Firefighting under fire – Delivering fire and rescue services during armed conflicts

It is a troubling fact that presently there are more than 25 armed conflicts, wars or serious international disputes ongoing around the world, affecting parts of Central and South America, Africa, Eastern Europe, the Middle East, the Indian Subcontinent and Asia.

Chris Thain

Chris Thain is Business Development Manager, Fire & Rescue Services at G3 Systems Ltd based in Portland, Dorset, UK. He was previously the Commercial Business Development Manager for Devon and Somerset Fire & Rescue Service.

Many of these conflicts, some of which have been continuing for decades, require international intervention, either from nation state armed forces, the United Nations, NATO allies or other collaborations such as ISAF or AMICOM.

Such intervention often demands resourcing and logistics on a global scale, including the provision of forces personnel and equipment, vehicles, materiel and other commodities, much of which must be deployed either into 'harm's way' to front-line locations or to rear-echelon support bases, which in turn must be defended and managed in order to enable ongoing support to the theatre of operations.

Managing, maintaining and supporting operations in theatres of war or hostile areas often falls to civilian subcontractors such as G3 Systems. For the past 10 years, G3 Systems has provided Aircraft Rescue and Firefighting (ARFF) Services and structural FRS to NATO airbases in conflict zones, primarily in continuing support of NATO international operations in Afghanistan. Our firefighters and fire officers are currently deployed to support military and civilian airbases/airports in Kandahar, Kabul, Herat and Mazar e Sharif, delivering cover for up to Category 10 aircraft on a 24/7 basis.

Everyday emergency incidents on and around the airfield are difficult enough to manage in a relatively benign operating environment, but consider how one might respond to such incidents and their aftermath in a situation that may be extremely remote, environmentally challenging and/or potentially hostile, with the distinct possibility of incoming live ordnance and unexploded devices. Our firefighters deal with these situations each day as part of their 'normal' risk environment.

Being able to respond quickly and professionally to any aircraft or on-site fire or rescue emergency is the first responsibility of the Fire and Rescue Service (FRS) team. Our firefighters meet this daily challenge through a combination of continuous professional development and training, ongoing innovation and investment in equipment, vehicles and Personal Protective Equipment (PPE), compliance with international fire and safety standards, continuous communications and interoperability with and support both to and from the Base Security Services and the chain of command and, above all, strong and committed management and leadership.

Skilled, professional and ready to respond

The hazardous nature of emergency response intensifies when fire and rescue service operations are conducted in areas of armed conflict. Dealing with aviation incidents such as aircraft crashes, burst tyres and engine fires assume an altogether different perspective when the airport comes under rocket or mortar attack, or enemy forces are attempting to infiltrate the facility. Together with UAV attacks, IEDs and weapons malfunctions, these are just some of the challenges faced by our FRS crews while working in hostile regions.

Within the limits of their experience and qualifications, professional FRS crews provide a disciplined, self-contained and adaptable workforce to meet the needs of incident managers across a wide variety of situations and hazardous assignments, many of which require different operational tactics from the usual standard operational procedures of aviation firefighters.

For example, responding to a typical 'hot brakes' incident for a civilian aircraft requires an altogether different approach when dealing with a fully armed and loaded F-16 fighter aircraft. With a civilian aircraft, the fire appliances attending the incident would approach and position themselves at least 20m back from and inline with the tyre/wheel assembly, avoiding the sides of the wheels due to the potential risk of fragmentation. However, on an armed military aircraft such as an F-16, the same deployments cannot occur due to the forward and rearward-facing weapons hazard. Deployment and approach under these circumstances needs to be further away from the aircraft and in some cases may have to breach the fragmentation hazard rule until the state of the incident can be properly determined, the risk quickly assessed and deployments then managed to suit the tactical outcome required. Crew safety is the priority in these situations.

Fire crews in conflict zones must therefore be trained, qualified and equipped to meet a variety of new strategic and tactical fire and rescue assignments that can differ hugely from the norm in terms of hazard and risk.

On a day-to-day basis, crews may be pre-positioned for initial response or perform ready duties at their stations as and when required by planning. When not committed to FRS incident assignments, the crews provide a skilled workforce to accomplish a variety of resource-management objectives while maintaining immediate availability for any incident mobilization.

While deployment within an active theatre may seem somewhat unusual, our commitment to high standards of operational safety remains undiminished. International Civil Aviation Organization (ICAO) standards, NATO Standardized Agreements (STANAGS) and other international and local standards (CAA/NFPA standards for example) serve as the primary source of guidance and direction for the FRS activity delivered at each facility.

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

▲ Disciplined, experience and adaptable, G3 firefighters are always ready to respond.

Emergency dispatch and communications

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

The Emergency Dispatch function ensures a 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. To facilitate this activity, G3 Systems uses Firepro software to maintain a fully auditable trail of dispatch activities including response times.

Effective communication is the key to 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' is utilized for any emergency calls and response situations.

Specialist equipment and emergency vehicle maintenance

The inspection and testing of firefighting appliances and the preventive maintenance and repair of systems, equipment and vehicles forms an integral part of the day-to-day operational activities of the FRS team.

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 implemented in line with manufacturers' recommendations and where necessary adapted for more arduous environments. Service intervals are then adjusted to sustain ongoing operational capability.

Similarly, 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 FRS team. G3 Systems currently utilize the Redkite database on all sites to track essential assets and equipment in use. Full facility inspection checks are conducted periodically as part of our Integrated Management System and Quality, Health, Safety and Environment policies.

Team members undertake most day-to-day maintenance and husbandry of vehicles, PPE and essential equipment. All equipment will only be handled 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/or OEM support as necessary.

Maintenance and testing of essential PPE

It is imperative to understand the importance of the correct PPE for FRS staff as identified in the facility and operations safety risk assessments. PPE must be available and subject to inspection throughout its service life and 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 and storage of PPE in accordance with the manufacturer's instructions, which includes reporting of loss or defects (wear, tear, expiry date, etc.) is also required.

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

In addition, each firefighter follows set procedures for mask '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 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 are recorded for future reference. All SCBA units must be properly stowed and secured in the brackets provided on each FRS vehicle. Spare cylinders are stored in the brackets or holders provided, in order to avoid any risk of damage.

Firefighters must be medically evaluated on an annual basis. Their pulmonary function is tested as part of this evaluation and records of this are retained for reference. The firefighters receive regular respirator training including 'hands on' training. This training is also recorded in the FRS Service training programme.

Situational training and CPD

Every professional FRS must have a robust training plan and mentoring programme in place. The training plan ensures that staff are trained with specialist skills where required so there is never a dependency upon a single person for the operation of and/or training on essential equipment.

As new equipment is procured, different risks supported or Standard Operating Procedures (SOPs) changed, the training needs of the team must be reassessed to ensure that the personnel are fully capable of responding efficiently and effectively in accordance with the prescribed operational requirements.

Fully qualified FRS Training Instructors seek to maximize every opportunity to train the crews, to maintain morale and to develop the personal and professional skills of all our staff. Detailed training and qualification reviews are conducted based upon the prescribed operational and

▼ **Training doesn't stop in a war zone – firefighters practice undercarriage pinning.**

regulatory requirements, covering the following primary areas:

- Identification of specific trade certification requirements
- Inventory of in-house expertise
- Provision of training objectives for in-house delivered training
- Outline training course packages for in-house delivered training
- Confirmation of training currency and requirements to re-train/update
- Management of training records and skills matrixes
- Personal development aspirations and action plans

These outputs guide the development of the Draft Training Plan, which is reviewed during the initial mobilization of the FRS and then approved and monitored by the FRS management team.

The Training Plan includes a Training Needs Analysis (TNA) to identify both team and individual training requirements, identification of any specific certification requirements, the provision of training objectives for any in-house delivered training and outline training course packages. Training currency (the dates and validity of the last recognized training) and requirements to re-train/update are confirmed and the training records and skills matrix updated to ensure that an auditable and legal record of skills and competence training is maintained.

▲ **Practicing firefighting techniques day and night ensures readiness to react in an emergency situation.**

▶ **Good teamwork is essential to quickly return a runway back to operational readiness.**

Where local nationals are engaged within the FRS, mentoring is a key part of the training programme, supporting the crew and helping to develop their wider hard and soft skillset, often as part of a longer-term transition plan.

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.

Managing risk and resilience at home

Increasingly we see new tactics that are developed and deployed by enemies in war zones now being introduced into countries and areas that hitherto have not had to consider such heinous acts.

As we have witnessed over the past years, all large critical infrastructure around the world can become a potential target of a terrorist threat or attack, therefore risk mitigation, loss prevention and operational resilience must be primary objectives in protecting both the infrastructure itself and its surrounding communities. 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 FRS, regardless of where they are located and as risk models change in the future, our FRS must identify and recognize these new challenges and quickly adapt to meet them.

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