volumes of essential medical supplies, PPE, food and other materials quickly around the globe has meant that cargo operations have continued, even when countries are in full lockdown mode.

During normal conditions at airports around the world, where aircraft are moving and operating often in very large numbers, the availability, capability and readiness of the designated Aircraft

Rescue and Fire Fighting (ARFF) Service can be the difference between a successful emergency incident resolution or a tragic disaster. Under deadly pandemic conditions, however, new procedures and operating routines must be established quickly to ensure the continued availability, safety and welfare of the fire crew, in order to maintain operational availability and readiness.

Responding professionally and swiftly to any emergency is the primary responsibility of the ARFF team. Firefighters meet these challenges through a combination of continuous training, investment in equipment, vehicles and Personal Protective Equipment (PPE), compliance with international standards, interoperability and strong leadership.

▼ ARFF crews attend a helicopter undercarriage pinning exercise.



Skilled, professional and ready...

Emergency incidents are difficult enough to manage in a relatively benign operating environment. However, consider how we might deal with such incidents and their aftermath in a situation that is remote, environmentally challenging or potentially hostile and under further threat of a deadly contagious virus.

The hazardous nature of emergency-response increases when fire and rescue service operations are conducted in ongoing military theatres. Typical aviation incidents such as aircraft crashes, burst tyres and engine fires assume an altogether different intensity when the airport is under rocket or mortar attack or terrorists attempt to infiltrate the facility. Alongside UAV attacks, unexploded ordnance and weapons malfunctions, these are just some of the everyday challenges facing ARFF crews working in hostile arenas.

Now overlay these scenarios with a pandemic disease that has killed thousands of people around the world and you realise that a tough job has just become much harder.

Within the limits of their experience and qualifications, professional ARFF crews provide a disciplined, self-contained and adaptable workforce to meet the needs of incident managers in a variety of situations and hazardous assignments.

Operating under pandemic conditions doesn't change this, in fact this is where the skills of the ARFF team come to the fore – the ARFF review the new risk posed by the infectious disease, assess the severity and consequences of infection on the operational service and quickly put in place mitigating strategies to minimise the risk to the individual staff members, to the team as a whole and to the operations of the facility. At all times, the priority is to maintain facility operations in the safest and most effective manner possible.

ARFF crews are staffed, equipped and qualified to meet a variety of strategic and tactical airfield and structural fire assignments. On a day-to-day basis, crews may be pre-positioned for initial attack or perform ready duties at stations as and when needed by planning level requirements. When not committed to fire assignments, crews provide a skilled workforce to accomplish a variety of resource-management objectives while maintaining availability for incident mobilisation.

Upon confirmation of a disease risk, infection prevention management and control measures are immediately implemented, in line with government and medical expert advice. In the case of the COVID-19 virus these measures have included physical and social distancing

▲ Airport fire services are ready to respond, day or night.

among crew members when off duty and during working time, wearing of gloves, masks and other personal PPE as appropriate, effective regular hand washing and use of sanitizing products coupled with increased cleaning and disinfection of working spaces, vehicles and equipment. Staff are regularly updated on the control measures and reminded of the importance of compliance.

Providing ARFF Services to both military and civilian airports and air bases around the world, including during active military missions makes an already hazardous role even more dangerous. Under these unique circumstances, International Civil Aviation Organisation (ICAO) standards, NATO Standardised Agreements (STANAGS) and other international and local standards (CAA/NFPA standards for example) serve as the primary source of risk mitigation, guidance and direction for the ARFF activity delivered at each facility and are fully integrated into the Scope of Work (SOW) and Risk Assessments for each location.

Apart from the immediate response to a hazardous assignment, the ARFF crews conduct a variety of more routine but nonetheless important tasks each day.

Emergency dispatch and communications

Centralised Emergency Dispatch that provides cover up to a 24/7 basis is a critical element of any emergency response effort. An established and reliable communications infrastructure is also essential to ensure incidents are dealt with swiftly and effectively.

The Emergency Dispatch function ensures an immediate professional response to all emergency incidents. They handle all communications, dispatching the appropriate resources, vehicles and equipment in accordance with standard operating procedures and then maintain an accurate log of all incidents and communications from commencement

to completion. The records kept within the dispatch function provide auditable, legal documents in the event of an emergency and its subsequent investigation. Integrated software solutions are used to manage and maintain a fully auditable trail of dispatch activities including response times.

Effective communication is imperative in any emergency incident resolution. Multi-frequency handheld and base-station radios for use during flight line activities and emergencies, augmented by an alternative means of communication (such as mobile phones), and with a single frequency designated for a 'Crash Network', are utilised for any emergency calls and response situations.

Maintenance and testing of essential PPE

In a pandemic situation it is imperative to understand the importance of the correct Personal Protective Equipment (PPE) for ARFF staff, which has been identified in the facility and operations risk assessments. PPE must be available and subject to inspection throughout its service life. PPE can only be considered suitable if it effectively protects the wearer and is appropriate for the risks and the working environment. The needs of the user must be considered to ensure the PPE fits correctly and provides adequate protection. All PPE must be 'CE' (or an approved alternative) marked and comply with the requirements of the Personal Protective Equipment Regulations 2016. The CE marking signifies that the PPE satisfies certain basic safety requirements and has been tested and certified by an independent body.

An effective system for maintenance, storage and decontamination in accordance with the manufacturer's instructions, which includes reporting of loss or defects (wear, tear, expiry date etc.) is required for all PPE.

Self-Contained Breathing Apparatus (SCBA) is probably the single most important item of kit used by the ARFF team. SCBA is inspected and cleaned at the start of every shift and inspection results are recorded in each individual set logbook.

In addition, each firefighter follows set procedures for 'fit' testing to ensure that they have an adequate seal on the face piece. Any firefighter who cannot obtain an adequate seal following the procedure must report it to a manager immediately. The ARFF Service uses a UK HSE approved alternative to the quantitative and qualitative mask fit testing guidelines outlined by the UK HSE. Thorough cleaning and decontamination of SCBA is conducted on each shift and following every BA wear and emergency incident.

SCBA is subject to annual testing by qualified SCBA technicians. Records of this testing are maintained and any SCBA that fails testing is tagged and removed from service until repaired and retested. Air cylinders are hydrostatically tested every

◀ Aircraft casualty extrication as part of CPD and skills training.



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five years from the date of manufacture or the last testing date. Out-of-date air cylinders are immediately quarantined and cannot be used.

Similarly, SCBA compressor air samples are tested as per the manufacturer's instructions, based on usage and climatic conditions and the results recorded for future reference.

In normal times ARFF firefighters must be medically evaluated on an annual basis. Their pulmonary function is tested as part of this evaluation and records retained for reference. The firefighters receive regular respirator training. This training is also recorded in the ARFF service training programme.

During a pandemic event, additional temperature screening may be undertaken, and an isolation policy immediately imposed for any staff member exhibiting symptoms of the disease.

Specialist equipment and emergency-vehicle maintenance

The inspection and testing of firefighting vehicles and the preventive maintenance and repair of firefighting systems, equipment and vehicles forms an integral part of the day-to-day operational activities of the ARFF team. During a pandemic, these services must continue with additional emphasis placed on the protective measures implemented for the safety and well-being of the crew members.

A daily inspection regime ensures that all equipment is checked and available in good working order in the event of an emergency. Maintenance schedules are developed and refined in conjunction with manufacturers' recommendations

for austere environments. Service intervals are then adjusted to sustain operational capability.

Similarly, operating and tracking assets, monitoring their status, reporting maintenance requirements, and developing recurring and corrective maintenance requirements, in the form of a Planned Preventative Maintenance Programme is an important management process for the ARFF team. A database system is used on all sites to track assets and equipment in use. Full facility inspection checks are conducted periodically as part of the Quality Management System and Health and Safety policies.

Team members can undertake day-to-day maintenance and husbandry of vehicles, PPE and essential equipment. All equipment will be handled only by competent persons who have received induction, operation, and care and maintenance training on the equipment in use. More complex equipment and vehicle support and annual calibration/inspection/service tasks are normally carried out by a combination of local supply-chain and OEM support as necessary. However, under pandemic control conditions this work may be temporarily deferred in order to minimise exposure to the threat of infection.

Situational training and CPD

Every professional ARFF Service must have a robust training and mentoring system in place. The Training Plan ensures that staff are trained with specialist skills where required so that there is no dependency upon a single person for operation of and training on essential equipment.

However, during periods of pandemic,

◀ Regular PPE checks are essential during a pandemic situation.

such training, skills maintenance and requalification may be suspended in order to maximise crew availability and minimise the danger of crew members being unnecessarily exposed to the contagious disease.

In remote locations, Continuous Professional Development (CPD) is increasingly delivered via a 'blended learning' approach, comprising a combination of formal classroom training, on-site practical training and e-Learning packages that enable the team members to maintain their CPD even though they may be a considerable distance from the nearest training establishment.

Mental health and well-being are of paramount importance, and keeping staff busy, engaged, informed and entertained are all crucial to ensure the good mental health of crews.

During total lockdown or staff quarantine periods, stress and anxiety can also increase. This is particularly relevant for remote or inaccessible locations where staff travel, holidays and rotation may be curtailed for long periods of time as a result of the control measures, further distancing staff from family and friends.

CPD training and certification using the on-line methods can be a very useful way of both developing individuals and keeping boredom at bay during such unprecedented periods, as is increased access to video-conferencing facilities and software solutions, internet access and phone contact.

Managing risk and resilience

Risk mitigation, loss prevention and operational resilience remain primary objectives in critical aviation operations around the world today, and reducing the risk of emergency incidents by being prepared, ready and able to respond instantly to any hazard situation forms the core remit of all on-site ARFF services. When the risk model changes, as occurred most dramatically in February 2020 with the Coronavirus pandemic, ARFF Services must quickly recognise these new challenges and adapt to meet them.

▶ For more information, go to www.g3-systems.co.uk

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