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# Introduction

The DSA was established by a Charter issued by the Secretary of State for Defence empowering it as an independent regulator and investigator for health, safety and environmental protection (HS&EP) in Defence. It contributes to Defence capability, reputation and effectiveness through the setting and enforcement of Defence Regulations for HS&EP, and supports the Ministry of Defence by providing independent, evidence-based HS&EP assurance and investigations.



This is the DSA's eighth Annual Assurance Report and it covers the period 1 April 2021 to 31 March 2022. It provides the Secretary of State for Defence with independent assurance that Defence's policy for HS&EP is being adequately promoted and implemented.

All Defence organisations have shown improvements, with many achieving Substantial levels of assurance or better. For those that are still at Limited levels of assurance, there are clear plans for improvement. Overall, I believe the evidence shows a positive step-change trending towards putting safety at the core of our business.

I would like to acknowledge the fire safety improvements made by the Safety Centres within the Military Commands. The sustained effort over a long time is delivering results. The focus of my concern is now with the delivery of the Defence Fire and Rescue Project; particularly the quality of Fire Risk Assessments delivered on the Defence Estate and the provision of Fire and Rescue services. This is limiting further improvements and risks threatening operational capability.

There was still a residual impact of COVID-19 restrictions. Over the last few years the Department has adapted to remote working and virtual management strategies and policies. This has influenced how assurance has been conducted and how organisations have managed health and safety at lower levels. Some of these adaptations, such as remote assurance, have proven successful and will remain as part of the regime going forward.

The MOD is embracing novel and innovative technologies and all parts of the Department have a role to play in ensuring that this is done in a safe and environmentally responsible way. While the technology is new the fundamentals remain the same, including: the need for robust and proportionate safety and environmental management systems and safety case assessments to be in place for trials and the operation of equipment; Accountable Persons to be appointed; roles and responsibilities correctly articulated; risks to be understood and assessed; and for documentation and evidence to be in place at the appropriate capability development milestones. Ensuring that we all have the correct Suitably Qualified and Experienced Personnel to support this work will be the key to its success, though this is likely to prove challenging given the competing commercial market forces affecting our recruitment base.



Air Marshal Steve Shell CB OBE MA RAF  
Director General  
Defence Safety Authority

30 September 2022



# Section 1 – Executive Summary

## Overall Assessment

The purpose of the Annual Assurance Report (AAR) is to provide an independent assessment of how the Department is doing with regards to implementing Defence’s Health, Safety and Environmental Protection policies. This assessment will provide the Department with a benchmark against which to measure progress, understand trends and identify issues that need to be addressed. This report is very detailed, and for good reason. In simplest terms it highlights four key deductions that are briefly introduced below.

Firstly, **Defence’s assurance levels remain on a positive trajectory**. Specific assurance levels for all Defence Organisations have been introduced this year and range from LIMITED to FULL assurance, thereby enabling greater comparative analysis in the next AAR. The overall levels of assurance across the areas regulated by the DSA have improved. Both maritime and land regulatory areas have reported an increase from LIMITED assurance to SUBSTANTIAL assurance with all other areas remaining static, reporting either marginal improvements or enduring challenges that require further attention. Internally, the DSA’s maturity remains LIMITED with many regulators remaining static in their level of maturity due to resource constraints when matched to demand for their service.

Secondly, statistically, **safety-related fatalities have remained static** this year when compared to previous years. The **number of injuries has decreased** this year. Moving forward, work to enhance reporting processes and technical applications will enhance Defence’s data set and therefore the opportunity to exploit statistical analysis in the coming years. This should improve our trend analysis and follow-on action.

Thirdly, thematically, this year’s AAR continues to highlight some of the same issues reported last year. These include: **developing and retaining the required levels of Suitably Qualified and Experienced Personnel (SQEP); 2nd Party Assurance; the impact of COVID-19;** and the challenge that **autonomous systems and emerging technology** present to the regulated community and the DSA. Additional thematic areas of concern this year include: **the quality of fire risk assessments and provision of fire and rescue services; organisational change;** and **infrastructure maintenance** across the Defence estates. Enduring themes from year to year demonstrate the complexity of the problem but also the urgency required to make progress.

Finally, organisationally, Defence is in a better place. This AAR demonstrates a number of key areas where policies, functional models and structures have been enhanced and improved. There remains much work to do and the Department may have difficult choices to make in the coming years.



## HS&EP in Defence

- There were two safety-related fatalities of Defence personnel between 1 April 2021 and 31 March 2022. (Section 2.2.1)
- The number of safety-related fatalities has remained static with two fatalities within each of the reporting periods over the last four years. (Section 2.2.1)
- There was a significant decrease in the number of injuries reported when comparing 2016/17 and 2020/21 figures. However, this decrease is likely attributable to reduced activity during the coronavirus pandemic. (Section 2.2.2)
- The HS&EP Operating Model was published in September 2021. This sets out the framework by which HS&EP is considered and appropriately applied across Defence. (Section 2.5)
- The Ajax Noise and Vibration Review was published in December 2021. It found that, while General Dynamics UK remains contractually responsible for delivering a safe vehicle, a complex combination of the Armed Forces' relationship to harm and weaknesses in the MOD's acquisition system allowed a vehicle to cause potential harm to Army personnel through noise and vibration. (Section 2.2.3)
- The Environment Act 2021 was passed in November. A new statutory regulator, the Office of Environmental Protection, will hold government and public bodies to account on their environmental obligations. Defence Ministers are officially exempt from adhering to the five environmental protection principles. (Section 2.5)
- The new Defence Environmental Protection Regulator was established with an initial operating capability in April 2022. (Section 2.6)

## Defence Organisation Safety and Environmental Protection Assurance

The overall assurance assessment for each Defence organisation is shown in Table 1.1. The centre colour represents the overall assurance level for that organisation, while the fringe colour represents variations within the overall assessment.



Defence organisation											
Navy Command	Army	Air Command	UK Strategic Command	Defence Equipment & Support	Submarine Delivery Agency	Defence Science and Technology Laboratory	Defence Electronics and Components Agency	Defence Infrastructure Organisation	Defence Business Services	UK Hydrographic Office	Oil & Pipelines Agency
S (L)	L (S)	S (L)	L (S)	S (L)	S	L (S)	F	L (S)	S (F)	S	S

F – Full	System of internal control established and operating effectively.	Example 1: Substantial with aspects that are Limited	S (L)
S - Substantial	System of internal control established and operating effectively with some minor weaknesses.	Example 2: Substantial	S
L – Limited	System of internal control operating effectively except for some areas where significant weaknesses have been identified.		
N – No Assurance	System of internal control poorly developed or non-existent, or major levels of non-compliance identified.		
U - Unassessed	System of internal control applicable but not able to be assessed.		
NA – Not Applicable	System of internal control not applicable within regulatory domain.		

Table 1.1 - HS&EP assurance assessment of Defence organisations

The overall independent DSA assessment of each Defence Organisation is summarised below:

- Navy Command – SUBSTANTIAL Assurance.** Navy Command has improved its HS&EP information management, reduced fuel and gas non-compliances and improved overall HS&EP behaviours and culture. Areas for improvement include the need to establish ‘safe to operate’ structures; implement alternative procurement routes for novel technologies; facilitate change management through Organisational Safety Assessments; address gaps in the provision of risk assessment training; ensure that emergency arrangements are compatible with outstanding COVID-19 restrictions and new hybrid ways of working without negatively impacting performance; and improve the speed of response to infrastructure defects. (Section 3.2)
- Army – LIMITED Assurance.** The Army have improved HS&EP management by introducing a common assessment methodology within their Safety and Environmental Management System, introducing the Defence Unified Reporting and Lessons System, and improving Fire Safety Management. Improvements were required in the assurance of Land Systems and maritime management systems. It was acknowledged that Army’s improvements needed time to mature. (Section 3.3)
- Air Command – SUBSTANTIAL Assurance.** Air Command have evolved their HS&EP structures and embraced the positive changes implemented during the COVID-19 restrictions. All Safety Inspectors have now been appointed with a formalised routine of safety assurance reporting and reviews. Air Command’s Functional Safety Information Management System continues to mature however

there remains a lack of Suitably Qualified and Experienced Personnel (SQEP) within the Land Safety area and several areas where 2nd Party Assurance was not being conducted. Air Command's complex fuel and gas safety issues require greater focus on infrastructure management and maintenance processes. (Section 3.4)

- **UK Strategic Command – LIMITED Assurance.** A detailed review of HS&EP arrangements identified areas of weakness that led to improved safety performance and the creation of UK Strategic Command's Safety Centre. Areas requiring improvements include a focus on 2nd Party Assurance across their complex portfolio; rectifying deficiencies identified in Cyprus; and the healthcare systems required to maintain patient safety. (Section 3.5)
- **Defence Equipment & Support (DE&S) – SUBSTANTIAL Assurance.** There were notable improvements in Acquisition Safety & Environment and Occupational Health, Safety and Environment performance and improved resourcing of safety posts. The DE&S Inspector of Explosives has worked with the Defence Munitions sites to maintain a high standard of safety. Infrastructure maintenance remains a weaker area and SQEP capacity is an issue for many teams, particularly in specialist areas. The availability of SQEP to conduct safety case management and regulatory oversight in the Land environment was highlighted within the Ajax Noise and Vibration Review recommendations. (Section 3.6)
- **Submarine Delivery Agency (SDA) – SUBSTANTIAL Assurance.** The SDA is in a strong compliance position. They commenced a change programme to address the perceived complexity & bureaucracy in producing and managing nuclear safety cases, introduced a central SDA register for recording organisational arrangements that support and demonstrate compliance with legal requirements, and continued to increase its environmental SQEP with an Environmental Centre of Excellence being established. The SDA recognised that there are areas for improvement including the lack of appointed Transport Manager and Unit Collision Procedures Manager and their Diving Safety Management System. (Section 3.7)
- **Defence Science & Technology Laboratory (Dstl) – LIMITED Assurance.** Dstl benefitted from focusing on self-assurance and the identification of areas for improvement in their overarching Safety & Environmental Management System. There was positive engagement across Dstl that resulted in strong assurance reporting. Improvements were required in their Environmental Management System, Divisional Organisation and Arrangements and Risk Assessments. To enable rapid technology development, Dstl must demonstrate suitable processes to manage and maintain the 'safe to operate' structures for capabilities that they procure. (Section 3.8)
- **Defence Electronics and Components Agency (DECA) – FULL Assurance.** The assurance level indicates controls, process and procedures are embedded across all DECA activities and functioning with high efficiency. DECA sustained 3rd party accreditation to ISO 45001 and ISO 14001, demonstrating DECA senior management's continued commitment to Health, Safety and Environment initiatives. Areas for improvement include implementing formal arrangements for HS&EP management between parent and lodger units within the organisation's sites;

shortfalls in some HS&EP training requirements; and the lack of organisational hierarchy understanding in some areas with their duties and responsibilities for HS&EP management not being clearly defined. (Section 3.9)

- **Defence Infrastructure Organisation (DIO) – LIMITED Assurance.** The DIO implemented their Safety Strategy and established a Safety Improvement Committee. There was also a reduction in number of outstanding Non-Conformances. Whilst much work has been completed, the pace of change has resulted in some anticipated improvements not being achieved. The roll-out of the new Future Defence Infrastructure Services programme has yet to fully demonstrate sustainable, effective delivery. The DIO also acknowledges the need for improved mid-level management and oversight of HS&EP. Considerable investigations continue into fire safety compartmentation within sleeping premises on the Defence estate where shortfalls in remedial works following retrospective installation of services by Defence contractors have been identified. (Section 3.10)
- **Defence Business Services (DBS) – SUBSTANTIAL Assurance.** The network of DBS HS&EP advisors, the Estate Team and the Heads of Establishment demonstrated a high level of commitment to health and safety requirements. The areas for improvement were predominantly policy focussed. (Section 3.11)
- **UK Hydrographic Office (UKHO) – SUBSTANTIAL Assurance.** The UKHO continues to improve its performance, particularly in environmental protection, with a significant commitment towards carbon net zero and an aim to achieve ISO 14001 certification. There was however a lack of clear evidence that a robust assurance programme had been developed and executed within the UKHO. Other issues include absence of an appropriately varied approach to corrective action management and understanding of what constitutes 1st, 2nd and 3rd Party Assurance; shortfalls in resources across several divisions with no attendant recording on a risk register; and a lack of effective document management. (Section 3.12)
- **Oil and Pipelines Agency (OPA) – SUBSTANTIAL Assurance.** The OPA had positive Competent Authority engagement and success in submitting two full Control of Major Accident Hazards Reports. The age and condition of some of the Oil Fuel Depot assets continue to represent the primary risk to operation. Planned upgrades will continue to be implemented over the forthcoming year in accordance with the asset management programme. (Section 3.13)

## Themes

- **Suitably Qualified and Experienced Personnel.** The recruitment, sustainment and retention of HS&EP SQEP remains a Defence-wide issue. Technical skills, particularly those required to develop emergent and transformative technologies, are in high demand. Growth of experience will be vital to all safety critical areas, specifically areas such as platform specific safety, dangerous goods, explosives safety and cyber activities. (Section 6.2)

- **Fire.** Fire Safety Management has improved in many areas and this can be attributed to the work undertaken by the Safety Centres within the Military Commands. The delivery of the Defence Fire and Rescue Project remains problematic with concerns about both the quality of Fire Risk Assessments delivered on the Defence Estate and the provision of Fire and Rescue services. The DSA awaits the formal outcome of reviews conducted by Defence Fire & Rescue and Capita. In the meantime, ongoing engagement across all stakeholders seeks to further understand and mitigate risk, and the tempo of fire safety risk-based audits has increased. (Section 6.3)
- **Organisational Change.** Organisational Safety Assessments (OSA) were being conducted more routinely but their application is inconsistent across Defence organisations. The impact of the Integrated Review and the associated SQEP resource challenge was likely to increase capacity pressures as further change was planned and implemented across Defence. (Section 6.4)
- **Emergent and Transformative Technologies in Defence.** There was inconsistency across Defence organisations in demonstrating suitable management structures and processes to confirm they are 'safe to operate', as well as safely conduct trials. Whilst there will always be a lag between introducing new technologies and the publication of the standards and regulations which will ultimately govern them, the key was early engagement with the regulators to continually work to minimise both the risk, its likelihood and impact. (Section 6.5)
- **Infrastructure.** The safety aspects of infrastructure maintenance were of increasing concern. With multiple stakeholders holding specific areas of responsibility, misunderstanding and misattribution of shortfalls appear to be common issues affecting resolution. Where impacts on safety were identified, it was often the case that accountable individuals charged with maintaining risks to a level that is As Low As Reasonably Practicable (ALARP) and tolerable did not have all the levers necessary to rectify the issues. (Section 6.6)
- **2nd Party Assurance.** There had been an overall improvement in 2nd Party Assurance across Defence. Most larger Defence organisations had effective assurance processes in place; however, several smaller organisations lacked the appropriate resources to carry out their own 2nd Party Assurance effectively. It will also be important in the next year to overcome the challenges of COVID-19 travel restrictions to reinvigorate 2nd Party Assurance activities both in the UK and overseas. (Section 6.7)
- **COVID-19.** During the COVID-19 restrictions, elements of assurance regimes and HS&EP training were modified or delayed. There were promising signs of recovery with all areas adapting and adjusting their working practices to include remote working and assurance regimes. (Section 6.8)

## Regulatory Assurance

The DSA's assessment of the assurance level of each of the regulated domains and functional areas is based on the regulators' assurance assessments of each respective Regulated

Community. It is based on evidence collected throughout the reporting year and is summarised below:

- **Aviation – SUBSTANTIAL assurance.** This year has seen continued improvement in most areas, thereby enhancing the level of maturity compared to last year's assessment. The top air safety threats in priority order were: Mid-Air Collision; managing change safely; Suitably Qualified and Experienced People; Aviation Duty Holder assurance and understanding; and infrastructure and enterprise governance. (Section 4.2)
- **Maritime – SUBSTANTIAL assurance.** Work this year has resulted in greater visibility of the totality of Defence Maritime Activity and an improved understanding of governance and assurance arrangements in place. The top risks in the maritime regulatory domain were: Maritime autonomy/experimentation; UK Strategic Command Safety and Environmental Management System for overseas bases; management of applicable legal requirements for maritime activities; Government owned and operated vessels; and management of 1st and 2nd Party Assurance within the domain. (Section 4.3)
- **Land – SUBSTANTIAL assurance.** The overall assurance level for the land domain across Defence had improved this year. Progress has been made in all four sub-regulated areas and was balanced between the Adventurous Training and Movement & Transport areas which have continued to improve their assurance levels, and the Fuel & Gas and Land Systems areas which have made progress but remained at Limited levels of assurance. Land environment capability was again the most important theme identified; several high-profile events highlighted the need for improvement in safety case management and the development of more focussed regulation centring on the delivery of certification. (Section 4.4)
- **Fire – LIMITED assurance.** Lack of progress in the Fire & Rescue area significantly influenced the assurance levels for all organisations for which Fire & Rescue services had been assessed. An ongoing concern related to the quality and provision of fire protection across the Defence estate. Issues were identified with Risk Assessments delivered via Defence Fire and Rescue (DFR) contractors and with Fire and Rescue service provision. This included a shortage of suitable fire fighter training infrastructure and facilities; inadequate support and maintenance of existing fire fighter training facilities and infrastructure; a deterioration in fire fighter safety critical competencies and insufficient 1st and 2nd Party Assurance by both the contractor, Capita, and DFR. (Section 4.5)
- **Ordnance, Munitions & Explosives – SUBSTANTIAL assurance.** There was very little change compared to last year with many areas remaining consistent. However, one area that reported reduced levels of assurance was Major Accident Control. (Section 4.6)
- **Medical Services – LIMITED assurance.** Several organisational systems of internal control were developing but not yet mature or effective across the Defence Medical Services. (Section 4.7)

## DSA Maturity

Overall, the DSA was assessed at **LIMITED** maturity. (Section 5.2)

The Regulators continued to make incremental improvements to their operations but several key areas constrained overall advancement to **SUBSTANTIAL** levels of maturity:

- Four of the DSA's eight regulators and the Defence Accident Investigation Branch remained at Limited maturity. This is predominantly due to a gap between their current workforce capability and their full remit.
- The Defence Environmental Protection Regulator was established on 1 April 2022 and will take some time to mature.
- The rate of technological change required the Regulators to evolve quickly, often exacerbating existing resource gaps and lack of SQEP workforce to support.
- Recruitment and retention still remained a challenge, particularly for skillsets associated with innovative technology; recruitment campaigns saw an uplift in posts being filled but individuals will take time to mature in their roles.
- There was still a requirement to develop the new Land Certification process, including the certification concept, securing agreement on resource levels and an implementation pathway.
- The healthcare inspection assurance activity is still Limited but has a longer-term plan to provide safety assurance across all Defence delivered healthcare.
- Development of the Certification Team and regulatory processes within the Defence Ordnance, Munitions & Explosives Regulator was still required.



# Section 2 – HS&EP in Defence

## 2.1 – Context

This section provides an overview of Health, Safety and Environmental Protection (HS&EP) in Defence during the period 1 April 2021 to 31 March 2022<sup>1</sup>. It covers safety performance, significant inquiries conducted by the DSA, HS&EP related enforcement action taken by external regulators, Defence governance and Environmental Protection.

## 2.2 – Safety Performance

### 2.2.1 – Fatalities

#### Overall fatalities

The three largest causes of death for UK regular Armed Forces personnel in 2021 were Other Accidents (25), Cancers (15) and Land Transport Accidents (LTA) (9). There were seven confirmed suicides and 22 deaths categorised as possible suicides that were categorised differently and subject to inquest.<sup>2</sup> Consequently, the number of reported suicides is likely to increase in the coming months/year.

Similar to last year, it was identified that across the Regular Armed Forces there was a declining trend in male suicide rates since the 1990s, which had been consistently lower than across the UK general population over the last 35 years. However, the number of Army male suicides had increased since 2017. In 2021, the risk of suicide amongst Army males was the same as the UK general population for the first time since mid-1990.<sup>3</sup>

#### Safety-related fatalities

There were two Defence safety-related fatalities during the reporting period (Table 2-1), both of which are subject to Service Inquiries.

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<sup>1</sup> Data that is extracted from the Defence Statistics reports cover a different date period due to different reporting timelines.

<sup>2</sup> MOD, *Deaths in the UK regular armed forces: Annual summary and trends over time 1 January 2012 to 31 December 2021, 2022*. Figures are for UK regular armed forces and the non-regular members of the UK armed forces who died whilst deployed on operations. Figures include on and off duty fatalities.

<sup>3</sup> MOD, *Suicides in the UK regular armed forces: Annual summary and trends over time 1 January 1984 to 31 December 2021, 2022*



**Defence Safety-Related Fatalities**

15 October 2021	Fatality involving a Combat Vehicle Reconnaissance (Tracked) Scimitar on Salisbury Plain.
2 September 2021	Parachuting fatality at Weston-on-the-Green.

Table 2-1 – Defence Safety-Related Fatalities

The number of safety-related deaths has remained static, with two deaths within each of the reporting periods over the last four years (Figure 2-1). It is worth noting that volatility in the table is caused by a low volume of single accidents resulting in multiple deaths (such as aircraft accidents).<sup>4</sup> Details of other incidents of note can be found in Annex A - Safety-Related Inquiries and Investigations April 2021 – March 2022.

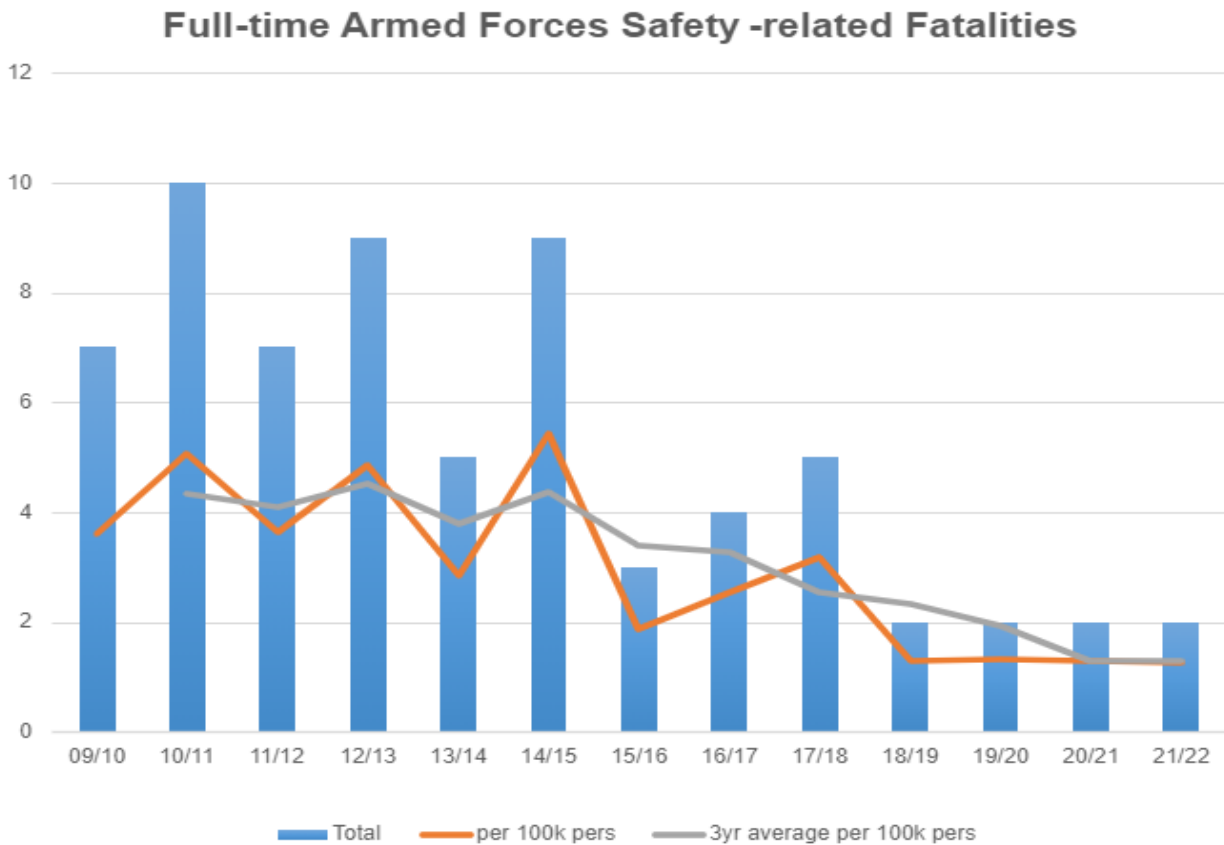


Figure 2-1 – Full-time Armed Forces Safety-related Fatalities

<sup>4</sup> Fatality figures are drawn from MOD, *MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2016/17-2020/21*, 2021. Population figures are drawn from *MOD UK Armed Forces Quarterly Personnel Statistics 2022*, dated 2022 and *MOD, UK Armed Forces Quarterly Personnel Report 1 January 2013*, 2013 for 2009-2011 figures. Full-time Armed Forces comprise all UK Regulars and, Gurkhas and Full-Time Reserve Service.

A comparison of the fatal injury rate for the full-time Armed Forces and other UK industrial sectors over the period April 2016 to March 2021 is in Figure 2-2.<sup>5</sup> While the rate for the Full-time Armed Forces was higher than that in most industries, recent figures indicate that the rate is decreasing and approaching a rate comparable with the construction industry.<sup>6</sup>

**UK Industry Comparison (2016/17-2020/21)  
Fatalities per 100,000 pers**



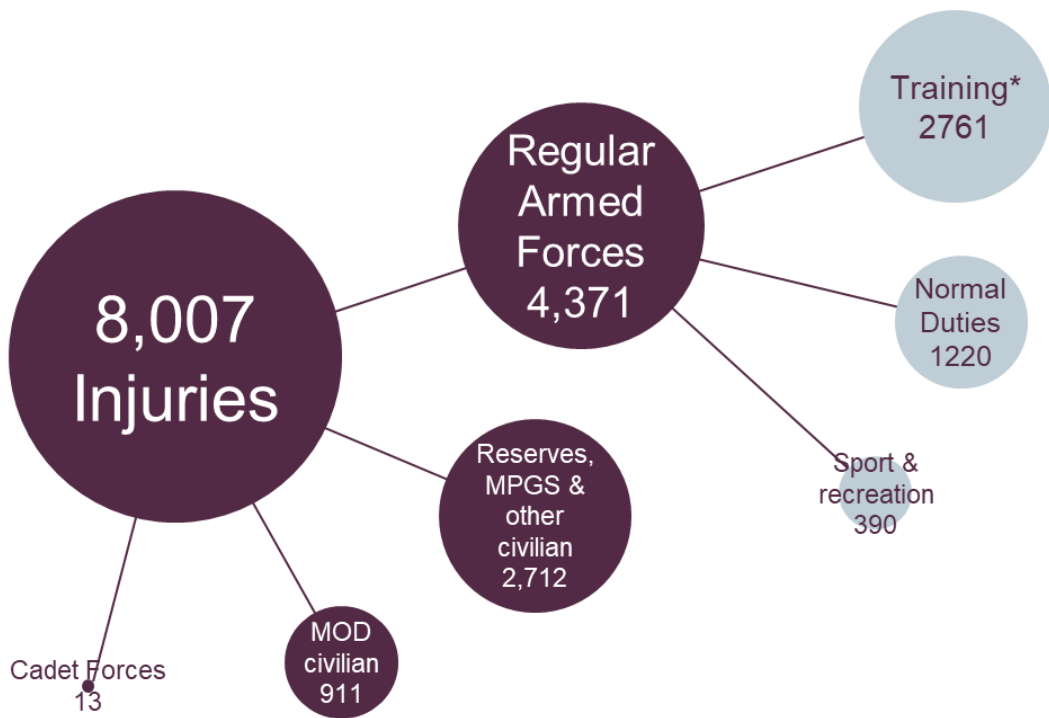
Figure 2-2 – UK Industry Comparison (2016/17 to 2020/21) Fatalities per 100,000 people.

**2.2.2 – Injuries**

The number of injuries reported in 2020/21 is in Figure 2-3, and the trend over time with the addition of illness is represented in Figure 2-4. Statistically, there has been a significant decrease when comparing 2016/17 and 2020/21 figures. This decrease is likely attributable to reduced activity during the COVID-19 pandemic and cancellation of Cadets annual camps in 2020, which resulted in very little activity in this group.

<sup>5</sup> HSE, *HSE Workplace fatal injuries 2021*, p. 6.

<sup>6</sup> A rate of 1.6 fatalities per 100,000 for the Full-time Armed Forces would equate to an average of approximately 2.5 fatalities per year.



\*includes Adventurous Training

Figure 2-3 – Injuries to Defence people reported in 2020/21

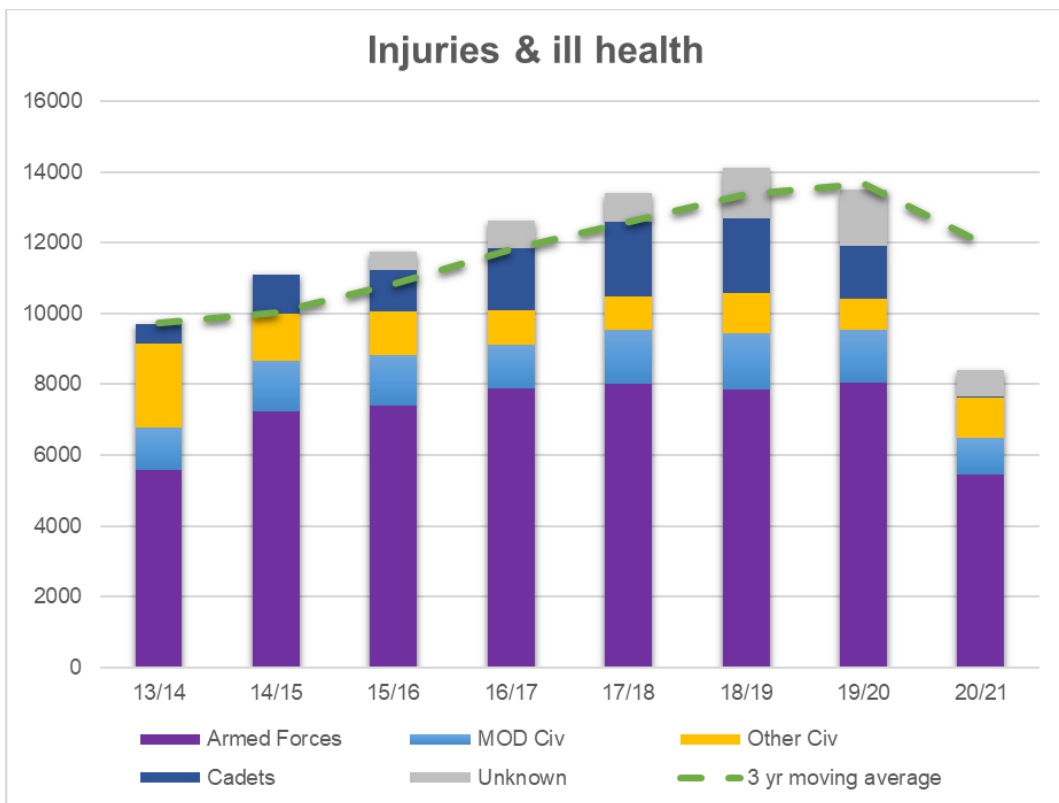


Figure 2-4 – Injuries and Ill Health reported in Defence 2013 to 2021

### 2.2.3 – Ajax

The Ajax<sup>7</sup> project forms the Armoured Cavalry Programme that will provide 589 vehicles from the contractor General Dynamics Land Systems UK. Following reports of potential harm to personnel associated with noise and vibration during the trialling of Ajax vehicles, Director Health, Safety and Environmental Protection was commissioned by the MOD Permanent Secretary to conduct a review into the health and safety management of noise and vibration within the programme.

On 15 December 2021, the Ajax Health and Safety Review<sup>8</sup> was published. It found that, while General Dynamics UK remains contractually responsible for delivering a safe vehicle, a complex combination of the Armed Forces' relationship to harm and weaknesses in the MOD's acquisition system allowed a vehicle to cause potential harm to Army personnel through noise and vibration. The report made 20 recommendations and the MOD accepted all of those relating specifically to armoured vehicle procurements, the regulation of safety for land equipment and the broader approach to safety in Defence.

Ministers also wanted to address the cultural and process issues that might affect the MOD's ability to deliver capabilities and commissioned a follow-on independent review led by Clive Sheldon KC to learn lessons beyond those already identified. The Review is expected to report early in 2023.

### 2.2.4 – COVID-19

Defence, in line with the rest of the country, continued to follow guidance on restrictions as provided by the UK government and devolved administrations. COVID-19 had been a defining feature of the Defence operating environment. As such, the MOD had moved from the COVID Defence management plan to the COVID Defence recovery and response plan. Defence is now establishing an effective and sustainable 'new normal' to continue delivering its core and wider outputs under the constraints of COVID-19 for however long that is required.

## 2.3 – Defence Service Inquiries and Non-Statutory Inquiries

In 2021/22 three Service Inquiries (SIs) and two Non-Statutory Inquiries (NSIs) were completed. The three SIs were into fatal accidents and both NSIs involved remotely piloted vehicles: one an air vehicle and the other a watercraft. The DSA issued two Urgent Safety Recommendation notes and four Urgent Safety Advice notes. DSA SIs and NSIs made 108 recommendations to improve safety. During the same period, one SI remained on-going and a further five SIs and three NSIs were convened.

Significant safety actions taken by the Defence organisations enabled the approval for closure of 159 (133 SI and 26 NSI) recommendations. This demonstrates the considerable range and scale of the safety actions already taken across Defence in response to DSA investigations. 393 recommendations remain open.

The Defence Accident and Investigation Branch (DAIB) deployed on 35 occasions to conduct the initial triage of incidents. They included: twelve vehicle incidents plus one incident involving

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<sup>7</sup> 'Ajax' refers to a family of six variants of the Ajax vehicle.

<sup>8</sup> MOD, *HS&EP Ajax Noise and Vibration Review*, 2021

a vehicle lift; three air systems incidents plus a parachuting fatality; six maritime incidents; five incidents involving weapons and explosives including pyrotechnics; four incidents involving physical activity (a fall from a rope, a mountain bike accident and two winter sport incidents, one involving skiing and the other a luge); one incident involving a Service Person who died on the Defence Estate; one incident involving a contractor who died of natural causes on the Defence Estate; and one fire in Single Living Accommodation on the Defence Estate.

There were over 50% more deployments compared to the previous year, marking a reversal of the significant reduction in the number of deployments seen in preceding years.<sup>9</sup> It is noteworthy that the deployment threshold has not changed in this time, although it is too soon to assess whether this is indicative of any decline in safety across Defence or whether this is a return to pre pandemic levels of occurrences.

Further analysis of the incidents attended by the DAIB and the inquiry reports published in 2021/22<sup>10</sup> continue to highlight familiar findings, namely: failure to follow procedures; lack of appropriate oversight and supervision; inappropriate risk management, ownership and transfer, including inadequate risk assessment and, lack of or inadequate leadership.<sup>11</sup>

## 2.4 – Enforcement Action

There were two Crown notices served during the reporting period (Table 2-2).

Date of Censure	Defence Organisation	Date of Offence	Location	Notes
25 October 2021	Army	15 October 2021	Salisbury Plain Training Area	Crown Stop Notice: Risk of head entrapment whilst traversing the turret of Scimitar armoured vehicles.
08 November 2021	Royal Air Force	02 September 2021	Parachute Training School, Royal Air Force Weston-on-the-Green (WOTG)	Improvement Notice for Crown <sup>12</sup> - Not carrying out suitable and sufficient assessment of the risks to the safety of the RAF employees and those not in the RAF's employment arising from the wearing of camera suits or camera jackets during Joint Services Adventure Training at WOTG.

Table 2-2 – Crown Notices

<sup>9</sup> 2016/17 – 47; 2017/18 – 34; 2018/19 – 37; 2019/20 – 18; 2020/21 – 22.

<sup>10</sup> Published Ministry of Defence Inquiry Reports can be found at <https://www.gov.uk/government/collections/service-inquiry-si>

<sup>11</sup> This includes the contribution at the Command level on an incident when allocating resource, setting the organisation's working parameters (including routines and culture) and generating the policy and guidance that subordinate units work to.

<sup>12</sup> Notice number 311939108. HSE, <https://resources.hse.gov.uk/notices/default.asp>

Most findings during DSA audits or inspections have been minor in nature and have been dealt with locally through Corrective Action Requirements (CAR) or observations documented in post-audit debriefs and reports. Enforcement Action is utilised by statutory and Defence regulators only where they find significant non-compliance or a hazard which, if left unaddressed, could impact upon safety, cause environmental damage, or place personnel and operational capability at risk. Conclusions from analysis of the DSA enforcement data inform the domain and organisational assurance assessments.

## 2.5 – Governance of Health Safety and Environmental protection in Defence

The main areas of note included:

- The HS&EP Function Operating Model was published in September 2021. This set out the framework by which HS&EP is considered and appropriately applied across Defence.<sup>13</sup>
- Progress was made on the provision of HS&EP data. The new Defence Unified Reporting and Lessons System (DURALS) was launched in Army and UK Strategic Command in January 2022. DURALS still requires significant development and financial investment to achieve sufficient maturity for all Defence organisations to adopt it and become the Defence-wide reporting and learning system.
- The identification of the HS&EP Profession was underpinned by the development of support to HS&EP professionals and practitioners, and those with HS&EP responsibilities across Defence. This will see the review of the HS&EP Competency Framework, the introduction of Career Pathways and the establishment of a HS&EP Professional Network.
- There was an emphasis on Climatic Illness and, in particular, on Heat Illness training. The Directorate of Health Safety & Environmental Protection established the first modules of the online Heat Illness Training course in October 2021. 13,000 people have undertaken the training with 11,860 people passing the course since it went live. A further three modules were due to be published in May 2022.
- The Defence Safety & Environment Committee endorsed the creation of a Defence Environmental Protection Regulator (DEPR) within the DSA. The DEPR was formally established in April 2022.<sup>14</sup>

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<sup>13</sup> MOD, *Health Safety & Environmental Protection (HS&EP) Function Operating Model*, 2021

<sup>14</sup> MOD, <https://www.gov.uk/government/groups/defence-environmental-protection-regulator-depr>

## 2.6 – Environmental Protection

In November 2021, the new Environment Act was passed.<sup>15</sup> The Act aims to improve air and water quality, tackle waste, increase recycling, halt the decline of species, and improve the natural environment. These changes will be driven by new legally binding environmental targets that will be enforced by a new statutory regulator—the Office of Environmental Protection (OEP). This will hold government and public bodies to account, including Defence, on their environmental compliance with regulation. Defence Ministers are officially exempt from adhering to the five environmental protection principles<sup>16</sup> required across legislation, policies and frameworks. However, Defence intends to demonstrate its compliance with these principles by developing the tools and processes that support environmental management in Defence’s capability delivery. The new Defence Environmental Protection Regulator was established with an initial operating capability in April 2022.

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<sup>15</sup> Environment Act, 2021

<sup>16</sup> The integration principle; the prevention principle; the rectification at source principle; the polluter pays principle; the precautionary principle.



# Section 3 – Defence Organisation Safety and Environmental Protection Assurance

## 3.1 – Scope

The Annual Assurance Report (AAR) provides the Secretary of State and the Defence Board with an independent view of the progress that each Defence organisation has made towards the target of Substantial levels of assurance. The production of the AAR requires a variety of inputs to arrive at a holistic assessment. Information from the DSA and the HS&EP Directorate augment self-assessments from across all Defence organisations.

This section describes the level of assurance for each Defence organisation and outlines the main supporting observations. Specifically, this section highlights areas that have improved and those areas that require further improvement. The levels of assurance are categorised as: Full, Substantial, Limited or No Assurance (see table 3-1 for definitions and colour-coding used in the diagrams).<sup>17</sup> The overall assurance assessment for each Defence organisation is shown below in table 3.2.

Assurance Level	Definition
<b>F – Full</b>	System of internal control established and operating effectively.
<b>S – Substantial</b>	System of internal control established and operating effectively with some minor weaknesses.
<b>L – Limited</b>	System of internal control operating effectively except for some areas where significant weaknesses have been identified.
<b>N – No Assurance</b>	System of internal control poorly developed or non-existent, or major levels of non-compliance identified.
<b>U – Unassessed</b>	System of internal control applicable but not able to be assessed.
<b>NA – Not Applicable</b>	System of internal control not applicable.

Table 3-1 – Defence HS&EP Assurance Levels.

<sup>17</sup> Defence Internal Audit definitions of assurance which originate from the Chartered Institute of Internal Auditors.

Defence organisation											
Navy Command	Army	Air Command	UK Strategic Command	Defence Equipment & Support	Submarine Delivery Agency	Defence Science and Technology Laboratory	Defence Electronics and Components Agency	Defence Infrastructure Organisation	Defence Business Services	UK Hydrographic Office	Oil & Pipelines Agency
S (L)	L (S)	S (L)	L (S)	S (L)	S	L (S)	F	L (S)	S (F)	S	S

Example 1: Substantial with aspects that are Limited	S (L)
Example 2: Substantial	S

Table 3.2 – HS&EP assurance assessment of Defence organisations

### 3.2 – Navy Command – SUBSTANTIAL Assurance

Whilst some areas remain limited, Navy Command has achieved Substantial levels of assurance overall.

Areas of good practice and improvement include the following:

- The management of HS&EP has improved despite the continued restrictions of COVID-19 and the extensive changes experienced following Navy Command transformation. Positive changes in attitudes and behaviours have been evidenced by more reasonable challenge at the unit/platform level, the development of more effective support structures and employment of competent advisors at the headquarters level.
- Navy Command has appropriately focussed on continuing to improve HS&EP behaviours and culture, specifically in areas such as reasonable challenge, human performance and HS&EP consciousness. The development of the Safety Environment Assessment Tool (SEAT) is expected to be the primary safety culture survey tool for use across Navy Command, giving a more consistent measure of performance.
- HS&EP information management has improved, particularly in the committee structure. The development of safety messaging and information sharing policy was actioned in the Royal Navy Safety Improvement Plan. Improvement has also been shown across 2nd Party Assurance and the production and management of Safety and Environment Management Plans (SEMP).

- There have been improvements in addressing non-compliances in the fuel and gas areas. Further focus is needed on supporting delayed infrastructure projects and ensuring appropriate maintenance regimes and inspection plans are in place.

Areas identified for further development include the following:

- The establishment of 'safe to operate' structures, outside the DE&S construct, in response to exploring alternative procurement routes for more novel technologies. The Naval authorities are assessing which suitably empowered, qualified and experienced engineers should be in these constructs, noting that issues associated with certification have been experienced in the past.
- Navy's change management requires constant review to ensure HS&EP requirements are adequately met. The requirement for, and effectiveness of, Organisational Safety Assessments (OSA) is not yet universally appreciated. In addition, the setting and monitoring of HS&EP objectives and performance metrics needs expansion to ensure they effectively cascade through Directorates.
- As part of the Navy Command HQ transformation, there has been a refocussing of assurance responsibilities at the 1\* and 2\* directorate level rather than at unit or platform level. This is yet to be fully implemented, thereby leaving gaps in assurance.
- A gap in the provision of risk assessment training for Navy Command personnel was identified. The Navy Safety Centre is pursuing improved risk assessment training which will cover all Navy Command personnel.
- Emergency arrangements were identified and documented but required testing to ensure COVID-19 restrictions and new hybrid ways of working do not negatively impact performance. Navy Command emergency arrangements are well established and practiced in the Maritime environment, however the emergency response preparedness in the Land environment may have suffered during COVID-19 and previous assumptions regarding the availability of personnel may have changed.
- The speed of response to infrastructure defects and the applied rectification standards require improvement; specifically, a faster turnaround of reporting to completion with appropriate work standards applied.
- The management of Fire Safety was identified as an issue.
  - There were significant shortfalls with the maintenance of fire safety systems within accommodation blocks. Overall, there is a need for improved assurance associated with fire safety management compliance to be cascaded through the Royal Navy estate.
  - Fire safety assurance evidence has shown increased low-level non-compliances associated with staff training on the Royal Navy estate. Such shortfalls include inadequate fire evacuation drills and a lack of formal training for building managers.

- The suitability of the Fire Risk Assessments delivered by Capita, via the Defence Fire and Rescue Headquarters, has been challenged by the Royal Navy Safety Centre; several Fire Risk Assessments require formal review and reissue.

### 3.3 – Army – LIMITED Assurance

Army's assurance is assessed as Limited. This is heavily influenced by the assurance of Land Systems and the time needed for Army's improvements to mature.

Areas of good practice and improvement include the following:

- The Army's Safety and Environmental Management System (SEMS) has adopted the Total Army Assurance Picture (TAAP) to provide a common assessment methodology across Army Safety and Environmental Management System Assurance (ASEMSA).
- The introduction of the Defence Unified Reporting and Lessons System (DURALS) will help to improve safety culture but needs time to mature and deliver benefits.
- There has been considerable progress within the Army's Fire Safety Management. Improved awareness, engagement and training is informing other areas of the Force Protection training and education portfolio.
- There continued to be robust activity throughout the COVID-19 pandemic in support of the civil authorities, operations and training. The main focus has been to capture effective evidence of assurance activities to support the assessments provided in the quarterly returns. These were consolidated for 2021/22 and will provide greater granularity in the future.

Areas identified for further development include the following:

- The Ajax Noise and Vibration Review was commissioned by the MOD Permanent Secretary following reports of potential harm associated with noise/vibration during the trialling of the Ajax family of vehicles.<sup>18</sup> The report highlighted significant areas of weakness within the Ajax programme, as well as more generic armoured vehicle noise/vibration issues, and made recommendations to Army, DE&S and Head Office. This report heavily influenced Army's overall assessment.
- There have been issues within Army's Maritime domain including port and marine facility management, maritime activity specific Safety and Environmental Management Plans and the lack of an organisational baseline. There is improvement with the new Duty Holding construct in Army Command (Maritime) that went live in January 2021, however a baseline audit of Army Boats in October/November 2021 still identified several shortcomings that required addressing.

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<sup>18</sup> MOD, *HS&EP Ajax Noise and Vibration Review*, 2021

- The Army's ability to investigate safety issues is still extremely limited and based on 'best endeavours'; this is being addressed, but progress has been slow.
- Fire Safety issues were identified.
  - The Army Safety Centre has developed comprehensive guidance for Unit Fire Safety Manager duties. However, insufficient formal training has impacted the ability to 'cascade train' Building Managers which impacts the overall ability to manage fire safety. The Army recognises that it has a culture of its people being prepared to take risks due to the nature of its operating environments. Thus, there is an ongoing need to maintain an elevated level of fire safety risk education.
  - There is reduced confidence in the delivery of Fire Risk Assessments and infrastructure maintenance activities that are undertaken by contactors outside of the Army's control. This is having a detrimental effect on the level of fire safety compliance observed during audits.

### **3.4 – Air Command – SUBSTANTIAL Assurance**

Air Command has seen minor improvements and, overall, has achieved Substantial levels of assurance.

Areas of good practice and improvement include the following:

- There have been significant changes in Safety Management and working practices across Air Command due to COVID-19, many of which endured as restrictions were eased. Air has also continued to evolve its HS&EP structures, with benefits starting to be realised next year.
- All Safety Inspectors have now been nominated and appointed with a formalised, effective, and efficient routine of safety assurance reporting and review. Work continues to adequately resource the Inspectors' teams to address safety assurance, oversight and analysis which continues to be the primary cause for some areas remaining at Limited assurance for 2021/22. Within those areas that have achieved Substantial levels of assurance, opportunities remain to refine oversight/analysis and strengthen relationships both within and externally to Air Command.
- Air Command's Functional Safety Information Management System is maturing with increased awareness across the Command to encourage growth in safety near-miss reporting. The Performance and Risk Information Management System (PARMIS) is evolving in its capability and usage, with safety assurance and risk reporting now well-established.

Areas identified for further development include the following:

- There is a lack of SQEP within the Land Safety area<sup>19</sup> with no Land Safety team in place and several areas where 2nd Party Assurance was not being conducted. Progress in these areas was slow but improvements should be seen over the next 12 months. An Inspector of Land Safety, a new position, has already identified several non-compliances. Causal factors include a lack of through-life training/education on Defence regulation and policy and a shortage of subject matter experts at Air Command units. The gap in Land Safety sits in stark contrast to the well-established Air Safety system.
- Air Command reported issues around fuel and gas safety due to infrastructure and maintenance deficiencies. The domain is managed by both Air Command (Fuel) and DIO (Gas) which presents assurance challenges. Bulk Fuel Carrying Vehicle parks, gas storage and Oil Water Interceptors continue to present challenges due to lack of influence on activities undertaken by DIO with respect to the management of Gas infrastructure and supply. There is no visibility of assurance activities or reports. A Service Level Agreement has been established between Air Command Headquarters, the Oil and Pipeline Agency (OPA) and DIO to incorporate expertise into DIO intervention teams across regional hubs and introduce an industry-based approach to repair and replacement. The introduction of Future Defence Infrastructure Services should return significant benefits by incorporating an OPA fuel expert into the Air Command fuel estate.
- Since the formation of the Fire Safety Cell within the RAF Safety Centre, there have been significant improvements in fire safety across the Air estate; it remains important that the critical safety posts within this area are maintained. Despite these improvements, significant issues were identified.
  - Fire Risk Assessments delivered by Capita, via the Defence Fire & Rescue (DFR) Headquarters, have been challenged by the Air Safety Centre with regards to their suitability and speed of delivery. The RAF Safety Centre is waiting for copies of both the DFR and Capita studies into Fire Risk Assessment shortfalls and remedial action implementation plans.
  - The results from the DIO Compartmentation Surveys have identified the requirement for investment in remedial works for holes and voids in fire compartments and the repair or replacement of fire doors.

### **3.5 – UK Strategic Command – LIMITED Assurance**

UK Strategic Command is assessed as having Limited levels of assurance overall noting that many of its internal organisations have made significant advances and achieved Substantial

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<sup>19</sup> Land Systems covers equipment (e.g., integrated weapons, military vehicles, communications and support equipment), whereas Land Safety is the wider term (analogous to Air Safety) encompassing all activity that is conducted within the Land environment.



levels of assurance. Those UK Strategic Command organisations not at Substantial levels of assurance were expected to achieve this in 2022/23.

Areas of good practice and improvement include the following:

- A detailed review of HS&EP arrangements was conducted to identify areas of weakness and to develop a plan to improve safety performance. An important recommendation was to create a UK Strategic Command Safety Centre to mirror good practice within the single Services. As a result, several new specialist safety posts were recruited, including the Safety Centre Head. The Safety Centre is planned to reach initial operating capability in June 2022.
- UK Strategic Command Heads of Establishment (HoE) have been given a clearer understanding of their governance, roles, responsibilities, authorities and accountabilities, resources, support arrangements and HS&EP risk escalation routes. This improves their ability to manage risk and supports the UK Strategic Command HS&EP Committee priorities to drive continual improvement.

Areas identified for further improvement include the following:

- It was acknowledged by UK Strategic Command, and identified within the Regulator reports, that there was a requirement to develop a comprehensive understanding of 2nd Party Assurance mechanisms across its complex portfolio. UK Strategic Command relies on the single Services' support in many areas including the assurance of some 'functional safety' areas, particularly relating to military activities. This work is developing and is expected to start delivering improvements during the 2022/23 reporting year.
- An audit of UK Strategic Command's overseas bases in November/December 2021 raised significant issues across maritime aspects of the Cyprus base and associated activity. This included concerns over authorities and accountabilities, Duty Holding, risk management and contractor management. An action plan has been developed to rectify the shortcomings. These concerns are also recognised within the Defence Medical Safety Regulator (DMSR), where the governance and assurance journey shows little improvement from the previous year with no 2nd Party Assurance conducted. There are some encouraging work strands building to support the governance and assurance of overseas healthcare capabilities though DMSR is yet to see these operating effectively.
- A number of healthcare systems require considerable improvement to ensure a sustained and consistent approach to maintain patient safety. This is at a time of significant risk with the challenges of maintaining operational delivery and transforming its services to provide more optimised, effective, safe care whilst recovering from COVID-19. A number of effective organisational systems, such as collective organisational learning, assurance of overseas healthcare, contracted healthcare and elements of the operational patient care pathway are developing but not yet mature across the Defence Medical Services. Shortfalls in governance and assurance training, and gapping of assurance posts, contributes to the lack of 2nd Party Assurance.



- It was identified by the Defence Fire Safety Regulator that there were shortfalls in the delivery of Fire Risk Assessments, especially where delivered by Capita via the Defence Fire & Rescue Headquarters. This issue has been extensively challenged by the UK Strategic Command Fire Safety Team with regards to suitability and speed of delivery. In addition, infrastructure maintenance undertaken by regional and secondary contractors is falling short of Defence policy requirements. The Fire Safety Cell within UK Strategic Command is still maturing but is making positive changes to identify and manage issues.

### **3.6 – Defence Equipment & Support – SUBSTANTIAL Assurance**

DE&S has made progress in many areas and has Substantial levels of assurance overall. There are notable improvements in Acquisition Safety & Environment (ASE) and Occupational Health, Safety and Environment (OHSE) performance.

Areas of good practice and improvement include the following:

- There has been a resource issue for safety posts across DE&S over the past twelve months that has been addressed by high fill rates. In addition, the fill rates for the supporting roles in the Acquisition Safety and Environmental Protection (ASEP) Technical Discipline are now fully filled with SQEP or supported via Internal Technical Support (ITS) or Engineering Delivery Partner (EDP) resource.
- The Defence Legislation Support Tool is being developed to provide enhanced functionality that will allow Projects Teams to determine statutory compliance. This has been delivered and is expected to deliver benefits in the next year.
- Inspector of Explosives (DE&S) has worked with the Heads of Establishments across Defence Munitions sites to maintain a high standard of safety throughout the year. Their achievements in the recent commissioning of Glen Mallan Jetty, operated by Defence Munitions Glen Douglas, was a significant milestone in support of the UK's new aircraft carriers.

Areas identified for further improvement include the following:

- Infrastructure Maintenance remains one of DE&S' weaker areas for OHSE. The new proactive maintenance regime and prioritised remedial works are expected to resolve many of these concerns over the next few years.
- Significant information management weaknesses in the Air Environment were identified earlier in the year. A technical solution is being delivered at pace and supported by a cultural change programme to embed the appropriate record-management behaviours.
- SQEP capacity remains an issue for many teams, particularly in the specialist areas. This has been partially mitigated by the use of external technical resources and a longer-term solution is required.
- The Land environment has seen several high-profile events including the Directorate of Health and Safety and Environmental Protection report into: Ajax; the review of the

wider Armoured Vehicle fleet; and the fatal injury to the driver of a CVRT on Salisbury Plain in 2021. The Defence Land Safety Regulator (DLSR), along with Army, DE&S and Head Office, has been examining the shortfalls in these areas. It has identified contributory factors that include the availability of SQEP to conduct safety case management and the depth and breadth of regulatory oversight. It should be noted that the Ajax review and recommendations have been considered in the overall assessment level.

### **3.7 – Submarine Delivery Agency – SUBSTANTIAL Assurance**

There are some areas where the Submarine Delivery Agency (SDA) is in a strong compliance position but does recognise that there are areas for improvement. The SDA is overall Substantial.

Areas of good practice and improvement include the following:

- At the start of the reporting period, a formal recommendation was made by the Defence Nuclear Safety Committee (DNSC) to address the perceived complexity & bureaucracy in producing, delivering and managing nuclear safety cases. The SDA is leading on this action and commenced a change programme to address the recommendation.
- A new safety process has been published that will set out how the SDA will identify and evaluate safety compliance. It introduces a central SDA register for recording organisational arrangements that support and demonstrate compliance with legal requirements. In addition, the register will track the Defence Disapplication, Exemption, and Derogation provisions in Statutory Instruments.
- The SDA continues to increase its environmental SQEP with an Environmental Centre of Excellence being established and the introduction of a new Environmental Manager.

Areas identified for further improvement include the following:

- The evidence presented by the Defence Diving Standards Team audit identified that the SDA does not have an appropriate Diving Safety Management System. An action plan has been agreed to address the issues.
- The SDA has Authorised Demanding Officers (ADO) at relevant sites who oversee the transport operations. However, the SDA has no appointed Transport Manager or Unit Collision Procedures Manager (UCPM). There is synergy between SDA and the DNO Transport Manager responsibilities, however, there was no evidence that the DNO role formally covers the SDA.

### **3.8 – Defence Science & Technology Laboratory – LIMITED Assurance**

The Defence Science & Technology Laboratory (Dstl) has an overall assessment of Limited and was not able to provide objective evidence to achieve Substantial assurance.

Areas of good practice and improvement include the following:

- Dstl benefitted from focused self-assurance and the identification of areas for improvement in the overarching SEMS. This all contributed to reducing and eliminating vulnerabilities in the layers of the protection that form a robust and resilient approach to safety management and environmental protection.
- A Defence Internal Audit (DIA) audit concluded that the effectiveness of Dstl's Health and Safety assurance regime was Substantial.<sup>20</sup> DIA found positive engagement across Dstl that resulted in strong assurance reporting that highlighted strengths and areas for improvement.

Areas identified for further improvement include the following:

- Themed audits concluded a Limited confidence assessment for Dstl's Environmental Management System (EMS), Divisional Organisation and Arrangements and Risk Assessments (RA). This is consistent with the assurance assessments against the Performance Framework for which this assurance sampling has usefully identified improvements for all three areas. This approach to themed sampling will continue to be an aspect of Dstl's assurance regime with particular emphasis on fundamentals such as RAs.
- In 2019 Dstl decided not to renew its accreditation against ISO 14001 because it was not a MOD policy requirement but, committed to continue developing its existing EMS. However, a decision was taken to fundamentally review the documentary basis of this EMS by Dstl's Estates Team before it was reinstated; this work is still in progress.
- The Dstl Platform Systems Division has created an internal 'Safe to Operate' structure. The ability of this new construct to enable rapid technology development and integration whilst maintaining platforms that are safe to operate remains a concern and introduces risk. Dstl must demonstrate suitable processes to manage and maintain the 'safe to operate' structures for capabilities that they procure.

### **3.9 – Defence Electronics and Components Agency – FULL Assurance**

The FULL assurance level indicates controls, process and procedures are embedded across all DECA activities and functioning with high efficiency. A significant factor is that DECA has sustained 3rd party accreditation to ISO 45001 and ISO 14001, which demonstrates DECA senior management's continued commitment to Health, Safety and Environment initiatives.

Areas of good practice and improvement include the following:

- To support further strengthening of their SEMS, they identified a small number of minor aspects for incremental improvement across training, contractors, and the

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<sup>20</sup> While the DIA assessed Dstl's Health & Safety assurance regime and arrangements for Duty Holding, their overall assessment is based on their self-assessment (including sampling of specific HS&EP themes) and DSA regulatory assessments.

shared site facilities (lodgers). These have been captured within a management action plan which DECA aims to fully address by September 2023.

Areas identified for further improvement include the following:

- Where applicable, formal arrangements for HS&EP management should be made between parent and lodger units within the organisation's sites. DECA has arrangements in place that need to be formalised and documented to ensure continuity and uniformity across Parent and Lodger units.
- Shortfalls existed in some HS&EP training requirements. The rationale for the shortfalls was due to the difficulty in securing training suppliers during the COVID-19 pandemic.
- There was a lack of organisational hierarchy understanding in some areas with their duties and responsibilities for HS&EP management not being clearly defined.

### **3.10 – Defence Infrastructure Organisation – LIMITED Assurance**

Defence Infrastructure Organisation (DIO) has Limited levels of assurance against a background of organisational change and the transition to the Future Defence Infrastructure Services programme<sup>21</sup> in 2021/22. Whilst much work has been completed, the pace of change has resulted in some anticipated improvements not being achieved.

Areas of good practice and improvement include the following:

- The DIO Safety Strategy was implemented, and a Safety Improvement Committee established. These highlight an overall top-down drive and direction for safety culture improvement with gains made in 2021/22 look set to consolidate into 2022/23.
- There was a continuing improvement to the number of outstanding Non-Conformances identified as part of the DLSR gas audit regime of Bulk LPG installations operated by DIO. This was due in part to the LPG supplier tank changeover programme replacing and updating equipment. It was also supported by the improved visibility of the DLSR database to track Non-Conformances for follow-up.

Areas identified for further improvement include the following:

- There has been continued focus on delivering and assuring infrastructure compliance, but the roll-out of new Future Defence Infrastructure Services programme is a significant change which has yet to fully demonstrate sustainable, effective delivery and needs to gain full confidence as the new arrangements settle.
- The DIO has a Safety, Health, Environmental Management System (SHEMS) covering the organisational arrangements for DIO's activities. This document is largely in place but needs to be reviewed to ensure sufficiency, coverage, and

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<sup>21</sup> The Future Defence Infrastructure Services programme is the DIO's new approach to maintaining the Defence estate.

currency. The SHEMS requires inclusion of and clarity in roles, responsibilities and interfaces for the DIO's involvement as a Duty Holder (if applicable), in Duty Holder Facing activities and Duty of Care.

- The DIO acknowledges the need for improved mid-level management and oversight of HS&EP. This includes improvements to the quality and reliability of incident investigation, self-assessments of HSEP performance and management reviews of activity.
- Considerable investigations continue by DIO regarding fire safety compartmentation within sleeping premises on the Defence estate. Investigations continue to identify shortfalls in remedial works following retrospective installation of services by Defence contractors. The investigations are also identifying that some premises have not been constructed to the applicable Building Standards when originally constructed. Shortfalls identified have included missing fire barriers, building materials used inappropriately and compartment walls not fully adjoining compartment floors.

### **3.11 – Defence Business Services – SUBSTANTIAL Assurance**

The Defence Business Services (DBS) is assessed as Substantial overall. The network of DBS HS&EP advisors, the Estate Team and the Heads of Establishment demonstrated a high level of commitment to health and safety requirements and provided appropriate support to staff, visitors and lodger units. The arrangements for managing and adapting to a COVID-19 safe working environment were embraced by DBS staff. Critical staff returning to work were supported using risk assessments and workplace adjustments. Staffing levels were continually monitored to ensure compliance with government policy

The areas for improvement were predominantly policy focussed. The HS&EP Organisation and Arrangements Statement and Environmental Management System need to be issued, and more work was required to ensure that the DBS staff were aware of and had ready access to HS&EP advisors and information.

### **3.12 – UK Hydrographic Office – SUBSTANTIAL Assurance**

Work is ongoing to improve the UK Hydrographic Office (UKHO) HS&EP assurance which is currently assessed as Substantial. The UKHO continues to improve its performance, particularly in the area of environmental protection with a significant commitment towards carbon net zero. This work aims to achieve ISO 14001 certification.

The first DMR Assurance Advisory visit was completed in September 2021. The main shortfalls were: a lack of clear evidence that a robust assurance programme had been developed and executed within the UKHO; absence of an appropriately varied approach to corrective action management and understanding of what constitutes 1st, 2nd and 3rd Party Assurance; shortfalls in resources across several divisions with no attendant recording on a risk register; and a lack of effective document management, that unless rectified, will lead to a decay in the UKHO's ability to manage and adhere to their own policies and procedures.

### **3.13 – Oil and Pipelines Agency – SUBSTANTIAL Assurance<sup>22</sup>**

The Oil and Pipelines Agency (OPA) have had a successful year with Competent Authority (CA) engagement and are recognised as having Substantial assurance. There were four interventions/visits with no outstanding legal actions and a personal accolade from the Human Factors (HF) Inspector regarding the high standard of the HF assessments. OPA successfully submitted two full Control of Major Accident Hazards (COMAH) Reports – Loch Striven and Cape of Good Hope and a Modification COMAH Report for Thanckes Oil Fuel Jetty.

The age and condition of some of the Oil Fuel Depot assets continue to represent the primary risk to operation. Planned upgrades will continue to be implemented over the forthcoming year in accordance with the asset management programme. This major investment programme is fully funded and on track for delivery to improve primary containment and safety instrumented systems.

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<sup>22</sup> The OPA is not regulated under the Defence Safety Authority or under Defence's Major Accident Control Regulations (MACR). The Oil and Pipelines Agency operates under the COMAH Regulations, with the relevant Competent Authority (CA) providing the regulatory scrutiny.





# Section 4 – Safety and Environmental Regulatory Assurance

## 4.1 – Scope

In the UK, Defence follows all health, safety, and environmental protection (HS&EP) laws that apply in the UK. Overseas, Defence follows the laws that apply in that location. If laws that apply overseas fall short of UK requirements, Defence will apply UK standards as far as reasonably practicable.

To enable Defence to operate effectively, there are aspects of UK law and regulation that do not apply to Defence activities. In these cases, Defence makes Departmental arrangements that produce outcomes that are, as far as reasonably practicable, at least as good as those required by UK law. Defence does this through sensible and proportionate self-regulation which balances risk against operational capability.

The DSA, on behalf of the Secretary of State (SofS), maintains arrangements in the form of Defence Regulations.<sup>23</sup> The DSA divides this requirement into eight domains and functional areas, each of which is overseen by a Defence Regulator (Figure 4-1) which produces and enforces regulation and conducts assurance activity within that domain or functional area. The DSA is also required to provide independent assurance, as part of the Department's 3rd Line of Defence, to the SofS that Defence is complying with their HS&EP Policy Statement,<sup>24</sup> and to investigate accidents.

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<sup>23</sup> 'To produce outcomes that are, so far as reasonably practicable, at least as good as those required by UK legislation', MOD, *Health, Safety and Environmental Protection in Defence*, 2020, para 3.

<sup>24</sup> MOD, *Charter for the Defence Safety Authority*, 2020, para 2.



Figure 4-1: DSA Regulators

**Assurance Model**

Each DSA regulator conducts assurance activities in its domain or functional area across all relevant Defence organisations to make an evidence-led assessment of HS&EP compliance. This is done by conducting surveillance, independent audits and inspections, and wider information gathering while also drawing on the results of the assurance activity conducted within Defence organisations.

The DSA’s assessment of the assurance level of each of the regulated domains and functional areas is based on the regulators’ assurance assessments of each respective Regulated Community.<sup>25</sup> It is based on evidence collected throughout the reporting year and inputs from Defence organisations.<sup>26</sup> Levels of assurance are categorised as: Full, Substantial, Limited or No Assurance (see Table 4-1 for definitions and colour-coding used in the diagrams).<sup>27</sup>

<sup>25</sup> Defined as the organisations or units within a Defence organisation whose activities fall under Defence safety regulations for a specific domain or functional area.

<sup>26</sup> Defence organisations were invited to provide DSA with any additional evidence (in the form of annual assurance report, risk registers, etc) to inform the safety assurance assessment.

<sup>27</sup> Defence Internal Audit definitions of assurance which originate from the Chartered Institute of Internal Auditors.

Assurance Level	Definition
<b>F – Full</b>	System of internal control established and operating effectively.
<b>S – Substantial</b>	System of internal control established and operating effectively with some minor weaknesses.
<b>L – Limited</b>	System of internal control operating effectively except for some areas where significant weaknesses have been identified.
<b>N – No Assurance</b>	System of internal control poorly developed or non-existent, or major levels of non-compliance identified.
<b>U – Unassessed</b>	System of internal control applicable but not able to be assessed.
<b>NA – Not Applicable</b>	System of internal control not applicable within regulatory domain.

Table 4-1 – Defence Safety Assurance Levels.

This is the first year that detailed assessments have been made against the eleven elements of the safety system contained in JSP 375 *Management of Health and Safety in Defence*. The assessments are summarised pictorially (demonstrated in Table 4-2). The centre colour represents the overall assurance level for that organisation and element, while the fringe colour represents variations within the overall assessment.

Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Organisation 1	L (S)	S (L)	L	S	L	S	U	L	S (L)	S (L)	S	L
Organisation 2	S (L)	L (S)	L (S)	S (F)	S (F)	S (L)	L (N)	L (N)	S (L)	F (S)	L (N)	S (L)
Organisation 3	L	N	S (L)	L	L (S)	U	NA	S (L)	U	L (N)	L (S)	L (S)

Example 1: Substantial with aspects that are Limited	S (L)
Example 2: Substantial	S

Table 4-2 – Depiction of Defence Safety Assurance Levels for regulatory domains.

## 4.2 – Aviation

### **SUBSTANTIAL Assurance – building on last year’s assessment with continued improvement in most areas.**

#### 4.2.1 Aviation Domain Scope

With an almost complete exemption from the United Kingdom’s Air Navigation Order, Defence is required to regulate all activity in the Defence Air Environment (DAE). This is conducted by the Military Aviation Authority (MAA), the safety regulator for all UK Military Aviation. All Military Commands operate in the aviation domain with significant support from DE&S and industry; all are, therefore, subject to MAA regulation and assurance.

#### 4.2.2 Aviation Assurance Summary

There has been a small improvement in the safety assurance levels across the majority of the DAE although Duty Holder Facing (DH-F) organisations are at a lower level of understanding than the remainder of the DAE. The overall assessment remains Substantial with only minor weaknesses evident. The MAA will continue to focus on the DH-F organisations as they develop a greater understanding of air safety (AS) and its necessity in conducting safe operations.<sup>28</sup> The top AS threats are, in priority order: Mid-Air Collision (MAC); managing change safely; Suitably Qualified and Experienced People (SQEP); Aviation Duty Holder (ADH) assurance and understanding; and infrastructure and enterprise governance. There is a marked improvement in the quality and timeliness of Organisational Safety Assessments (OSA), which has directly benefited the decision-making process and enabled effective mitigation to be implemented in major change programmes. MAC, SQEP and infrastructure remain issues which consume disproportionate amounts of ADH capacity. Substantial improvement will take time to deliver and improving infrastructure deficiencies remains a long-term endeavour<sup>29</sup>. Issues related to enterprise governance are still of concern. However, a welcome strengthening of relationships between ADHs and Senior Responsible Owners (SRO), with a commensurate increase in understanding, has been observed across the DAE. Continued focus, involving the entirety of those involved,<sup>30</sup> is required to ensure the air safety culture continues to mature in keeping with the extant Substantial assurance assessment.

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<sup>28</sup> This was identified last year but remains an issue. The scope of the MAA understanding is greatly improved and work to address this is ongoing but it is likely to be an enduring issue for the next 2-3 years as understanding is built in the Duty Holder-Facing (DH-F) organisations and corporate knowledge and experience embeds.

<sup>29</sup> The shift to a policy including preventative maintenance is welcomed but will take time to deliver, and maintain, the improvements necessary.

<sup>30</sup> This includes but is not limited to: Aviation Duty Holders (ADHs), Senior Responsible Owners (SROs), DE&S Delivery Teams (DTs) and Duty Holder-Facing Organisations.

Defence Organisation	Overall Assessment	Elements											
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance	
Navy Command	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	L
Army	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)
Air Command	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	L
UK Strategic Command	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)
Defence Equipment & Support	S (L)	S (L)	L	L (S)	L	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	L
Defence Infrastructure Organisation	L (S)	S (L)	S (L)	L	L	L	S (L)	L	L	L	L	L	L

Table 4-3 Aviation regulatory domain assurance assessment

### 4.2.3 Regulator Activity

The MAA continues to undertake a risk-based approach (RBA) to assurance, covering the full spectrum of the DAE: DH and DH-F organisations; DE&S Delivery Teams; and Industry Approved Organisation Schemes<sup>31</sup>. The MAA has continued to deliver assurance through a combination of virtual and physical engagement (audit, surveillance and oversight), the frequency of which is informed by the MAA’s ‘air safety rich picture’. During this reporting period, the MAA conducted 488 audit, oversight or surveillance events. Furthermore, it issued or reviewed 175 organisational approvals, issued 24 Type Certificates and Certificates of Safety (Aviation) and delivered, managed or oversaw 256 training courses attended by some 4,789 people from across Defence and industry. This training spanned industry approved organisations, the four Military Commands and DE&S - whose Delivery Teams are fundamental to ensuring Air Systems are appropriately certified and ‘safe to operate’.<sup>32</sup> Progress against closure of Enforcement Notices and Corrective Action Requirements has continued to be good. A number of previously intractable, long-term issues are now either closed or approaching closure.

<sup>31</sup> The MAA maintains industry Approved Organisation Schemes for Contractor Flying (CFAOS), Air Traffic Management Equipment providers (AAOS), air system Design Organisations (DAOS) and maintenance providers (MAOS).

<sup>32</sup> The Military Commands, through Duty Holders, ensure they ‘Operate Safely’.

#### 4.2.4 Findings

In a year of continued external challenges, often forming a barrier to traditional assurance methods, we have witnessed a welcome trend of safety improvements across the DAE. This has resulted in the assessment of the DAE's assurance level as Substantial. This includes further improvements on issues identified last year across many of the Operating Duty Holder (ODH) owned areas. It will require sustained effort to maintain this rate of improvement and assurance level.

Aviation Duty Holders (ADH) across all commands are managing risk to tolerable levels, under enduring pressure to deliver operational effect. In a number of cases this management is appropriately achieved through a reduction in output, as the ODHs do not always own the necessary levers to reduce the risk by other means. ODHs have reported in the MAA Operators Council that they remain closer to the boundary of ALARP<sup>33</sup> and Tolerable, without the ability to satisfactorily address all the risks. Encouragingly, there continues to be examples of ADHs and the airworthiness chain implementing additional assurance activity and engagement to resolve issues and improve both decision making and communication of risks.

#### Mid-Air Collision

Military air proximity (airprox) statistics for 2021 indicate an overall increase in reported near-miss incidents within the UK, in comparison to the previous year. However, this should be considered in the context of COVID-19 restrictions, which resulted in a reduction in General Aviation activity throughout 2020 and the first quarter of 2021, followed by a period of General Aviation recovery compounded by a lack of currency. When viewed against the ten-year normalised average, the incident trend remains downwards. Also consistent with previous years, the majority of UK military airprox in 2021 involved General Aviation aircraft, although the proportion increased to 67%, compared to 54% in 2020 (Figure 4-2). Conversely, the proportion of incidents involving other military aircraft reduced to 14% in 2021, compared to 31% in 2020, with just six reported military-vs-military incidents, compared to eleven the previous year. A normalised month-by-month analysis reiterates previous years' assessments that airprox are more likely to occur between May and November when General Aviation activity is at its peak.

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<sup>33</sup> ALARP – As Low as Reasonably Practicable.

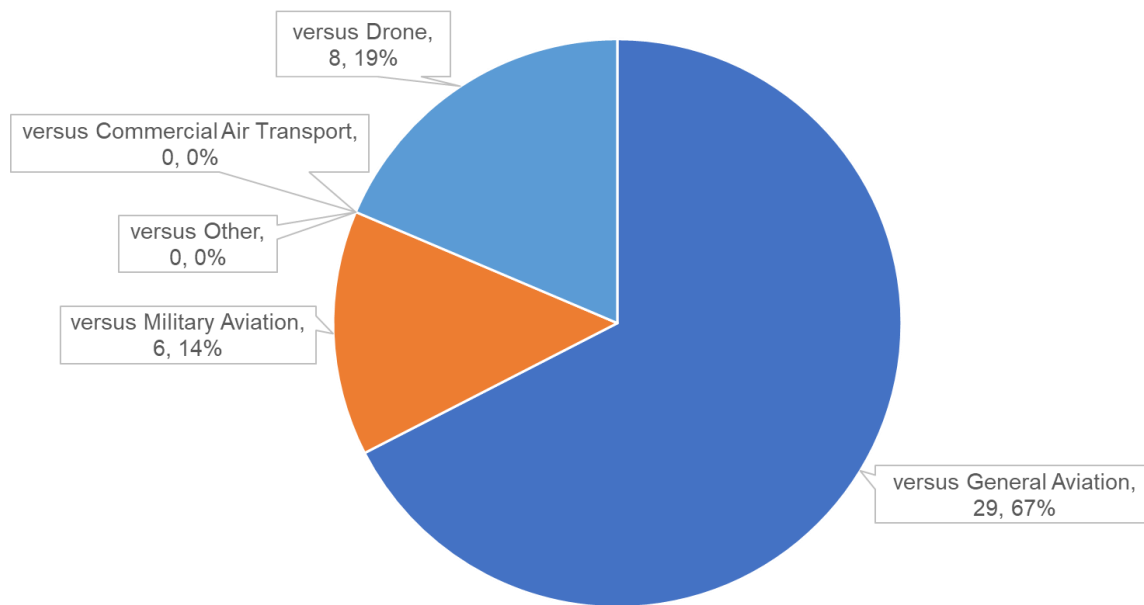


Figure 4-2 – 2021 Military Air Proximity incidents by Conflicting Aircraft Classification

## Change

Change is a constant in any learning organisation. This remains true across the DAE and good change management is critical to continued high standards of air safety. The key to managing change safely is a clear understanding of the magnitude, combined with the direct and indirect impacts across the wider Defence enterprise. OSAs are the mechanism used to capture and assess change from a safety perspective and it has been encouraging to see these continue to be used. Of note, the quality of OSAs is consistently high and the timeliness, something commented upon last year, has improved significantly<sup>34</sup>. This improvement in timing has allowed OSAs to be used in support of Duty Holder or Head of Establishment decision-making and we have seen evidence of programmatic risk management based on OSA conclusions. Additionally, the improvement in Air System Safety Cases (ASSCs) has helped close gaps across the pan-Defence Lines of Development (DLod) safety argument.

## SQEP

SQEP shortfalls remain a challenge across the DAE. This is not due to a lack of attention or focus from the ADH community, but rather an inability to influence an intractable issue. The ability to resolve this issue resides with single service workforce authorities, or within DE&S, both of which are impacted upon by conflicting priorities across Defence. Whilst some improvement is evident, there is often a challenge in delivering a suitable candidate within a timeframe commensurate with the importance of the role. For example, the Air Safety Teams (AST) across Joint Helicopter Command have most positions filled but have experienced

<sup>34</sup> In AAR 2020/21 it was reported that some Organisational Safety Assessments (OSA) were being produced retrospectively and were therefore not able to inform the decision-making process.



personnel arriving without the necessary qualifications. Four specific areas of SQEP shortfall are of particular concern:

- **ADH Assurance.** ADH understanding of assurance responsibilities, beyond the operating context, has continued to improve to a mature level with no concerns identified. There have been occasions during which organisations and personnel have not understood their DH-F roles and responsibilities. This has been especially prevalent outside the standard DAE boundaries<sup>35</sup>. The increasing maturity of the Air System Safety Case (ASSC) and the development of ASSC-Reports indicate a continued positive vector for all ADHs. Moreover, there is continued evidence of the ADH chain proactively questioning and challenging the positions taken by key stakeholders<sup>36</sup> such as the Type Airworthiness Authority and Continuing Airworthiness Management Organisation; subsequently providing support where required. Whilst greater understanding of the importance of assurance is common across the ADH fraternity, it is the fragility of AST SQEP that remains a threat to the rate of improvement.
- **Levels of Air Traffic Management SQEP remain a concern.** Whilst recruiting has increased numbers, training capacity is a constraint on achieving trained strength, compounded by the reduction in General Aviation activity throughout 2020 and the first quarter of 2021 impacting the efficiency of on-the-job training. ADHs are aware of this challenge and are actively managing the associated risk to ALARP and Tolerable; this workforce shortfall is expected to remain an issue for at least another twelve months.
- **Legacy SQEP challenges remain within DE&S.** Sufficient progress has been demonstrated to close the related CAR. Improvements in resource, and those individuals becoming SQEP, have been seen across the air-focussed directorates. Importantly, the visibility and control of individuals, together with a more coherent application of Work Breakdown Structure requirements, has enabled the prioritisation of key airworthiness posts. The current impact of SQEP shortfalls within Delivery Teams is varied but can be seen through reduced capacity to conduct routine activities, a reliance on Engineering Delivery Partnership and observed demanding working regimes. In some cases, these impacts have been exacerbated by late or low-quality input by Industry. There is evidence of capability delivery schedules being compromised by reduced SQEP but not the underpinning safety activity.
- **MAA Workforce.** Regular communication between the MAA and single-Service desk officers ensures personnel selected for a post are SQEP for the assignment and the calibre of staff appointed to the MAA is extremely promising. Challenges persist with Civil Service recruitment. Targeted recruitment drives have been undertaken with limited success<sup>37</sup>. The following themes continue to require oversight to maintain the

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<sup>35</sup> DH-F organisations have been more proactive since identification of weaknesses which had been previously unidentified; there seems to be a willingness to evolve but often the ADH does not own the DH-F organisation and they cannot directly influence/resolve issues.

<sup>36</sup> AOC 22 Gp scrutinising suitability of MARSHALL ATC systems at SHY, and AOC 1 Gp informing Air Cap that without a P8 contracted engineering support package, tasking levels would need to be restricted.

<sup>37</sup> A recruitment campaign to fill ten Civilian Service posts was conducted but only four suitable candidates were offered, and accepted, posts.

MAA's output; Remotely Piloted Air System SQEP; parachuting SQEP; emerging technologies and cyber software SQEP.

## Infrastructure

The physical condition of the Defence estate remains a significant challenge for ADHs, with the policy of not conducting preventative maintenance resulting in the erosion of key facilities at many aerodromes<sup>38</sup>. It is expected that the next two to three years will see an improvement as the shift of maintenance practices takes effect. Infrastructure is a significant factor in the wider DH-F challenge to the ADHs. These issues place additional HF pressure on the workforce and constrain Heads of Establishment in delivering a safe operating environment. Clear understanding across HoEs of the delineation of the respective roles and responsibilities of Defence organisations and DIO in addressing Infrastructure risk will be essential in delivering effective and efficient improvements.

## Enterprise Governance

Defence continues to introduce new capabilities to succeed ageing platforms and fill emerging capability gaps, but often with delays. This results in some legacy platforms being extended in service, with attendant ageing aircraft risks. Such delays have second order effects on the aircraft fleets, broader defence capabilities and on the need to sustain aircrew and type engineering training pipelines. In some cases, incrementally increasing Out of Service Dates (OSD) has introduced AS risks, increased obsolescence and supply issues and added pressure to platform capability delivery, with legacy decisions either requiring review or not being revisited correctly.<sup>39</sup> This is a direct effect of late capability decisions resulting in a requirement for ageing platforms to continue to deliver operational output long beyond their expected, supported, lifespan instead of slowly reducing output as they approach OSD.<sup>40</sup> RA1205 and the generation of Air System Safety Cases, both from concept and retrospectively, has improved the ability of the ODHs to manage AS risks although there are still a number of cases where the only option remains reduction in output. This, in turn, increases pressure on other air systems as the respective demand signal increases to compensate. The continued strengthening of the relationship between the SRO, sponsors, ADH, Accountable Manager (Military Flying) AM(MF) and MAA remains of great benefit and should be encouraged; this reaches beyond the DAE and into other regulators and must be a focus for the future.

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<sup>38</sup> The runway and hangars at RAF Brize Norton, fire training facilities at RNAS Yeovilton and the fire station at RAF Marham are examples.

<sup>39</sup> As part of any Out of Service Date (OSD) EP there should be a Safety Assessment Report that revisits decisions. With multiple OSD extensions some of these may be missed as with the Gazelle AH Mk1.

<sup>40</sup> The Integrated Review (IR) and Defence Command Paper (DCP) released in Mar 21 impacted numerous OSDs and capability handovers, which while now brought forward will still require sustainment against a reduced resource to support in terms of logistical and Continuous Airworthiness (CAw) support and workforce as well as a reduction in upgrade and obsolescence programmes.

## 4.3 – Maritime

### **SUBSTANTIAL Assurance – greater visibility of the totality of Defence Maritime Activity and an improved understanding of governance and assurance arrangements in place.**

#### 4.3.1 Maritime Domain Scope

The Defence Maritime regulatory domain covers nine defence organisations and provides a framework of regulation, assurance, and enforcement across MOD shipping (ships and submarines), ports, harbours and maritime facilities, and Defence diving activity. The assessment covers both *Safe to Operate* and *Operate Safely*.

*Safe to Operate* covers the provision of safe equipment, systems and platforms and is predominantly made up of Director General Ships within DE&S and DNO (including Submarine Delivery Agency (SDA)); though other organisations are procuring maritime craft on behalf of defence outside of the traditional acquisition framework.

*Operate Safely* is made up of those organisations operating equipment, systems, platforms, or facilities, or conducting maritime activity. This is dominated by Navy Command HQ activity, but also includes a wide spectrum of other defence organisations across a spread of platforms, port facilities and diving operations that constitutes Maritime activity.

#### 4.3.2 Maritime Assurance Summary

The Maritime domain has been assessed from two perspectives: *Operate Safely* and *Safe to Operate*. The former element remains complex with diverse approaches to accountability. Concerns remain with the adequacy of safety environmental management arrangements; particularly where maritime activities are not regarded as core outputs for organisations or where third parties are being contracted to conduct maritime activity on behalf of defence.

The *Safe to Operate* area within core in-service support and acquisition areas of Defence Equipment & Support (DE&S) Ships and Defence Nuclear Organisation (DNO) has been an improving picture with a better understanding of the risks and issues affecting its safe , supported by well-established management arrangements, and an improving understanding of safety and environmental legislative compliance.

However, the response to the requirement for rapid exploitation of emergent technology has led to increasingly novel procurement routes and a number of other Defence organisations (such as Navy Command HQ and Dstl) procuring maritime craft on behalf of Defence outside of the traditional acquisition framework. This introduces increased risk as frequently the organisations involved have limited resource and SQEP managing safety through new or unfamiliar processes and systems. All organisations must be able to demonstrate that they have suitable management structures and processes to be able to manage and maintain the 'safe to operate' argument for vessels and equipment they are procuring and, in some cases, also operating.

The top risks in the maritime regulatory domain are: Maritime autonomy/experimentation; UK Strategic Command Safety and Environmental Management System (SEMS) for overseas bases; management of applicable legal requirements for maritime activities; Government owned and operated vessels; and management of 1st and 2nd Party Assurance within the Domain. Key emergent issues raising concerns across the domain are: assurance of contract elements

relating to safety and environmental protection; the broadening scope and new engagement; and the rate of change in domain transformation plans.

Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Navy Command	S (L)	L (N)	S (L)	S	L (S)	S (L)	S	S (L)	L (S)	S	S (F)	S (L)
Army	L	N	L (N)	L	L	L (S)	S (L)	S (L)	L (S)	S (L)	L	S (L)
UK Strategic Command	L	N	S (L)	L	L (S)	U	NA	S (L)	U	L (N)	L (S)	L (S)
Defence Nuclear Organisation	S (L)	L (S)	L (S)	S (L)	S (L)	S (L)	S	S	S	L (S)	S	L (S)
Defence Equipment & Support	S (L)	L (S)	L (S)	S (L)	L (S)	S (L)	S	S (L)	S (L)	S (F)	S (F)	S
Ministry of Defence Police	S (L)	L (S)	S (L)	S (L)	S (L)	S (L)	S	S (L)	S (L)	S (F)	S	S (L)
UK Hydrographic Office	S (L)	U	L (S)	L (S)	S (L)	S	NA	NA	S	S (F)	S (F)	L
Defence Science & Technology Laboratory	L	L (S)	S	L (S)	L	L	L (N)	S	L (S)	S	L (S)	L (N)

Table 4-4 Maritime regulatory domain assurance assessment

### 4.3.3 Regulator Activity

Activity has continued with greater emphasis on Maritime Autonomous Systems (MAS), where Defence is now leading the way in regulation, whilst continuing engagement with the Maritime Coastguard Agency (MCA). The expansion of the Defence Shipping register continues and has evolved to include MAS. Alongside this DMR has been working on legislative compliance, across the domain pioneering the Defence Legislation Support Tool (DLST), embracing all seven Defence Regulators, dealing with all disapplications, exemptions and derogations (DEDs) across the defence community as well as tracking cross-boundary DEDs impacting on one or more domain.

In the reporting year, DMR has conducted ten audit activities (one Document of Compliance audit, one full supporting audit, three assurance advisory visits, five baseline audits). Across the maritime domain there are ten outstanding Improvement Notices (IN); two within DE&S, one

within Dstl, one within SDA, four within Navy Command HQ and two within UK Strategic Command.

#### **4.3.4 Findings**

##### **Maritime Autonomous Systems**

Maritime Autonomy continues to be a growing area of concern, particularly noting the often-truncated procurement processes and experimental nature. While acknowledging the challenge placed on the Navy to embrace autonomous systems and the significant expansion of the Research and Development portfolio, DMR is still not confident that it has the full picture of MAS being managed on behalf of Defence. Management systems identified to date are not mature and organisational structures continue to fluctuate in response to changing priorities. Assurance and certification of new systems is a particular challenge and requires a shift away from previous models for certification of platforms. In an environment where projects have increased levels of risk and a 'fail fast' approach, finding the right balance between robust testing and speed of delivery is generating some friction between existing structures and Accountable Persons.

The recently published DMR Guide to Regulation of Maritime Autonomous Systems provides guidance for the domain but requires further development to improve relevance to underwater MAS and modular capabilities. Greater clarity is needed in the civil regulatory space, and further consideration is required on the extent of applicability of DMR regulations and Naval Authority Rules for civil platforms being used for discrete Defence related MAS trials.

As part of the exploitation of streamlined procurement routes, Navy Command HQ and Dstl are establishing *Safe to Operate* structures to establish and maintain platform safety arguments; a function more traditionally performed through DE&S. However, the ability of these new constructs to deliver and maintain platforms that are safe to operate, whilst also enabling rapid technology development and integration remains a concern and introduces risk and needs to be balanced against the inherent flexibility that is introduced. Finding the correct balance is a key challenge moving forward, and the process for establishing and then assuring this balance remains a key piece of work for DMR. Alongside this the Naval Authority are working to understand who the suitably empowered and SQEP engineers are within these constructs, to enable effective technical communications to support certification processes.

##### **UK Strategic Command SEMS for Overseas Bases**

A DMR led baseline audit of UK Strategic Command was completed in November/December 2021 to provide confirmation that they were applying DMR Regulations and implementing an effective management regime to meet their responsibilities to manage safety risks and environmental impacts in overseas bases. The key issues and themes in the report fell into three areas: Duty Holding and risk management arrangements, maritime activity legislation and regulatory compliance arrangements, and deficiencies in assurance processes.

It was found that there was a sound appreciation of the Defence maritime activities conducted across the area of responsibility, however there was less awareness of the Defence Maritime Regulations that apply.



The commitment of UK Strategic Command to safety was very clear during interviews. The documentation however did not support this. Draft assurance strategies were generic to all forms of assurance; they do need to put Health, Safety and Environmental Protection (HS&EP) at the forefront. The strategy, processes and tools are developing well and are a leap forward in both capability and approach.

### **Management of Applicable Legal Requirements for Maritime Activities**

For the previous two Annual Assurance Reports, DMR identified that a lack of evidence of legislative compliance across the domain had been a significant issue. In response, DMR initiated a compliance improvement programme which included the provision to the regulated community of guidance on how to write a compliance statement plus a series of briefs at the Operating Duty Holder level. This saw an increase in understanding of the requirement, and this was further enhanced by some amendments to the DMR regulations to improve the domain's approach.

These improvements included expanding on the regulation requiring legislative compliance to be managed, and a new regulation requiring legislative compliance registers to be developed and held; a requirement that is also found in safety and environmental protection ISO standards. Due to the concern around the lack of evidence of compliance, most of the audits undertaken in the last year included these two regulations in their scope. The result was that there are four Improvement Notices issued relating to legislation compliance management.

This issue of the management of applicable legal requirements is closely associated with the recurring concern with the use of hazardous materials in maritime equipment. Various procurement and support organisations, including Defence contractors across the domains, appear not to fully understand the requirement to comply with the law unless there is an applicable exemption in legislation and a Defence justification for using it. This specific issue is being considered within the DSA for further pan-domain investigation.

### **Government owned and government operated vessels – legislation and regulatory boundaries.**

In November 2021, the DMR undertook an audit of the Afloat Support (AFSUP) area of Navy Command HQ, which is primarily responsible for the Royal Fleet Auxiliary's (RFA) personnel and platforms. The AFSUP platforms are Government Owned and Government Operated platforms as defined in the Merchant Shipping Act. They are not covered by the disapplication for warships but have separate disapplications from specific parts of the Merchant Shipping Act, resulting in a complex legislative and regulatory framework. The activity they undertake is Defence activity and subject to Defence Maritime Regulations, where the Merchant Shipping Act is disappplied. However, there was a lack of recognition of this throughout the AFSUP documentation and the wider area of responsibility. This resulted in four separate Improvement Notices being issued.

This was the first time that DMR had formally audited this area as it was previously viewed as comparatively low risk within the domain. AFSUP holds a Document of Compliance from the Maritime and Coast Guard Agency, and DMR sought to understand where additional assurance was necessary due to the nature of their role. AFSUP is a unique organisation within the MOD. Defence activity is conducted by civilian personnel, who have certain protections applied through the Merchant Shipping Act (MSA), onboard government owned and operated platforms.

This has resulted in an operating model that is similar to a commercial shipping company, but with the freedom to undertake activity that is not covered or necessarily constrained by the MSA. This unique place within the MOD is garnering more attention in recent times, and there is a gravitation within the MOD to build upon and or expand this model. Therefore, clarity around legislation and regulation for government owned and operated vessels is key, as the impacts could be far reaching should it not be managed carefully.

### **Management of 1st and 2nd Party Assurance**

Historically there have been concerns that weaknesses in 1st and 2nd Party Assurance, combined with the relatively light touch 3rd Party Assurance achievable by the DMR, was driving increased risk into the domain. This in turn meant that 1st and 2nd Party Assurance was considered a top strategic risk but an improving situation over recent years led to less prominence.

However, over the last 12 months, the DMR has engaged more deeply with organisations that have either not previously been audited or that have not been audited for several years. In doing this, the DMR has found a concerning trend relating to the management of 1st and 2nd Party Assurance. In the course of the audits in 2021/22 the DMR has issued eleven Corrective Action Reports (CARs), including five level 1 CARs, and three Improvement Notices. This is the highest number of CARs issued against any regulation over the year. It was also concerning to note that it was not a case of one area accounting for the majority; more that Assurance was a weakness across the audited organisations more generally.

These findings suggest that whilst more mature domain organisations are growing the effectiveness of their 1st and 2nd Party Assurance regimes, a number of areas where the DMR has had less engagement in the past do not have the required processes or quality of outputs to provide the level of assurance required. Moreover, an expanding remit driven by emergent areas of regulation such as autonomous systems, Artificial Intelligence (AI) and cyber, and the identification of activities previously addressed by the DMR, led to a DMR review of its assurance approach. In order to meet regulatory demands within resource constraints, the DMR has developed and implemented a new assurance approach that will put a greater emphasis on data received from the output of organisational 2nd Party Assurance.

### **Assurance and oversight of maritime activity contracts**

DMR Regulations require that where a ship, activity or facility is operated on behalf of the MOD through a 2nd or 3rd party contract arrangement, there be an auditable trail of accountability through contract monitoring and performance assurance. Audits conducted in this AAR period have indicated that assurance and oversight of contracts and/or contractors for maritime activity is insufficiently robust. When asked for evidence of the assurance being undertaken, as specified in an Accountable Person's SEMS or Safety and Environmental Management Plan (SEMP), several were unable to provide this. This undermines confidence that the Accountable Person can demonstrate that they have suitable and sufficient management arrangements in place for their responsibilities and that they are operating in accordance with them.

In some instances where contracts have been let on behalf of an Accountable Person, performance monitoring was poor or absent. Audit teams found examples of contracted activity that did not meet the needs and expectations of the Accountable Person or have suitable explanation as to why the solution was not legally and/or regulatory compliant. Other examples



were noted where the Accountable Person did not understand the applicability of DMR Regulations for some contracted activity and their responsibilities. This issue includes the oversight of commercial diving which has been contracted by or on behalf of the MOD, and so is a Defence Maritime Activity

### **Broadening scope and new engagement**

During this AAR period the DMR has deliberately shifted main effort away from the more mature capabilities and Accountable Persons with mature SEMP's, to increase its engagement with areas of the domain that it has an emerging relationship with, or none at all. This inevitably generated the requirement for assurance activity on Accountable Persons, including those acquiring MOD Shipping with a retained responsibility for operation during sea trials pre-Vessel Acceptance Date, and those operating MAS. It also led to a baseline audit of the UK Hydrographic Office (UKHO) and targeted engagement with AFSUP. Greater engagement relating to assurance of those ports/harbours/maritime facilities that are not UK Dockyard Ports is expected to generate a review of certain DMR Regulations. It also raised further questions about the management arrangements of a number of Accountable Persons operating small craft including Police Force Marine Units not under the Ministry of Defence Police (MDP), Royal Navy Reserve (RNR) and Cadets. As a lean staffed organisation, the DMR adopts a risk-based assurance regime, but ensuring that it has full visibility of all Defence maritime activities remains an ongoing challenge.

### **Domain transformation plans – rate of change**

Across the domain there is a positive move to embrace the outcomes of the Integrated Review and respond to the changing domain. This has resulted in significant change to organisation structures and scope. Within Navy Command HQ this includes adjusting the structures around in-Service submarine capability management and the conduct of a minor trial to investigate Class Cell Management with an intent to improve platform availability across the surface flotilla. Whilst individual initiatives routinely consider the impact of change using an Organisational Safety Assessment (OSA), it is much harder to judge the cumulative impact of these changes and ensure that the interactions between the different change initiatives remain coherent and well controlled once the change is in progress. At the last Navy Safety and Environment Board it was recognised that underpinning assumptions used in initial OSAs need to be revisited during and post change activity to confirm that the OSA assessment remains valid, and this initiative is fully supported by the DMR. However, the volume of change and associated work required to maintain up to date SEMP's and processes remains a challenge. DMR assurance is in large part linked to validation of these SEMP's and evidence that they are being followed. The rate and volume of change across the domain will place an increasing demand on all assurance organisations, whether first, second or third line, and the limited resource of these organisations will either become a limiting factor or more likely delay the implementation of the new structures and systems, so reducing confidence in the overall level of assurance.

## 4.4 – Land

**SUBSTANTIAL Assurance – The overall assurance level for the land domain across Defence has improved this year and is assessed to be at Substantial.**

### 4.4.1 Land Domain Scope

Most of the activity in the Land domain is regulated by the UK's statutory regulators and not Defence, as there are fewer derogations, exemptions or disapplications than in other domains. The DLSR regulates in four areas:

- The Fuel & Gas Safety Regulator (FGSR) for Fixed Fuel and Liquid Petroleum Gas (LPG) Infrastructure.
- The Land Systems Safety Regulator (LSSR) for Land Systems Acquisition, Maintenance/Inspection and Disposal.
- The Movements & Transport Safety Regulator (MTSR) for Movement and Transport activity across all modes, including the carriage of dangerous goods.
- The Adventurous Training Safety Regulator (ATSR) for Defence Adventurous Training (AT) Centres.

All Military Commands, as well as the Reserve Forces and Cadets Associations (RFCA), operate in some aspect of the Land domain, with significant acquisition and support activity from DE&S and infrastructure management and maintenance by the DIO.

### 4.4.2 Land Assurance Summary

This year has again been characterised by the impact of the pandemic and the gradual move back towards more normal levels of activity while adapting to, and adopting, new ways of working. Both the regulator and the Defence community have matured their approach and progress has been made on all fronts.

Progress has been made in all four sub-regulated areas and is balanced between the Adventurous Training and Movement & Transport areas which have continued to improve their Substantial assurance status, and the Fuel & Gas and Land Systems areas which have made progress but still remain at Limited levels of assurance.

This trend is mirrored in the Defence organisation assessments. The table below demonstrates that all those Military Command and Enabling Organisations that were subject to assessment by two or more sub-regulators achieved overall Substantial assurance this year. Areas for improvement common to all are identified in the following themes: Land Environment Capability Safety; experimentation and innovation; 2nd Party Assurance; Infrastructure; and Cadets.

Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Navy Command	S (L)	L (S)	S (L)	S (F)	S (L)	S (L)	L (N)	L (S)	S (F)	S (F)	S (L)	S (F)
Army	S (L)	S (L)	S (L)	S (F)	S (L)	L (S)	S (L)	S (L)	S (L)	S (F)	S (L)	S (L)
Air Command	S (L)	L (S)	L (S)	S (F)	S (F)	S (L)	L (N)	L (N)	S (L)	F (S)	L (N)	S (L)
UK Strategic Command	S (L)	S (L)	S (F)	S (L)	S (F)	L (S)	L (N)	L (S)	S	S	L (N)	L (S)
Defence Equipment & Support	S (L)	S (L)	S (L)	S (S)	S (L)	L (S)	S (N)	S (N)	S (F)	S (F)	S (N)	L (L)

Table 4-5 Land regulatory domain assurance assessment

### 4.4.3 Regulator Activity

The Defence Land Safety Regulator (DLSR) has returned to near pre-pandemic levels of activity. The sub-regulators conducted 246 audits, inspections and visits over the course of the year, the majority of which were face to face activities. Importantly they were able to achieve visits to several key overseas locations including Singapore, Ascension Island and the Falklands.

The number of open enforcement actions has halved from 26 to 13 this year. This marks the closure of several long-standing issues which is particularly welcome. In line with the trend identified at the start of this report most outstanding actions are linked to infrastructure issues relating to Fuels & Gas facilities and Equipment Inspection facilities.

### 4.4.4 Findings

#### Land Environment Capability Safety

Land environment capability has again been the most important theme identified this year. It was thrown into sharp focus by several high-profile events including the Directorate of HSEP Ajax Noise and Vibration Review,<sup>41</sup> the subsequent noise and vibration review of the wider Armoured Vehicle fleet and the fatal injury to the driver of an armoured vehicle on Salisbury

<sup>41</sup> MOD, *HS&EP Ajax Noise and Vibration Review*, 2021

Plain. This highlighted the need for improvement in safety case management and the development of more focussed regulation centring on the delivery of certification.

Army and DE&S reviews into safety case management concluded that more safety SQEP resource was required to bolster safety case management by the user and advocated the implementation of certification. Work to resource and operationalise these conclusions is underway. Commitment to improvement in this area across both organisations is setting an excellent example.

Regulation of land capability is significantly lighter than it is for maritime or air capabilities due to the primacy of statutory legislation and the relatively very small number of disapplications and exemptions from legislation. The need for stronger regulation was recognised and will be implemented through hazard-based certification in the coming year. More broadly, work with DE&S and Army Headquarters has highlighted inconsistencies and gaps in the current safety case regulation in DLSR. Urgent work is underway to close these gaps and amend regulation to enable and support the changes being made by both Army Headquarters and DE&S.

### **Experimentation and Innovation**

The drive to innovate faster to maintain an operational advantage has seen a significant expansion in both innovation and experimentation activity. This activity has moved into areas that have not previously been regulated or not previously considered by the regulator. The increasing pace and breadth of experimentation and innovation is an emerging safety risk. Examples include e-scooter use on military bases, trials of Remote and Autonomous Systems (RAS) and hydrogen powered Manual Handling Equipment involving Dstl, industry and universities in the UK and abroad. Such activity is recognised as vital to Defence but oversight from both Defence organisations and the regulator is struggling to keep pace.

The increasing pace of technological development has seen a rise in capabilities rapidly developed in a spiral manner. This is particularly challenging for regulators and delivery teams to anticipate the potential impacts of future iterations of a capability. Early communication from the regulated community to the Regulator of emerging capability development is highly beneficial.

The proliferation of initiatives raises two concerns: policy and oversight, and regulation. To exploit opportunity and foster innovation, activity is being delivered at ever lower levels. In most organisations, explicit policy governing these activities is lacking and understanding of the totality of activity across the full spectrum is far from complete. In several areas there is no extant Defence regulation (e.g. e-scooters) and in some others Defence is operating in advance of government regulation (e.g. RAS). This hampers the regulator in providing effective 3rd Party Assurance in this area. Overbearing oversight and cumbersome regulation would stifle progress and a balance will need to be found in the coming year. DLSR will be developing and issuing regulatory guides to assist innovation and experimentation in this area and more broadly in the Land domain.

### **Second Party Assurance**

The DLSR review of 2nd Party Assurance concluded that all Military Commands and the majority of larger Enabling Organisations have effective 2nd Party Assurance processes in place. Room for improvements are principally in areas where resource is being grown or where

the organisational 2nd Party Assurance activity can be adjusted or re-focussed to cover the full remit of the area of sub-regulator interest. Some smaller Enabling Organisations lacked resource to carry out effective 2nd Party Assurance, especially where this assurance function was previously conducted on behalf of some Enabling Organisations by Head Office and has now ceased.

### **Infrastructure**

Infrastructure issues have remained an enduring theme in both the Land Systems and Fuel & Gas areas. The majority of outstanding DLSR enforcement activity is linked to longer term infrastructure projects investment approval yet to be confirmed, issues here are linked to prioritisation of funding and the lengthy investment appraisal process. Separately, several organisations raised concerns over the ability of Heads of Establishment (HoE) to execute their responsibility where activity is contracted through or by the Defence Infrastructure Organisation (DIO) or Reserve Forces and Cadets Association (RFCA). A common theme was that Military Commands and HoEs felt that access to adequate information on the provision of key services was lacking. This indicates a need for greater understanding on both sides of what information and assurance is provided to discharge responsibilities. FGSR will further investigate this over the coming year.

### **Cadets**

The provision of Adventurous Training courses to Cadets has been identified as an area of significant complexity where individuals can cross between organisation and assurance regimes.

Inspection in 2021 revealed issues that need rectification and the assurance of the overall provision of Adventurous Training courses to Cadets is assessed to be Limited. There is a slightly different picture within each single Service variant and individual cadet organisations have been given targeted advice to improve assurance.

Given the wide variety of cadet organisations and a highly complex set of supporting arrangements involving the RFCA, single Services and civilian bodies, it can be difficult to identify a clear picture of how overall assurance for Adventurous Training is conducted. Similar or identical activities conducted in different cadet organisations could be subject to different assurance regimes.

DLSR will investigate this further next year to establish whether greater rigor and a more standardised approach across all cadet organisations is required.

## 4.5 – Fire

**LIMITED Assurance – Lack of progress in the Fire & Rescue area has significantly impacted the assurance levels for all organisations for which Fire & Rescue services have been assessed.**

### 4.5.1 Fire Domain Scope

As a statutory regulator<sup>42</sup> the Defence Fire Safety Regulator's (DFSR) role is to provide assurance that Defence is compliant with UK law and Defence Fire Regulations for both Fire Safety and Fire and Rescue services. This includes the requirement for general fire precautions to be taken by Responsible (Accountable) Persons<sup>43</sup> and the duty to consult with the DFSR for proposed building works. These duties are discharged through Risk Based (Fire Safety) Audits and an agreed formal consultation process.<sup>44</sup> Post-fire audits may also be undertaken<sup>45</sup> to determine possible failings in compliance and suitable corrective/enforcement action, where appropriate. The DFSR works closely with its statutory peers and is represented on the National Fire Chiefs' Council (NFCC).

### 4.5.2 Fire Assurance Summary

Whilst Fire Safety Management has been maintained, and in many areas improved, the lack of progress in the Fire & Rescue services has significantly affected the overall assessments; particularly in Army and Air Command. The improvements seen in Fire Safety can be attributed to the work undertaken by all Military Command Safety Centres, in particular within the fire safety management systems area. Greater leadership and commitment must continue to ensure that a better safety culture is maintained amongst the junior ranks, especially in Single Living Accommodation (SLA).

The change management challenges presented by the Defence Fire Rescue Project (DFRP) will continue to remain until Full Operating Capability is achieved. The findings identified within previous Annual Assurance Reports, such as maintenance of equipment, competence of firefighters and suitably qualified emergency response drivers continue to present concerns and, until they are addressed, it is unlikely that the level of assurance will improve.

The threat to training and operational capabilities of the Aerodrome Rescue Firefighting services continues to be an area of concern and, without intervention, the impact on the delivery of effective firefighting services and air safety will remain. Overall, despite some encouraging signs there are still deficiencies in Fire & Rescue arrangements that require to be addressed if Substantial levels of assurance are to be achieved.

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<sup>42</sup> Under the Regulatory Reform (Fire Safety) Order 2005 and the Fire Scotland (Regulations) 2006 the DFSR has duties as the Enforcing Authority for UK Fire Safety legislation. This differs from the other Defence safety regulators who regulate where Defence has a disapplication, exemption or derogation from law.

<sup>43</sup> The role of Accountable Person is a legal duty of appointed Heads of Establishment (HoE) or project leads for proposed building works. The Defence terminology of Accountable Person (AP) used in this AAR is the same as the fire safety legislative terminology that cites the Responsible Person (RP).

<sup>44</sup> *The Regulatory Reform (Fire Safety Order) 2005*, Article 45; and *The Building (Scotland) Regulations 2004*, Regulation 11.

<sup>45</sup> In conjunction with the Defence Accident Investigation Branch for major incidents.



Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Navy Command	L (S)	L (S)	S	L	L (S)	L	L (S)	L	L	L (S)	S	L
Army	L (S)	L (S)	L (S)	L (S)	L	L	L	L	L	L (S)	L (S)	L
Air Command	L (S)	L (S)	L (S)	L (S)	L (S)	L	L	L	L (S)	L (S)	L (S)	L
UK Strategic Command	L (S)	L (S)	S	L (S)	L (S)	L	L	L	L	L (S)	L (S)	L
Defence Equipment & Support	L (S)	S	S	S	S	L	L	L	L	S	S	L
Defence Infrastructure Organisation	L (S)	S	S	L	S	L	L	L	S	S	S	L

Table 4-6 Fire regulatory domain assurance assessment

### 4.5.3 Regulator Activity

Audit and assurance activities began to return to normal with inspectors conducting face to face visits in line with Government guidelines. It was, however, still necessary to continue with COVID-19 working practices overseas because of restricted travel.

This year, the DFSR conducted 174 Risk Based Audits, 396 consultations on building works and 23 Fire & Rescue oversight and surveillance audits of the Defence Aerodromes and Major Accident Control Regulations sites. One Prohibition Notice and 16 Enforcement Notices were issued.

### 4.5.4 Findings

DFSR Fire Safety audits have again found that many areas examined were ‘broadly compliant’,<sup>46</sup> with gradual improvements continuing this reporting year. Although the appointment of competent persons has improved, there is still concern over the level of SQEP and the lack of 1st and 2nd Party Audits being conducted. Additionally, there remains concern over the availability of competent persons for fire safety management responsibilities, and

<sup>46</sup> Broadly compliant is National Fire Chiefs’ Council (NFCC) terminology, defined as few deficiencies found during audit and those minor in nature only.



overall assurance activity continues to identify failings in performance and compliance against many of the key regulatory articles. These include:

- The ability of occupants of Single Living Accommodation to silence and reset fire alarm panels.
- Failure to manage sources of ignition such as candles in rooms, tumble dryers and cooking appliances resulting in fire.
- Failure to recognise and report faulty fire equipment such as fire doors, emergency lighting and fire alarm systems.
- Failure to check contractors scheduled maintenance visits and confirm systems are in working order.
- Failure to request a review of the Fire Risk assessment when something has changed.

## **Defence Fire & Rescue**

A continuing area of concern is that associated with the quality and provision of Fire Risk Assessments (FRA) delivered on the Defence Estate via Defence Fire & Rescue (DFR) contractors. Following concerns raised by several Defence organisation safety centres, both DFR HQ and the contractor, Capita, have undertaken independent reviews of FRA delivery on the Defence estate. Although the DFR has not yet seen copies of either report, it is aware of some immediate actions implemented by Capita including the cessation of utilising some sub-contractors to deliver FRAs. Risk mitigation activities are ongoing and fire safety risk-based audits have been increased.

During the reporting year there was a considerable shortfall in the formal fire safety training, especially that associated with Unit Fire Safety Managers (UFSM) within the Army. DFR are responsible for the provision of UFSM training courses, via the Capita contract. Although the Army identified suitable personnel to receive the training and developed guidance documentation to assist UFSM in role, without the necessary formal induction training the UFSM were unable to provide the necessary cascade training to Building Custodians.<sup>47</sup> At the time of writing this report the training provision for 2022/23 has increased allowing circa 300 personnel to undertake the training.

## **Fire & Rescue**

Fire & Rescue is assessed as Limited assurance. Fire & Rescue audits of Aerodrome Rescue Firefighting capabilities have identified a continued decline from last year's report. DFR continue to provide oversight and assurance to the Defence Fire Rescue Project (DFRP) as it moves from the Mobilisation, Migration and Transformation phase to Full Operating Capability. The Task and Resource Analysis has been challenging, particularly with gaining agreement on credible worst case scenarios, but it provides the agreed process through which risk is mitigated and staffing levels at operational fire stations are established. The staffing levels are

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<sup>47</sup> Building Custodians are responsible for day-to-day fire safety management within individual buildings

then managed through an integrated risk management plan in consultation with the Military Commands.

There has been a significant increase in enforcement activity, however this could be attributed to factors such as the limited audit activity during the pandemic which may have provided an inaccurate assessment. There has also been an increase in the number of enforcement activities being rectified in the timescales provided which shows the importance organisations place on improving Fire & Rescue safety cultures.

There remain areas of concern that need addressing as a matter of priority. These include:

- The shortage of suitable training infrastructure and facilities, particularly the provision of fire training simulators.
- The inadequate support and maintenance of the existing training infrastructure.
- Deterioration in safety critical maintenance of competencies across the F&RS.
- A disparity in funding between the Statement of Training Requirements and Statement of Training Tasks that has potential to create a consistent imbalance year on year.
- Inability to capture firefighting effluent.
- Lack of sufficient 1st and 2nd Party Assurance.

## Infrastructure

DFSR and DIO Technical Services have been working with the Home Office over legislation changes to the Fire Safety (England) Regulations 2021, which see several new regulatory requirements introduced to high-rise residential buildings. Due to several of the recommendations having an impact on security, DFSR and DIO requested an exception to those regulations. Following further work with the Home Office these exceptions have now been granted and will be included with the new legislation when it is published later this year.

Following the report 'Building a Safer Future' by Dame Judith Hackitt, it was recommended that a Building Safety Regulator (BSR) be established. The new BSR will see the functions of Building Control, Health & Safety and the Fire Safety Regulator being brought together under a BSR headed by the HSE (Health and Safety Executive). Following approval for a Defence Joint Competent Authority, work commenced to establish a regulatory framework model that mirrors that of the BSR. Work has now been completed and the BSR within Defence is now in place within DIO. The DFSR Duty to Consult (D2C) model has also recently been reviewed and now sees more responsibility resting with DIO and the Building Control Advisor.

Improvements within the DFSR D2C fire safety consultation system will also aid cross-regulatory collaboration and support the development of Safety Cases and Fire Safety Files which will become a legislative requirement in the near future<sup>48</sup>. The amended procedure retains the benefits of the previous D2C process. It eradicates weaknesses whilst simplifying

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<sup>48</sup> *Draft Building Safety Bill*, 2020, <https://www.gov.uk/government/publications/draft-building-safety-bill>

the process for those who fulfil a function to provide verifiably safe buildings for Defence purposes.

The DFSR continue to deliver 'inform and educate' sessions with Infrastructure Project Managers, in particular in the overseas and visiting forces areas to help improve the understanding of the fire safety duties associated with infrastructure. However, despite this, the DFSR is still encountering Project Managers who do not fully understand the processes contained within Joint Service Publication (JSP) 850 and fail to follow due process.

External Wall Systems (EWS) (Cladding) in multi occupancy sleeping accommodation remains a concern but the risk assessments confirm the buildings are safe to be occupied and there is no legal requirement to immediately remove the cladding. Despite a considerable number of reports and option studies being conducted, progress to remediate the issues is slow with only one of the 26 buildings (Vanguard Block HMS Nelson) currently having the EWS system removed. None of the reviews, inspections or surveys conducted to date have recommended closure of the premises. In addition, further remediation work on a number of these buildings is also required due to the lack of compartmentation and fire door issues which has significantly increased the budgetary impact.

Considerable investigations continue by DIO regarding fire safety compartmentation within sleeping premises on the Defence estate. Investigations continue to identify shortfalls in remedial works following retrospective installation of services by Defence contractors. The investigations are also identifying that some premises have not been constructed to the applicable Building Standards when originally constructed. Shortfalls identified have included missing fire barriers, building materials used inappropriately, and compartment walls not fully adjoining compartment floors.

## 4.6 – Ordnance, Munitions & Explosives

**SUBSTANTIAL Assurance –similar to last year, though with reduced levels of assurance for Major Accident Control.**

### 4.6.1 Ordnance, Munitions & Explosives Scope

The Scope of DOSR Regulatory oversight includes Acquisition of OME<sup>49</sup>, In-service and operational safety of OME, MOD Ranges used for live-firing, and Major Accident Control arrangements at qualifying MOD establishments.

### 4.6.2 Ordnance, Munitions & Explosives Summary

There have been major steps forward in the Acquisition area, adding to the confidence of OME's Safety and Suitability for Service (S<sup>3</sup>). Management of risk arising from non-compliant situations has improved significantly with the application of the DOSR waiver process which requires an Accountable Person(s) to acknowledge the risk and formally accept it as being ALARP and Tolerable, as required by the SofS Policy Statement.

The same positive outlook can be said of the In-Service and Operational Safety Management of OME. However, significantly more needs to be done to improve the Skills, Knowledge, Experience and Behaviours (SKEB) associated with explosives safety awareness, particularly to support duty of care to personnel and to protect essential operational capability and assets.

The management of Major Accident Control arrangements at qualifying MOD establishments is generally of a good standard, although some issues have been identified with the Environmental Risk Assessments, Emergency Plans and a general impression that MACR is given a lesser priority than other areas of safety. All organisations are maintaining close cooperation with the DSA's MACR Cross-Regulator Competent Authority to resolve issues of non-compliance. Similarly, organisations responsible for management of Defence Ranges are proactively involved in development and maintenance of MOD Regulations and safety assurance.

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<sup>49</sup> Including Lasers and Directional Energy Weapons (DEW)

Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Navy Command	S (L)	S (F)	S (F)	S (L)	S (F)	S	F (S)	S (L)	S (L)	S (L)	S (L)	S (L)
Army	L (F)	S (L)	S (L)	S (L)	L (S)	S (L)	F (S)	S (L)	S (L)	L (S)	S (L)	S (L)
Air Command	S (L)	F (S)	S (F)	S (L)	F (S)	S (F)	F (S)	S (L)	S (L)	S (F)	S (L)	S (F)
UK Strategic Command	S (L)	S (F)	S (L)	S	S (F)	S (L)	S	S (F)	S (F)	S (F)	S	S (L)
Defence Equipment & Support	S (L)	S (L)	S (L)	S (L)	S (L)	S (L)	S	S (L)	S (L)	S	S (L)	S (L)
Defence Infrastructure Organisation	S (L)	S (L)	S (F)	S (L)	S (L)	S (F)	S (F)	S (F)	S	S (F)	S (F)	S
Defence Science & Technology Laboratory	S	S	S	S	S	S	S	S	S	S	S	S

Table 4-7 Ordnance, Munitions & Explosives regulatory domain assurance assessment

### 4.6.3 Regulator Activity

DOSR conducted 484 assurance inspections and audits across Defence: 445 of its ranges, 19 of its explosives’ establishments and 20 of its MACR sites. No audits or inspections have been undertaken on the Acquisition of OME. However, the second party assurance undertaken in this area has been kept under review.

At the start of this reporting period, DOSR had three Improvement Notices and two Prohibit Notices extant from earlier years. A further six Improvement Notices were added to that total during this year and four were lifted, leaving five Improvement Notices and two Prohibit Notices in force at the end of this reporting period.

DOSR has recently completed a five-year multi-national effort and played a leading role in updating the NATO Standards for explosives storage and handling. These will provide the UK and NATO with a much-improved common standard for multinational operations.

#### 4.6.4 Findings

##### Acquisition of OME

The previously reported issues with lack of 2nd Party Assurance, and hence concern about potential transfer of unknown risks to the users, have now largely been addressed. Of the seven Improvement Notices issued to DE&S Operating Centres in 2019, six have now been lifted with only Combat Air Operating Centre still assessed at No Assurance, due to only 39% of their OME having evidence of 2nd Party Assurance; however, positive progress is being made to reach the 75% target to gain Substantial levels of assurance. Not only has the significant backlog of 2nd Party Assurance been addressed across DE&S through a robust 'return-to-green' programme, but tighter controls have been established and an improved monitoring system introduced to prevent further occurrence and identify gaps earlier.

DE&S continue to deliver the Weapons Qualification Improvement Programme (WQIP) and are working with DOSR on the introduction of the new Defence OME Certification Process (DOMECP), which focuses on essential safety requirements for OME. DOSR is also working with DE&S to conduct a thorough review of the OME Regulations, their supporting guidance and Defence codes of practice and the standards (Defence Standards, NATO Standardisation Agreements) that support evidence of compliance. This work will also test the coherence between OME Regulation/Guidance/Standards/Contracts and how this is reflected in contract requirements for OME procurement and where/how these might require further change. Allied to this is a review of policy and process which includes work to establish a mutual recognition agreement with the US Weapon Systems Explosives Safety Review Board (WSESRB), which should vastly improve the sharing of US safety evidence and clearances without further work having to be conducted in the UK. Finally, training requirements will be examined to assist the empowerment/education/ training of SQEP personnel who have been formally delegated as the Senior Safety Responsible (SSR) within OME Delivery Teams.

Together, these ambitious initiatives should ensure that in future:

- Safety is designed-in from the start of the acquisition process.
- There will be a more consistent and systematic approach to OME product safety.
- There will be enhanced independent regulatory oversight, and more robust risk management through a reduction of unforeseen transfer of risk to the Military Commands. This will avoid 'surprise hazards' being identified too late in the design process.

Importantly, this should also promote a 'Learning Culture' within the community. Safety standards are often borne of past accidents and with the early recognition of the applicable safety standards, there will be a sound knowledge base for the ongoing safety management of the OME product, once in use.

The database of Laser Safety Certification has now been added to the Database for OME (DOME) Tool. This allows any MOD user with access to DefNET to gain unrestricted access to the certificates. With the increase in procurement of Directed Energy Weapons, both Laser and RF Types, DOSR is considering the development challenges this brings.



## **In-service and Operational Safety Management of OME**

More needs to be done to develop and sustain Skills, Knowledge Experience and Behaviours (SKEB) and basic levels of awareness of explosives safety management at all rank/grade levels<sup>50</sup>. There is increasing concern that this lack of awareness, including at senior leadership levels, is introducing an unfounded lack of confidence in the fitness for purpose of Defence OME Regulations, particularly in the Air domain (despite achieving Full Assurance in this area this year – this assessment was based on two audits of RAF Units). DOSR suggests that the reintroduction of the high-quality training on OME safety and mitigation options that Ex CROWN EAGLE previously delivered to senior staff, or something similar, would add significant benefit. DOSR also encourages Air Cmd to pursue this as part of their Agile Combat Employment (ACE) concept of operations. This should also address the need for coordination and coherence on OME risk with other NATO nations sharing op locations.

Limited availability of real estate at Deployed Operational Bases continues to present additional challenges for OME safety. The Policy Statement by the SofS for Defence directs that overseas, Defence will comply with the laws of Host States, where they apply, and in circumstances where such requirements fall short of UK requirements, Defence will apply UK standards so far as it is reasonably practicable to do so. To meet that requirement, DOSR Regulations require that prior to any deployment of MOD explosives to overseas locations a safety review shall be carried out of the facilities available at the host location and any other location(s) transited through on route where the MOD explosives are handled or stored. If this is done properly, involving competent explosives safety staff, it can be a positive enabler to operations by identifying all the potential risks early and thus significantly reducing the possibility of incidents involving our own OME. Not considering this at the planning stage adds unnecessary risk to the MOD's front-line capability and the effectiveness and future success of initiatives such as Air Command's development of its ACE.

Most Regulatory Waivers issued by DOSR are against an inability to achieve the published safe separation distances between potential explosion sites and exposed sites, including personnel. It should be noted that waivers are temporal in nature with an expectation that measures will be put in place to achieve full compliance. DOSR is keen to ensure that they do not become a fixed feature, particularly in our permanent overseas locations (e.g. PJOBS). DOSR intends to follow-up on long-standing issues to gain assurance that robust Corrective Action Plans (CAP) are put in place including, how those locations intend to address the issues and achieve compliance as soon as possible.

DOSR has also had positive engagement with IE(Army) to develop a Secure Operational Facility – Ammunition (SOFA). This uses a Bastion Modular Secure Facility (Centre for the Protection of National Infrastructure approved) bonded inside a 20' ISO with air-conditioning. The aim of the SOFA is to remove the need for explosives separation distances for small quantities of Hazard Division 1.1 explosives. This will bring benefits on small-scale operations

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<sup>50</sup> Previously, Ex CROWN EAGLE provided essential training for prospective DOB Cdrs and their staff which included explosives safety and munitions risk management. DOSR are not aware if anything has replaced this.



where the operating footprint does not support achievement of the normal safety distances, thus reducing/removing risk and increasing safety.

### **Ranges Safety**

As part of the DSA's 'Simplifying Safety' work, introduction of the new licensing scheme is progressing well and is on-target for 100% relicensing of all ranges under the new scheme in the expected timescale. The ability to submit a Range Licence application electronically and sign with an e-signature has increased efficiency for both organisations and DOSR and has been well received.

DOSR is also investigating the regulation of other areas used for training, previously known as 'Dry Training Areas' but now renamed as Fieldcraft Training Areas, which are not currently subject to regulation. Initial scoping has identified circa 3000 locations used for training where activity with OME is involved (Pyros, flares etc) but no live firing. Following the initial scoping work conducted by DOSR an interim registration scheme is being implemented. Further work is required to develop an appropriate risk-based assurance programme.

### **Major Accident Control (MAC)**

The purpose of the Major Accident Control Regulations (MACR) is to ensure appropriate measures are in place to prevent major accidents involving dangerous substances and, should an unplanned event occur, to limit the consequences to people and the environment. Of the 27 MOD establishments registered under MACR, 20 are currently certified compliant and the remaining seven are non-compliant with issues identified and being addressed. Common themes are serviceability of oil/water interceptors and fuel bowser parking areas being permeable. Both these issues present significant risks to the environment and to the MOD's reputation as a responsible site operator. Poor prioritisation and turnover of staff are seen as likely contributors to this situation with some extant enforcement dated back to 2018. Transfer of assets under Project Aquatrine and confusion over responsibility for maintenance and upkeep may also have added to the current situation.

## 4.7 – Medical Services

**LIMITED – Several organisational systems of internal control are developing but not yet mature or effective across the Defence Medical Services.**

### 4.7.1 Medical Services Domain Scope

Defence has a disapplication<sup>51</sup> to the Health and Social Care Act 2008 (Regulated Activities) Regulations 2014. DMSR on behalf of Defence is therefore responsible for the regulation, assurance and enforcement of healthcare delivered by the Defence Medical Services<sup>52</sup> to Service Personnel and Entitled Civilians. Through inspection, oversight and continuous surveillance, DMSR aims to provide the necessary assurance that appropriate standards of patient and DMS staff safety are maintained in the delivery of healthcare across Defence activities. DMSR does not assure delivery of the care or treatment of Service Personnel in National Health Service (NHS) funded facilities, nor has it the authority to regulate Host Nation healthcare facilities overseas.

### 4.7.2 Medical Services Summary

This year has continued to be dominated by the response to COVID-19 and pandemic recovery, which has presented challenges, but also opportunities, to both the Defence Medical Services (DMS) and DMSR. It has also highlighted key areas of focus for assurance and regulation and led to the development, refinement and evaluation of remote assurance methodologies that will have far reaching effects in terms of providing 2nd and 3rd Party Assurance beyond the UK firm base. Despite the challenges and operational tempo, the DMS have made progress in developing their assurance capabilities, but there are areas where improvement is still required.

The DMS is assessed as providing Limited Assurance of effectively operating controls for safe healthcare delivery by the DMSR at this time. Several organisational systems, such as collective organisational learning, assurance of overseas healthcare, contracted healthcare and elements of the operational patient care pathway, are developing but not yet mature across the DMS. Shortfalls in governance and assurance training and gapping of assurance posts contributes to the lack of 2nd Party Assurance activity; along with the constraints that continuing COVID-19 impacts have also had on assurance activity. There are some areas where there is no assurance evidence that healthcare is safe and effective.

The DMS HQ Healthcare Assurance Team has made some significant progress this year in both recruiting and establishing a team and moving key project work forward for joint coherence across the DMS in order to address several perennial issues. New healthcare assurance policy and a new healthcare assurance framework have been implemented across the Military Commands this year and demonstrates that the DMS is moving further on its trajectory to substantial.

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<sup>51</sup> <https://www.legislation.gov.uk/ukxi/2014/2936/schedule/2/paragraph/10/made>

<sup>52</sup> The Defence Medical Services (DMS) is made up of the Royal Navy Medical Service, Army Medical Service, the Royal Air Force Medical Service and the Headquarters DMS Group (HQ DMS GP).

Many of the safety themes are enduring and require broad engagement on ownership of key resources to drive down risk, such as workforce and infrastructure improvements that are not held by those responsible for delivering the healthcare.

Defence Organisation	Overall Assessment	Elements										
		Applicable Legislation, Defence Regulations, Policy and Guidance	Information Management	Organisational Leadership, Culture, Capability and Change Management	Personnel Competence and Training	Risk Assessments and Safety Cases	Equipment/Materiel and Infrastructure Design and Manufacture	Equipment/Materiel and Infrastructure Maintenance	Supervision and Control of Activities	Incident Management and Learning from Experience	Emergency Arrangements	Self-assurance
Navy Command	S (L)	S (L)	L	S (L)	S (L)	S (L)	U	S	S (L)	S (L)	S (L)	S (L)
Army	S (L)	S (L)	L	S (L)	L	L	U	U	S	S	S	S
Air Command	S (L)	S (L)	L	S	L	S	U	S	S	L	S	S
UK StratCom	L (S)	S (L)	L	L (S)	L	L (S)	U	L	L (S)	S (L)	S (L)	L

Table 4-8 Medical Services regulatory domain assurance assessment

### 4.7.3 Regulator Activity

DMSR assurance inspection activity has remained focused on Defence Primary Healthcare (DPHC). This is due to the limited developmental maturity of DMSR, along with the continued baseline programme of DPHC. Last year’s assurance report described the inaugural remote assurance visit programme and the successes in applying the methodology. The remote methodology concept has developed, including recent overseas pilots. Following Covid restrictions physical inspections have recommenced, but DMSR is likely to employ a future hybrid approach of virtual and physical inspection activity.

The Service Level Agreement with the Care Quality Commission (CQC) continues to be under revision to enable DMSR to move its focus from a tactical DPHC inspection model to conduct more organisational based assurance and develop a more risk targeted approach. There is agreement that the programme will broaden into other areas of the DMS in due course. This will be an integral element of DMSR in driving forward its own maturity and delivering more of its regulatory mandate.

In addition to formal inspection activity, DMSR gains regulatory assurance and safety intelligence from several sources. This includes surveillance of the Automated Significant Event Reporting (ASER) system, 1<sup>st</sup> and 2<sup>nd</sup> -party assurance evidence compiled on the electronic

Healthcare Assurance Framework (eHAF)<sup>53</sup>, formal and informal engagement with the Military Commands, and concerns raised directly with DMSR.

Throughout the reporting year there have been 22 Units that have had safety issues presented to DMSR's Safety Review Panel (SRP). Of those, seven have received a level of enforcement action of which four remain in place. All will continue to be managed through the Safety Review Panel process, DMSR's principal system and control process for the management of regulatory compliance and enforcement action.

#### 4.7.4 Findings

This year there were 24 re-inspections of DPHC facilities with previous safety concerns that required improvement. There were 32 first time inspections and three developmental inspections to pilot new audit methodologies.

Many of the findings this year highlight enduring themes in safety compliance which have been consistently reported over the last four years of the DPHC inspection programme.<sup>54</sup>

- Healthcare management information.
- Management of the workforce resource.
- Governance systems.
- Infrastructure.
- Leadership Capacity and Capability.
- Risk Management.

A number of these issues sit outside the direct leverage of those running the healthcare services and the Healthcare Improvement Programme (HIP)<sup>55</sup>, CORTISONE<sup>56</sup>, and medical estate rationalisation (MER) are key vehicles to driving enduring improvement. The following are specific areas of safety concern.

#### Incident reporting.

The Automated Significant Event Reporting (ASER) system is the incident reporting and organisational learning tool for the DMS. DMSR targeted reviews have highlighted missed opportunities for the DMS to learn and improve patient safety as both the design and organisational management of the system makes it difficult to assess and process information effectively, meaning critical information may be missed. Although there is evidence at Military Command level, there is currently no evidence of broader DMS organisational lesson sharing or learning.

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<sup>53</sup> Formally Electronic Common Assurance Framework (eCAF)

<sup>54</sup> CQC, *CQC's inspection programme of Defence Medical Services: Annual report for Year 4 (2020/21) and overview of Years 1 to 4, 2022*

<sup>55</sup> Formally known as the Defence Delivery Optimisation (DHDO) programme.

<sup>56</sup> Digital Transformation.

## **Raising Concerns.**

There were three occasions where safety concerns have been formally raised outside the Chain of Command (CoC) to DMSR; two raised to the CQC and passed to DMSR and one referred from Defence Fraud. Two concerns were regarding safety of mental health services and one related to safeguarding processes. These were investigated by DMSR in conjunction with DPHC and resulted in regulatory action.

## **Workforce.**

Although availability of suitably qualified and experienced personnel has been a recurring DMS theme, the lack of sufficient workforce is presenting a significant realised safety risk in firm-base care delivery. This has resulted in cases of unsafe staffing levels that have delayed access to care, compromised safe delivery of care and led to the failure or absence of safety control systems. Vacancies are often enduring and are increasingly difficult to recruit against and cover with temporary healthcare workers (THW), which is the main mitigation. There are also high levels of sickness absence and work-related stress across DPHC. The military workforce demands also presents on-going issues in the wake of exercises, deployments and other military commitments, which has been evident with Military Aid to Civilian Authorities taskings seen this year.

Additionally, DG DMS holds and is managing a risk against generating workforce and operating concurrent deployed operational capabilities.

## **Defence Mental Health Services.**

The current demand for Defence Mental Health Services (DMHS) is outstripping the resource available within the current system to ensure safe and effective healthcare and maintenance of governance systems. In addition to staffing constraints, infrastructure issues and Covid related impacts have resulted in the closure by DPHC of some services that cannot mitigate the risk and operate safely, and DMSR has also taken enforcement action. Under the Healthcare Improvement Programme (HIP) a redesign of DMHS, (along with rehabilitation and occupational health) to form a nationally managed system is planned. It is key that within this, the DMS needs to understand and manage its capacity limitations safely and better align resource to Defence epidemiological<sup>57</sup> requirements.

## **Infrastructure.**

Failing infrastructure, through long term lack of investment and maintenance, has rendered unsafe conditions for patient care in several facilities over this reporting year. Whilst HQ DMS can, and does, seek to influence refurbishment plans, the levers often remain outside their control. Patient safety will continue to be under threat in many medical treatment facilities (MTFs) and DMSR monitor and issue enforcement action where required. Proactive maintenance and replacement projects that deliver modern infrastructure are essential to ensure that delivery of accessible, safe healthcare services for the Defence patient population are not compromised.

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<sup>57</sup> Epidemiology is the study and analysis of the distribution, patterns and determinants of health and disease conditions in defined population

### **Medical supply and distribution.**

Last year's AAR reported on medical supply failures as an enduring issue and risk to patient safety. Evidence<sup>58</sup> has been scrutinised this year and impacts of supply chain failures are now better understood by the DMS. This has been elevated to a Director General level risk; Director General (DG) DMS and Director General Strategic Enablers are actively engaged to drive change and reduce risk to ensure that the contract and controls are fit for purpose. Failure of assurance of the Defence distribution supply chain beyond Purple Gate<sup>59</sup> is also an area of safety concern, particularly where products breach safe temperature range.

### **Organisational change.**

The DMS transformation programme is key to enable enduring improvement to a number of areas across the DMS but presents a risk to maintenance of safe healthcare delivery if not effectively managed. In addition, there are wider NHS and Military Command healthcare transformation dependencies to consider. Agile change has already been implemented in some areas, for example the merger of clinical practices, and there is evidence of critical system absences occurring. This year a transformation director has come into DMS HQ to cohere the change portfolio and strong leadership remains key to successful transformation. Organisational safety assessments are required to ensure that safe systems are maintained and enhanced as change is implemented.

DG DMS released his Healthcare and Medical Operational Medical Capability (H&MOC) Functional Strategy in November 2021. Healthcare safety, as a domain, is not yet embedded into the HS&EP model across the Military Commands, and it is not clear how the H&MOC and HS&EP functions link together to ensure healthcare safety issues/risks are appropriately bedded into the Head Office safety function. This should be considered as the H&MOC operating model develops.

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<sup>58</sup> Wrong drug, out of date drugs, short shelf-life

<sup>59</sup> A conceptual point of entry, to regulate the flow of material from the strategic base into the Defence Supply Chain – Defence Logistics Framework.

# Section 5 – DSA Maturity

## 5.1 – Context

The DSA provides a single independent focus for the regulation, enforcement, assurance, and investigation of Health, Safety & Environmental Protection (HS&EP) in Defence. It does this by bringing together the Defence Safety Regulators for eight distinct regulated domains and functions, the Defence Accident Investigation Branch (DAIB) and other supporting business units. These Defence Regulators and functions have evolved independently over many years, alongside their statutory peers.<sup>60</sup> They generally predate the DSA and have developed different approaches and cultures aligned to their regulated domains and functional areas, which are gradually being cohered where possible. The DSA has operational independence from Defence command chains and is well placed to:

- Identify cross-cutting issues and best practice;
- Improve and simplify regulation;
- Strive for parity across domains; and
- Highlight their relative importance to the Department.

Understanding the capability and maturity of the regulating body provides a degree of confidence in the DSA's assessment of assurance in each of its regulated domains. It also indicates the contribution Regulators make towards their regulated communities through the quality and effectiveness of the assurance they provide. The DSA's maturity assessment covers: the maturity of their regulations; use of Risk-based Assurance; alignment with the principles of the Regulators' Code<sup>61</sup>; the relationship with their statutory peers, whether they have sufficient SQEP to deliver their full range of roles; the ability to discharge those roles effectively; and the capacity to innovate.

This report uses the same Defence Internal Audit-derived assessment grades as those for the regulated domains to assess the maturity of the DSA. The definition of DSA regulator, and/or team maturity associated with each grade, is shown in Table 5-1.

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<sup>60</sup> The Health & Safety Executive (HSE), Civil Aviation Authority (CAA), Maritime & Coastguard Agency (MCA), Care Quality Commission (CQC), Vehicle & Operator Standards Agency (VOSA), Air Accidents Investigation Branch (AAIB), etc.

<sup>61</sup> Department for Business Innovation and Skills, *Regulators' Code*, 2014.



Regulator Maturity Levels	Definition
<b>Full</b>	Regulator has robust, effective regulations and processes. <i>Sufficient SQEP to deliver the full range of regulatory and risk-based assurance functions and have capacity to innovate. Assurance delivered is robust across all areas.</i>
<b>Substantial</b>	Regulator has effective regulations and processes but may have minor weaknesses. <i>Sufficient SQEP to deliver all essential regulatory and risk-based assurance functions. Assurance delivered is effective across all areas that are subject to audit.</i>
<b>Limited</b>	Regulator has effective regulations and processes but may have some major weaknesses/deficiencies. <i>May have SQEP deficiencies which necessitate prioritisation of outputs. Assurance delivered is supportive where audited.</i>
<b>No Assurance</b>	Regulator has ineffective regulations and processes or several major weaknesses. <i>Insufficient SQEP to deliver essential functions. Assurance ineffective and unreliable.</i>

Table 5-1 – DSA Regulator Maturity Levels

## 5.2 – Summary

Overall, the DSA is assessed at **LIMITED** maturity.

Incremental improvement continued within the DSA however, there are several areas that limit improvement:

- Four of the DSA’s eight regulators and the Defence Accident Investigation Branch remained at Limited maturity. This is predominantly due to a gap between their current workforce capability and their full remit.
- The Defence Environmental Protection Regulator was established on 1 April 2022 and will take some time to mature
- The rate of technological change required the Regulators to evolve quickly, often identifying resource gaps and lack of SQEP workforce to support.
- Recruitment and retention still remained a challenge, particularly for skillsets associated with innovative technology; recruitment campaigns saw an uplift in posts being filled but individuals will take time to mature in their roles.
- There was still a requirement to develop the new Land Certification process, including the certification concept, securing agreement on resource levels and an implementation pathway.
- The healthcare inspection assurance activity is still Limited but has a longer-term plan to provide safety assurance across all Defence delivered healthcare.
- Development of the Certification Team and regulatory processes within the Defence Ordnance, Munitions & Explosives Regulator was still required.

### 5.3 – DSA Overall Maturity

In addition to routine regulatory activity, the DSA consolidated the governance changes made in the last reporting period and continued to support the establishment of the HS&EP Function that was led by Director HS&EP. Other activities of note include:

- The 2020/21 AAR highlighted the introduction of two new capabilities into the DSA: the Strategic Safety & Environmental Management System and Themed Assurance (SSTA) Team and the Environmental Protection Coordination Team. The work with the SSTA team was put on hold and, instead, is being developed into a Themed Assurance team, owned by DSA. The Environmental Protection Coordination Team has evolved into the Environmental Protection Regulator, with Initial Operating Capability announced on 1 April 2022.
- The DSA contributed to the Director HS&EP led development of the HS&EP Operating Model which was published in September 2021.
- The DSA delivered four General Duty Holder Courses, including the delivery of virtual courses for the first time.
- DMR led joint regulator audit of UK Strategic Command's overseas bases.

### 5.4 – Environmental Protection

The DSA is not yet able to provide adequate assurance of Defence's environmental policy. Environmental Protection (EP) regulatory activity remains embedded in individual regulator teams but is now centrally coordinated enabling coherent reporting. The DSA has made positive steps this year to recruit EP-skilled personnel, provide access to EP training for more DSA staff, maintain cross-Regulator collaboration through the Environmental Protection Working Group, and campaign, where relevant, for inclusion of EP alongside Safety.

The EP Coordination Team have provided environmental advice and support across the DSA and Head Office. The main activity has been to deliver an implementation plan for the new EP Regulator. This included securing resources through the Annual Budget Cycle process, gaining Trade Union agreement for internal post moves, and drawing up a series of plans covering programme, governance, communications, and stakeholder management. The declaration of Initial Operating Capability on 1 April 2022, to formally act as the Defence Environmental Protection Regulator, was a significant step forward, offering a very limited third line of defence capability that will still require further development.

### 5.5 – Defence Accident Investigation Branch (DAIB)

The Defence Accident and Investigation Branch (DAIB) provides Defence with an independent accident and safety incident investigation capability. The core function of the DAIB is to investigate safety-related fatalities, injuries, near misses and equipment capability loss. DAIB is still assessed as having **LIMITED** but increasing maturity.



The DAIB is staffed with highly trained Land and Air domain investigators, with a well-established network of scientific, technical and industrial advisors available to provide specialist advice and support. The DAIB has started to develop a dedicated maritime accident

investigation capability following co-location of the Branch at MOD Boscombe Down in 2020 and the recruitment of an SO1 Maritime. The workforce is a mix of military (Regular and Full Time Reserve Service) and Civil Service, with some having considerable experience in the Branch. That experience and currency is proportional to the number of safety investigations and deployment rates which vary significantly across the Maritime, Air and Land domains. Additionally, the higher churn rates of the regular military personnel presents unique challenges in gaining, retaining and re-investing investigative expertise. The DAIB continues to engage with the single Service workforce agencies to reduce dilution of expertise and maximise return on investment through extended tour lengths. It also considers the re-employment of qualified personnel within the Branch to maintain its overall SQEP levels.

The DAIB's most significant capability gap resides in its maritime accident response. Despite several investigators having received maritime accident investigation training, there remains limited maritime experience in the workforce. Further workforce adjustments are planned to redress this including civilianising a number of Regular military posts with the intent of retaining SQEP longer through recruitment of civil servant investigators with maritime experience.

There has been a change of approach to the previously proposed revision of statute regulations<sup>62</sup> to provide DSA convened safety investigations with similar legislative protocols as those of equivalent civilian bodies<sup>63</sup>. Non-statutory agreements will now be sought with other investigative bodies, such as the civilian and military police forces and the HSE, on the protection and sharing of witness statements and other evidence. This has also affected the Memorandum of Understanding with the National Police Chiefs Council, which has not yet been finalised.

## 5.6 – Military Aviation Authority (MAA)



The MAA's maturity is **SUBSTANTIAL** and has continued to build upon by maintaining a Risk Based Assurance (RBA) approach. COVID-19 restrictions have eased, and ultimately been removed, through this reporting period, but engagement with the regulated community has continued using a range of methods and exploiting technology. This ensured the level of assurance continued to build and focus on the most beneficial areas. The MAA's training delivery has continued to use a mix of face-to-face instruction and virtual courses to maximise training throughput.

The MAA continued to highlight good practice to the regulated community who welcomed the guiding/mentoring focus that RBA enables. RBA continues to help identify issues and provide clear input to a coherent Air Safety rich picture across the whole enterprise. The MAA workforce requirements are well understood by the Service manning agencies to ensure SQEP is at the forefront of assignment planning; this is mirrored with Civil Service recruitment campaigns to ensure those posts receive the same attention. Continued SQEP focus is required across Remotely Piloted Air Systems, parachuting and Cyber/Software, where recruitment and retention has been a significant challenge.

The MAA's relationship with the Civil Aviation Authority (CAA) has continued to develop and mature, with a strong Memorandum of Understanding agreed. The CAA remains represented at

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<sup>62</sup> The Armed Forces Act 2006 and The Armed Forces (Service Inquiries) Regulations 2008.

<sup>63</sup> Air Accident Investigation Branch and Maritime Accident Investigation Branch.

the MAA's Risk Exposure Forum to identify risks common to both the civil and military sectors. The CAA has also combined with the quarterly co-ordination meeting to develop a joint risk picture and identify and deliver joint work<sup>64</sup>. The development of a 'sandbox' approach to enable information exchange and joint assessment of emerging technologies has been extremely beneficial and there is ongoing collaboration on a number of these issues<sup>65</sup>.

Internationally, the MAA continued to strengthen relationships with other national military aviation authorities and partner nations. This includes work to evolve the recognition process on re-use of certification evidence within the Military Aircraft Certification Process. The MAA continues to reinforce the UK's position within NATO and the Five-Eyes Air Force Interoperability Council (AFIC), including key advances such as driving towards a solution for inter-nation aircraft cross servicing<sup>66</sup>.

## 5.7 – Defence Maritime Regulator (DMR)



The DMR's current assessment is at **LIMITED** maturity as it progresses towards substantial assurance. This is a reflection of the level of regulatory change enacted during FY21/22 and current issues around staffing levels.

DMR continues to mature as an organisation and is responding to the changing nature of the domain, and the rapid development of new technology, by seeking to create the capacity to provide improved assurance across a much wider spectrum of activity than previously covered. As part of this work DMR has led a joint DSA Audit of UK Strategic Command, which will help shape future joint audits in support of a wider more integrated DSA. Alongside this DMR has issued version 1 of the Guide to Regulation of Maritime Autonomous Systems and updated the process for the registration of Defence Shipping. Internal business improvement and restructuring of DMR to meet this challenge has now largely completed; which has seen the creation of a dedicated registry of shipping and maritime activity to enable the better management of both process and data.

The Defence Legislative Support Tool (DLST) continues to improve, and work is now underway to expand the tool to cover all DSA regulated activity. Further work is required to fully embed these changes and refine the model. Additionally, a high rate of staff turnover has resulted in the loss of experienced personnel whilst also presenting an opportunity to bring in some fresh perspectives. A recruitment campaign has started to treat the high levels of gapping (approximately 25%) and the success of this will determine how swiftly the revised model will become fully effective. It is expected that this will not be before the end of 2022/23. Similarly the rapidly changing domain is impacting on the DMR Duly Authorised Organisations that DMR relies upon to assure safety. The pace and scale of the acquisition of new technology into the domain has increased the demand on these organisations, which are struggling to recruit and retain appropriate SQEP for the their current loading. In particular the Naval Authority will

<sup>64</sup> This has included identification and joint work on elements that span the Civil/Military boundary or that are likely to cross the boundary to ensure regulatory work is appropriate to use and that the correct regulator is leading on certification and other elements.

<sup>65</sup> Increased drone usage, Space and greater emergence of Artificial Intelligence and Machine Learning

<sup>66</sup> Understanding of the differences between National Maintenance policies has allowed work on Typhoon and F35 to be advanced further which is ongoing.

require to increase resource in the near term to meet the increasing demand of autonomous systems within the timeframes that are currently envisaged.

### 5.8 – Defence Land Safety Regulator (DLSR)



In last year's AAR DLSR aimed to reach a self-assessment of Substantial assurance by Mar 22. While significant progress has been made across the board, two areas still require development and consequently the overall assessment is that DLSR remains at **LIMITED** assurance this year.

Huge gains were made in coherence of effort across and between sub-Regulators. Further refinement is required in the coming year to leverage the impact of this combined activity including developing a coherent set of pan-DLSR regulations and enhancing combined assurance activity during overseas visits.

Land capability assurance made a big step forward this year as the concept for land certification achieved the first critical milestone with Defence Safety & Environmental Committee (DSEC) agreement. In the coming year DLSR will develop the concept further and secure agreement on resource and an implementation pathway. DLSR will also be focussing attention on innovative technologies.

### 5.9 – Defence Fire Safety Regulator (DFSR)



DFSR's maturity and effectiveness as a Defence Regulator is **SUBSTANTIAL** in Fire Safety and **LIMITED** within Fire & Rescue (F&R). The F&R Oversight & Assurance team (OA) continue to mature having recently recruited personnel with new joiners requiring time to develop into the role. The DFSR are currently drafting Defence regulations pertaining to structural (non-aviation) F&R services. It is anticipated that substantial maturity within the DFSR will be achieved during the next reporting period.

As a positive outcome of COVID-19, and with such a geographically disparate team, DFSR has embraced new hybrid working practices and continues to meet its obligations and responsibilities. Recruitment has proved a challenge over this reporting period. However, as of April 2022 the DFSR will have a near full complement of Fire Safety Inspectors; this has not been achieved for several years due to early retirement and lucrative employment prospects in the private sector. Due to the age demographic of the team, it is expected that a further recruitment drive will be required towards the end of 2022.

### 5.10 – Defence Ordnance, Munitions & Explosives Safety Regulator (DOSR)



DOSR's maturity and effectiveness as a Defence Regulator is judged to be **SUBSTANTIAL**. DOSR has also embraced hybrid ways of working whilst maintaining business continuity, evolving delivery of its core outputs (Regulate, Assure and Enforce) through effective management of its people, finance and governance arrangements and liaising closely with Ordnance, Munitions and Explosive (OME) stakeholders.

The DOSR Team comprises 26 posts with the recent addition of a Registrar in the Certification Team. As in previous years, there has been a very low turnover of personnel with recent new additions to the Team bringing a fresh perspective. Development of both our Certification Team



and personnel involved in supporting DNSR with the Defence Nuclear Programme, will be a focus for the next 12 months.

DOSR is working with all Domains and DE&S to review the OME Regulations, their supporting guidance and Defence codes of practice, and associated standards (DefStans, NATO STANAGs). This will improve coherence between OME Regulations, Guidance Material and Standards, and how they are reflected in contract requirements for OME procurement. DOSR is also engaged with NATO colleagues on the development of applicable NATO explosives safety standards.

DOSR will continue to improve its assurance activity to ensure the right balance of risk-based activity and contribute to the continuing improvement in coherence across the DSA regulators. DOSR assurance audits of potential Major Accident sites have delivered a strong focus on Environmental Protection through examination of the quality of Environmental Risk Assessment, thereby contributing to the successful stand up of the new Defence Environmental Protection Regulator (DEPR).

### 5.11 – Defence Medical Services Regulator (DMSR)



The DMSR is assessed as remaining at **LIMITED** maturity. Last year's AAR declared transition to Full Operating Capability but DMSR remains constrained by limited resources and long-term workforce absences. However, it has continued to develop its regulatory functions and its interaction with the regulated community.

The DMSR's only formal 3rd Party Assurance healthcare inspection assurance activity continues to be within Defence Primary Healthcare (DPHC), supported by the service level agreement (SLA) with the Care Quality Commission (CQC). The CQC has been subject to its own re-structuring programme which brings some risk to continuity in delivery of the auditing function. The transition to operating as a Risk-Based Assurance regulator is some way off and is severely hampered by the lack of usable data and any analytical capability. However, DMSR has been able to conduct some targeted assurance in response to safety concerns and taken enforcement action as a result.

Last year, the DMSR declared an intent to develop a strategy and plan. Following a detailed estimate, the DMSR now has a long-term vision: *to be an engaged risk-based healthcare regulator that is credible, transparent, proportionate and effective*. A progressive plan has been drafted against six developmental objectives aimed at driving it further towards substantial maturity and to deliver its full mandate of providing safety assurance across all Defence delivered healthcare.

A new civil servant post formed through DSA HQ restructuring has created an assurance planning and lead auditor post in the DMSR. This has enabled DMSR to participate in a joint audit with the Defence Maritime Regulator and contributed to an audit of the Royal Fleet Auxiliary. It will further support the aspirations of the DMSR to expand its formal assurance activity beyond firm base DPHC. During the next 12 months, it is DMSR's intent to further develop its regulatory process and conduct some formal assurance audit activity across all four Military Commands.

## 5.12 – Defence Nuclear Safety Regulator (DNSR)



The DNSR's ability to provide the necessary Risk Based Assurance is judged at **SUBSTANTIAL**. Maintaining this level of assurance will be challenging due to a rapidly expanding nuclear programme which is likely to require significant additional resource in the coming years. The DNSR is an established regulator with a mature Regulatory Management System (RMS) based upon that of the statutory regulator (Office for Nuclear Regulation (ONR)). It also has a fully integrated and internationally recognised Technical Support Organisation (TSO) on contract.

To accommodate expanding nuclear activity across the Defence Nuclear Enterprise, the DNSR bid for an increase in Crown Servants which resulted in a 10% uplift to the team. These posts are now filled with SQEP individuals such that the DNSR is now fully complemented against current requirements. Following the publication of the Government's Integrated Review, two further posts to support the Replacement Warhead Programme were approved and DNSR is actively recruiting to fill them.

The Technical Support Organisation (TSO) Contract provides a significant proportion of the DNSR Safety Case assessment capability. The previous contract expired at the end of March 2022 and has been replaced by a single source contract to ensure the continuity of this unique service. As part of the Cabinet Office conditions of contract approval, the DNSR is investigating the viability of expanding its Crown Servant Safety Case Assessor capability in the long-term within a highly competitive and specialist field.

The DNSR has replaced Joint Service Publications and associated guidance with new rationalised Regulations and Guidance. These were issued in May 2021 to meet the DSA's objective to harmonise, rationalise and simplify regulation across Defence. The DNSR consulted widely upon this change and has allowed a significant transition period for its Authorisees<sup>67</sup> to update their Safety Management Arrangements.

The DNSR has played a full part in supporting the MOD/ONR working group in response to the output from the ONR Vires Review which was shared with MOD in June 2020. The group has made positive and steady progress during the first part of the year culminating in an agreed way ahead on several issues and bringing the review to a formal close. Issues do remain to be resolved and will be taken forward by the newly established Strategic Engagement Forum and Enterprise Strategic Forum; this will include industry to ensure a fully collaborative approach.

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<sup>67</sup> Authorisees are analogous to the Office for Nuclear Regulation Licensees. The DNSR identifies individuals as Authorisees, for their areas of responsibility, where the ONR identify Body-Corporates as Licensees.



# Section 6 – Themes

## 6.1 – Introduction

This section discusses Health, Safety and Environmental Protection (HS&EP) cross-cutting threats and themes that have been raised across Defence during the reporting period.

## 6.2 – Suitably Qualified and Experienced Persons

The recruitment, sustainment and retention of HS&EP suitably qualified and experienced persons (SQEP) remains a Defence-wide issue. It is vital that those with HS&EP responsibilities have the relevant training and competencies, and maintain the necessary skills, to fully discharge their duties. Whilst the HS&EP professional framework is under review, the issue is not limited to HS&EP professionals. Technical skills, particularly those required to develop emergent and transformative technologies, are in high demand. In some areas, even with additional allowances, the Civil Service remuneration package does not compete favourably with those being offered by industry. Growth of experience will be vital to all safety critical areas, specifically areas such as platform specific safety, dangerous goods, explosives safety, and cyber activities.

## 6.3 – Fire

Fire Safety Management has improved in many areas and this can be attributed to the work undertaken by the Safety Centres within the Military Commands. However, the delivery of the Defence Fire and Rescue Project remains problematic. Concerns about the quality and provision of Fire Risk Assessments delivered on the Defence Estate via Defence Fire & Rescue (DFR) contractors led to reviews by both DFR and the contractor, Capita. The DSA awaits the results of these reviews. Fire and Rescue service provision has remained problematic for the last five years and the DSA has identified a shortage of suitable fire fighter training infrastructure and facilities; inadequate support and maintenance of existing fire fighter training facilities and infrastructure; a deterioration in fire fighter safety critical competencies and insufficient 1st and 2nd Party Assurance by both Capita and DFR.

## 6.4 – Organisational Change

Organisational change has been a constant theme and the threats to HS&EP performance must not be underestimated. Implementing change requires constant review to ensure HS&EP requirements are being adequately met and that accountabilities are fully understood. There is positive evidence that Organisational Safety Assessments (OSA)<sup>68</sup> are being conducted more routinely, however application is inconsistent across Defence organisations. Often OSAs are focussing on the primary risks, but it is important they also consider the second order resource implications to ensure full benefit to organisational decision making.

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<sup>68</sup> MOD, DSA01.2 - Chapter 7: Assessment of Organisational Change on Health, Safety and Environmental Protection, 2018

The impact of the Integrated Review (IR) and the associated SQEP resource challenge is likely to increase capacity pressures as further change is planned and implemented across Defence. In particular, some equipment types must maintain their operational outputs, some longer than previously planned, whilst being withdrawn from service. This increases the pressure on wider enterprise governance. With increases in transformation that is both internal and external to Defence, OSAs are required to ensure that safe systems and clearer accountability are maintained and enhanced as change is implemented.

## 6.5 – Emergent and Transformative Technologies in Defence

Innovation and experimentation are at the heart of the Integrated Review (IR)<sup>69</sup> and the associated Command Paper.<sup>70</sup> All Defence organisations have a significant role to play in enabling and enhancing innovation and experimentation in a safe and environmentally responsible way. Rapid technological change across Defence makes assessment and adoption of new capabilities a critical strategic challenge. There is inconsistency across Defence organisations in demonstrating suitable management structures and processes to manage and maintain the ‘safe to operate’, as well as safely conduct trials.

Whilst there will always be a lag between introducing new technologies and the publication of the standards and regulations which will ultimately govern them, the key is early engagement with the regulators to continually work to minimise both the gap and its impact. There are fundamentals though that remain constant. These include: the need for robust and proportionate safety and environmental management systems and safety case assessments to be in place for trials and the operation of equipment; Accountable Persons to be appointed; correctly articulated roles and responsibilities; risks to be understood and assessed, and for documentation and evidence to be in place at the appropriate capability development milestones.

## 6.6 – Infrastructure

The safety aspects of infrastructure maintenance are of increasing concern. With multiple stakeholders holding specific areas of responsibility, misunderstanding and misattribution of shortfalls appear to be common issues affecting resolution. Furthermore, where impacts on safety are identified, it is often the case that accountable individuals charged with maintaining risks to a level that is As Low As Reasonably Practicable (ALARP) and tolerable do not have all the levers necessary to rectify the issues. Whilst risk-based investment will remain key to progress, clarity of individual responsibilities between and within the respective Defence organisation and DIO, and improved stakeholder engagement and clearer priorities, should ensure the finite resources are effectively and efficiently applied without unintended consequences.

## 6.7 – 2nd Party Assurance

2nd Party Assurance regimes are fundamental for Defence organisations to have confidence in their HS&EP performance and there has been an overall improvement in 2nd Party Assurance across Defence. Most larger Defence organisations have effective assurance processes in

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<sup>69</sup> HM Govt, *Global Britain in a competitive age*, 2021

<sup>70</sup> MOD, *Defence in a competitive age*, 2021

place; however, several smaller organisations lack the appropriate resources to carry out their own 2nd Party Assurance effectively. In general, the challenges around 2nd Party Assurance are aligned to a shortfall in centrally provided governance and assurance training and the associated risks of assurance post gapping or assigning non-SQEP to assurance roles. It will also be important in the next reporting year to overcome the challenges of COVID-19 travel restrictions to reinvigorate 2nd Party Assurance activities both in the UK and overseas.

## **6.8 – COVID-19**

During the COVID-19 restrictions, elements of assurance regimes were modified or delayed. At establishment level, this has had a significant impact with workplace inspections not being completed; HS&EP documentation not being updated; HS&EP committees not being held; and emergency exercises being delayed. It has also impacted on HS&EP training availability, thus compounding the HS&EP SQEP issue and causing delays in infrastructure corrective action and/or maintenance. There are promising signs of recovery with all areas adapting and adjusting their working practices to include remote working and assurance regimes. Continual refinement of the hybrid environment will be needed over the coming year to achieve an optimum working pattern.



# Annex A – Safety-Related Inquiries and Investigations

## New and ongoing Defence Safety Service Inquiries (SI): April 2021 – March 2022

17 November 2021	<b>Loss of an F-35B Lightning from HMS QUEEN ELIZABETH in the Mediterranean.</b> An SI was convened in December 2021 to investigate the circumstances in which an F-35B Lightning aircraft was lost at sea whilst attempting to take-off from HMS QUEEN ELIZABETH; the pilot ejected safely. The SI is ongoing.
15 October 2021	<b>Fatality involving a Combat Vehicle Reconnaissance (Tracked) Scimitar on Salisbury Plain.</b> An SI was convened in October 2021 to investigate the circumstances in which the driver of a Scimitar vehicle died whilst the vehicle was moving on the Salisbury Plain Training Area. The SI is ongoing.
2 September 2021	<b>Parachuting fatality at Weston-on-the-Green.</b> An SI was convened in September 2021 to investigate the circumstances in which an RAF Parachuting Instructor died whilst filming a tandem jump at RAF Weston-on-the Green. Both the parachutist's main and reserve canopies did not deploy and the parachutist died at the scene. The SI is ongoing.
Various dates from 2018	<b>Asbestos exposure during overseas exercises.</b> An SI was convened in June 2021 to investigate the circumstances in which Service personnel were potentially exposed to asbestos during several overseas exercises from 2018. The SI is nearing completion and will be published in due course.
25 March 2021	<b>736 NAS Hawk accident, RNAS Culdrose.</b> An SI was convened in April 2021 to investigate the circumstances of the accident involving Hawk T Mk 1A XX189 which crashed on recovery to RNAS Culdrose following an engine emergency. Both crew members ejected safely, and the aircraft crashed into wooded farmland approximately 4 miles South East of the airfield perimeter. The SI is complete and the report will be published in due course.
4 March 2021	<b>Fatality during a night live firing exercise, Castlemartin.</b> An SI was convened in March 2021 into the circumstances surrounding the death of an Army sergeant during a night live firing exercise at Castlemartin Ranges. The sergeant was a safety supervisor and died from a gunshot wound. The SI is complete and the report will be published in due course.
16 November 2020	<b>Fatality during a Royal Navy leadership course at HMS COLLINGWOOD, Portsmouth.</b> An SI was convened in December 2020 into the circumstances surrounding the death of an Acting Petty Officer during a scheduled physical training activity on the first day of a leadership course. The casualty collapsed shortly after the starting the warm-up. Immediate first aid was administered but was unsuccessful in resuscitating the casualty. The SI was published on 17 March 2022.
21 January 2020	<b>Fatality during an amphibious training exercise, Cornwall.</b> An SI was convened in February 2020 into the circumstances surrounding the death of a Royal Marine Officer recruit during an amphibious training exercise in Cornwall. The SI was published on 29 August 2021.

**New and ongoing Defence Safety Service Inquiries (SI): April 2021 – March 2022**

17 and 27 November 2019 **Two fatalities at the Army Assessment Centre, Lichfield.** An SI was convened in December 2019 into the circumstances surrounding the deaths of 2 potential Army recruits at the Assessment Centre, Lichfield. Both collapsed following a run; the first on 17 November and the second on 27 November 2019. Both subsequently died later in hospital. The SI was published on 29 July 2021.

**New and ongoing Non-Statutory Inquiries (NSI): April 2021 – March 2022**

**Impact of aeronautical information on wire strikes.** Following an incident in January 2022 in which a helicopter being used to train pilots hit wires whilst flying near RAF Shawbury, as well as another helicopter wire strike in July 2020, the DG DSA directed the DAIB to conduct an NSI into the impact of aeronautical information on wire strikes and near misses. The NSI is ongoing.

**Commercial tanker loss of moorings.** On 10 December 2021, a commercially chartered oil tanker was delivering fuel to an MOD facility in Cyprus when it lost its moorings in high winds. The ship drifted onto a mooring buoy and the oil transfer pipe separated at a coupling, resulting in a small spillage of oil. The NSI is ongoing.

**Grenade casualty at Warcop.** On 30 July 2021, a soldier was seriously injured when a grenade they had thrown did not clear the cover in front of them and it landed between the soldier and the safety supervisor. The safety supervisor dragged the thrower away from the grenade but, when it functioned, the thrower was hit by fragments, which resulted in serious and potentially life changing injuries. The NSI is complete.

**WATCHKEEPER 044 runway excursion.** On 15 October 2020 a Watchkeeper, tail number 044, suffered a total loss of control link and recovered autonomously to the airfield at RAF Akrotiri. During the landing the Unmanned Air Vehicle departed the runway surface to the right, colliding with several items of runway furniture before coming to rest in scrubland to the north of the runway. An NSI was convened and completed in June 2021.

**Autonomous jet ski collision with catamaran.** On 21 September an unmanned Tactical Watercraft (jet ski) collided with a moored civilian catamaran on the west side of the river Torridge near Instow, Devon. A civilian occupant of the catamaran was unhurt. Both craft were recovered and secured on the east side of the river. The jet ski had been operating in autonomous mode between 2 waypoints when control was lost. An NSI was convened and completed in July 2021.

**Fatality during Basic Sea Safety Course, Horsea Island.** On 18 October 2019, a member of the Royal Fleet Auxiliary collapsed and died whilst taking part in the sea survival element of the Basic Sea Safety Course at Horsea Island. The DG DSA directed that a NSI be conducted into the incident. The NSI report was published on 28 July 2021.

**Civilian fatalities involving Defence activity: April 2021 – March 2022**

There was one civilian fatality involving Defence activity on the Defence estate. In June 2021, an Army Cadet Force Adult Volunteer collapsed and died whilst taking part in refresher training on the Dale Training Area. There was one civilian fatality involving Defence activity not on the Defence estate, which happened on 29 September 2021, when a civilian HGV hit the back of 3 stationary MAN SV trucks on the A38 near Derby. The civilian truck driver died at the scene.

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There were four other civilian fatalities on the Defence estate, none of which involved military activity. In June 2021, a civilian contractor working for Defence Business Services at HMS SULTAN was found in the moat surrounding Fort Rowner on the site. Despite a response from the emergency services the individual was declared dead at the scene. In July 2021, a contractor employed by QinetiQ was discovered unresponsive in their car at Blandford by a colleague. The individual had earlier complained of feeling unwell to his colleagues and had gone outside for a break. Despite resuscitation attempts by the emergency services, the casualty was pronounced dead at the scene. In September 2021, a group of military veterans (civilians) were undertaking archaeological work on Otterburn Range area as part of a heritage project. As the group were walking together one of them collapsed. They were given immediate first aid but, despite a subsequent response by the emergency services, they were pronounced dead at the scene. In December 2021, four civilian 'base jumpers' attempted to climb an old communications tower at Great Bromley. Whilst ascending the tower, one base jumper fell and may have impacted the others. This resulted in one civilian fatality and three civilian injuries.

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# Annex B – Defence Nuclear Assurance (Limited Distribution)

Issued under a separate cover.



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 [www.gov.uk/defence-safety-authority](http://www.gov.uk/defence-safety-authority)