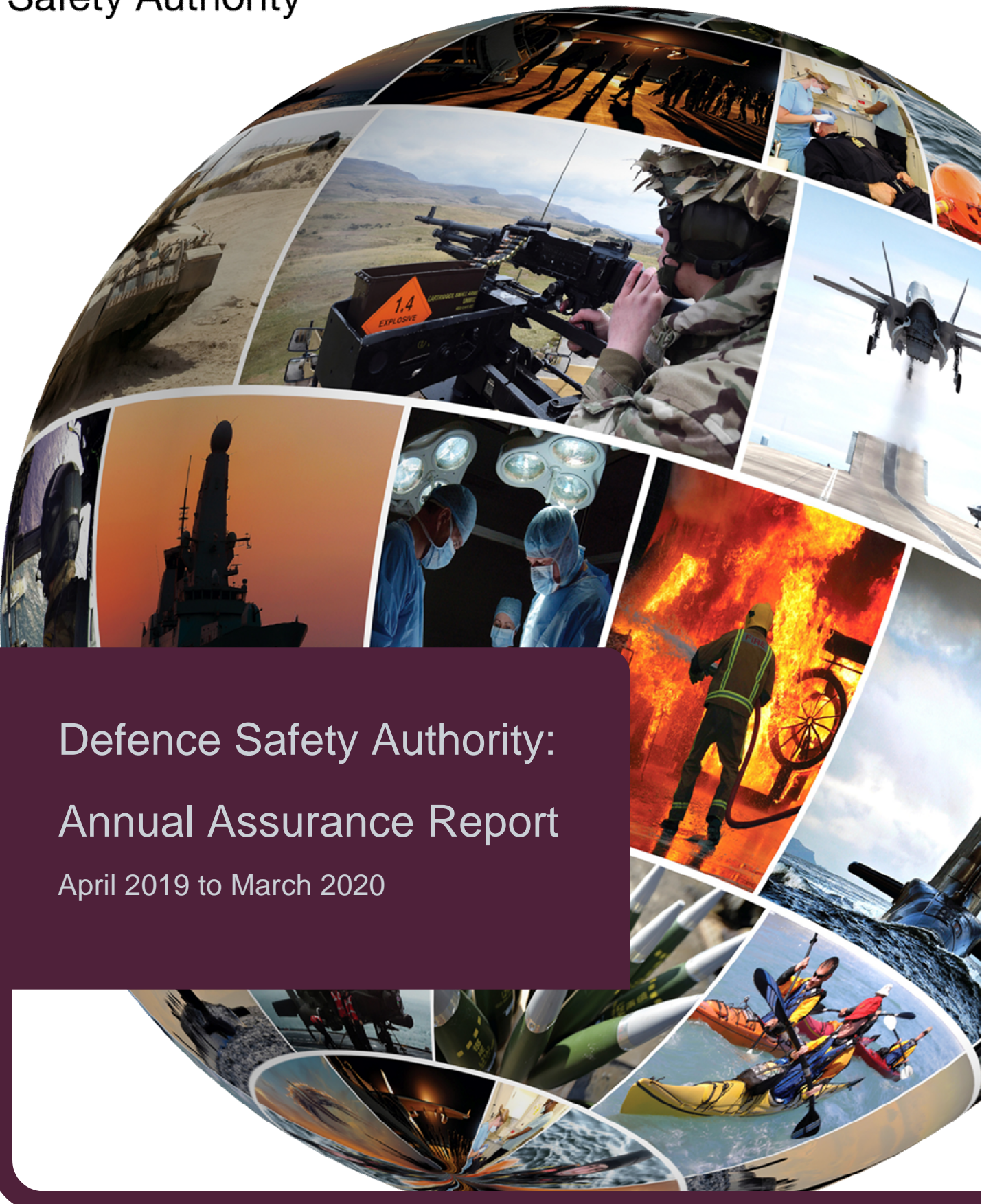




Defence
Safety Authority



Defence Safety Authority:
Annual Assurance Report
April 2019 to March 2020

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Section 1 – Introduction

The Defence Safety Authority is an independent body that provides Defence with Health, Safety & Environmental Protection (HS&EP) regulation, assurance, enforcement and investigation capabilities.¹ It comprises seven Defence Regulators for aviation, maritime, land, nuclear, fire, ordnance, munitions and explosives (OME) and medical services, together with the Defence Safety Policy & Assurance team and the Defence Accident Investigation Branch. The DSA was formed in 2015 and continues to develop, substantially transforming attitudes and driving improvements to HS&EP in Defence.

This Annual Assurance Report (AAR) provides the Secretary of State (SofS) for Defence with independent assurance that his policy for HS&EP in Defence is being adequately promoted and implemented.² This is the DSA's sixth AAR, covering the period 1 April 2019 to 31 March 2020. As I noted last year, this continues to be a period of significant change, both in the context in which Defence activities are conducted and the way that HS&EP is managed in Defence.



We operate in an environment undergoing continual change. The key to managing change safely within the current Defence context is to recognise the magnitude of change and understand the effects, across enterprises. This AAR highlights the impact of change, and the dangers of not managing it well, across all of the domains and raises a number of specific examples. This will continue to be a challenge, especially in the coming year with the impact of COVID-19,³ the end of the transition period after leaving the European Union and the delayed Integrated Review and Comprehensive Spending Review, together with the ever-present demands of meeting Defence Plan tasks competing for resource and attention, potentially at the expense of safety. However, the increased focus on governance and management of HS&EP at the highest levels in the Department, led by the Permanent Secretary and the Defence Safety & Environmental Committee have continued to bear fruit and provide the Departments with a way to manage these challenges.

The HS&EP performance of the Department during this period, together with a review of what we have learned from accidents, incidents, investigations and enforcement action taken this year, are considered in Section 2. Previous AARs have highlighted a number of long-standing and seemingly intractable issues, so I am pleased to report signs of progress. Increasingly mature Safety & Environmental Management Systems (SEMS) are established in many areas and are providing risk owners with better visibility to manage those risks. Section 3 contains assurance assessments for each of the regulated domains. These improvements need to be sustained and consolidated, with better internal assurance mechanisms and management information to support the work of sufficient Suitably Qualified and Experienced People (SQEP).

¹ Charter for the Defence Safety Authority dated 2 April 2020.

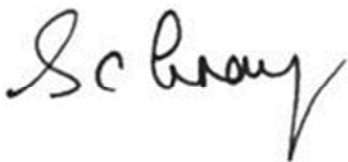
² As required by para 6 of the DSA Charter and para 5 of the Health, Safety & Environmental Protection in Defence Policy Statement by the Secretary of State for Defence dated 2 April 2020.

³ The impact of the COVID-19 pandemic on Defence falls outside the period of this report and is not specifically assessed.

The maturity and development of the DSA and its Regulators, which underpins confidence in these assurance assessments, are considered in Section 4 which also describes our progress against the DSA Strategic Plan for 2019 to 2025 published in May last year and the work being undertaken to implement the recommendations of an independent external audit of the DSA's effectiveness which took place in 2018.⁴ The DSA will continue to develop its capabilities to provide increasingly effective, proportional and consistent HS&EP frameworks that are transparent, accessible and practical.

This AAR builds on the observations and recommendations made in last year's AAR.⁵ That report highlighted the early steps in improving the governance of HS&EP in Defence and made a number of recommendations for the newly-formed Defence Safety & Environmental Committee to consider. In Section 5 of this report, in addition to its assessment of HS&EP assurance and regulatory material, it summarises the steps taken to consolidate the new governance arrangements and its achievements over the past year. It also identifies areas where more still needs to be done. This AAR recommends areas where the Defence Board, utilising the DSEC, may wish to further focus its efforts and prioritise its investment in HS&EP.

The DSA will help set the standard for HS&EP in Defence; knowing, sharing and demonstrating what good HS&EP culture, leadership and performance looks like. We do this specifically through our regulatory set but also through our embodiment and advocacy of a Just HS&EP Culture and through our assurance, enforcement and investigative activities. We act not only as a regulator, but as a critical friend; working together to keep Defence healthy, safe and environmentally sound.



Air Marshal Sue Gray CB OBE FREng
Director General
Defence Safety Authority

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⁴ Parry, *Report and Findings from the 2018 External Audit of the DSA*, November 2018.

⁵ MOD, *Defence Safety Authority Annual Assurance Report April 2018 – March 2019*, dated 9 January 2020.

Section 2 – Safety in Defence

This section provides an overview of Safety in Defence during the period 1 April 2019 to 31 March 2020 covering Safety performance, significant inquiries conducted by the DSA and HSE&P-related enforcement action taken by the DSA or external Regulators.

2.1 Safety Performance

2.1.1 Fatalities.

The top four causes of fatalities for Regular Armed Forces personnel in the calendar year 2019 were cancer (21), other accidents (15), Land Transport Accident (13) and suicide (10). Of the 15 deaths in the ‘other accidents’ category eight are awaiting a verdict by a coroner or procurator fiscal and are subject to change, so may be confirmed as suicide, rather than ‘other’.^{6,7} It has been identified that, in the last five years, UK regular armed forces male suicides have been increasing and an increase in male suicides has also been reported for the UK general population.⁸ Discussion of the work associated with the 2018 DSA Suicide Review⁹ is in Section 3.8. Discussion on Land Transport Accidents is in Section 3.4.3.

There were six Defence safety-related fatalities during the reporting period¹⁰ (Figure 2-1) of which four are subject to Service Inquires, one subject to a Non-Statutory Inquiry and one the subject of an HSE investigation.

Defence Safety-Related Fatalities
5 May 2019 – Regular Army Anti-poaching patrol, Liwonde National Park, Malawi
18 October 2019 – Royal Fleet Auxiliary Basic Sea Survival Course, Horsea Island
17 November 2019 – Civilian Recruit selection, Lichfield Assessment Centre
27 November 2019 – Civilian Recruit selection, Lichfield Assessment Centre
18 January 2020 – Civilian Vehicle maintenance, Catterick Garrison
21 January 2020 – Regular Royal Marine Amphibious Training Exercise, Cornwall

Figure 2-1 – Defence Safety-Related Fatalities.

The level of safety-related deaths has shown a reducing trend (Figure 2-2), although it is worth noting that single accidents resulting in multiple deaths (such as aircraft accidents) and the low numbers add volatility to this rate.¹¹

⁶ MOD, [Deaths in the UK regular armed forces: Annual summary and trends over time 1 January 2010 to 31 December 2019](#), 2020. Figures are for UK regular armed forces and the non-regular members of the UK armed forces who died whilst deployed on operations.

⁷ MOD, [Deaths in the UK regular armed forces: Annual summary and trends over time 1 January 2010 to 31 December 2019](#), 2020. There were ten confirmed suicides. The mechanism of injury for the other eight suggest possible suicide but are awaiting verdicts and may be recategorized following a coroner’s inquest.

⁸ MOD, [Suicides in UK Regular Armed Forces: Annual Summary and Trends over Time 1 January 1984 to 31 December 2019](#), 2020, p1.

⁹ DSA, [Defence Safety Authority Focused Review of Suicides among Armed Forces Personnel – Final Report](#), dated 14 August 2018.

¹⁰ As determined by a Defence Accident Investigation Branch triage or where a Service Inquiry and/or a coroner/procurator fiscal (Scotland) has subsequently confirmed the incident as safety related or determined safety to be a causal factor.

¹¹ Fatality figures are drawn from MOD, [MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2014/15 – 2018/19](#), 2019. Population figures to determine the rate per 100,000 personnel are as at 1 April of that year and are drawn from MOD, [UK Armed Forces Quarterly Personnel Statistics 1 April 2020](#), 2020 for 2012-2019 figures and MOD, [UK Armed Forces Quarterly Personnel Report 1 January 2013](#), 2013 for 2009-2011 figures. Full-time Armed Forces comprise all UK Regulars, Gurkhas and Full-Time Reserve Service.

Full-time Armed Forces Safety-related Fatalities

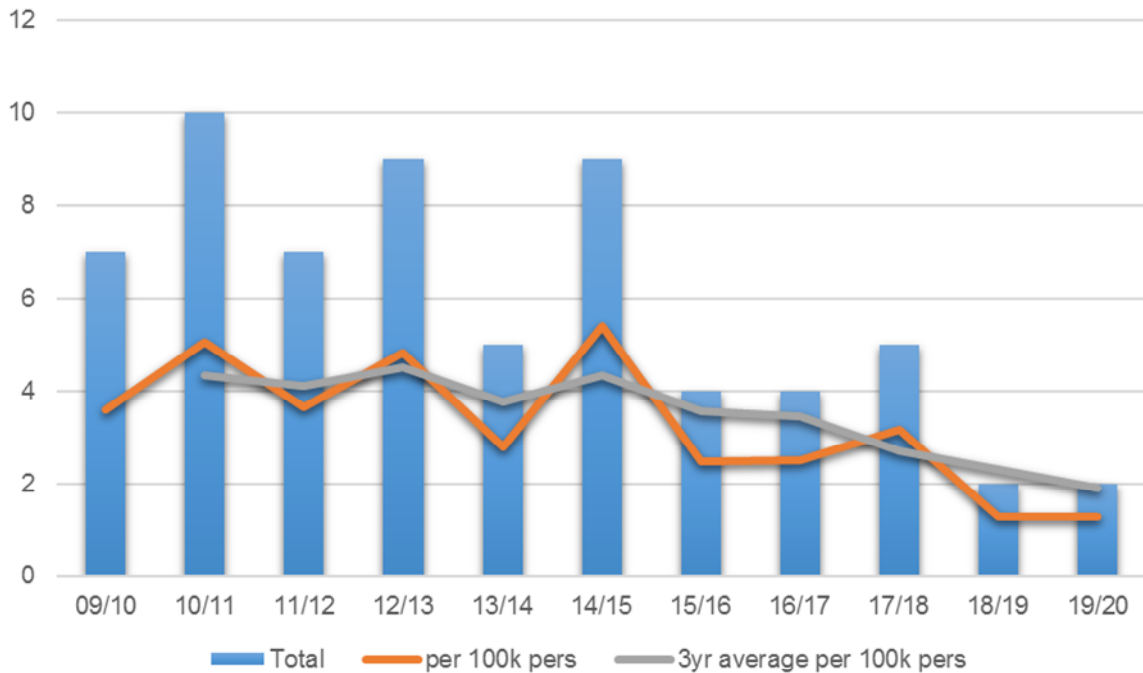


Figure 2-2 – Full-time Armed Forces Safety-related Fatalities.

A comparison of the fatal injury rate for the Full-time Armed Forces and other UK industrial sectors over the period April 2014 to March 2019 is in Figure 2-3.¹² While the rate for the Full-time Armed Forces was higher than that in most industries, recent figures (as shown in Figure 2-2) indicate that the rate is decreasing and approaching a rate comparable with the construction industry.¹³

UK Industry Comparison (2014/15-2018/19) Fatalities per 100,000 pers

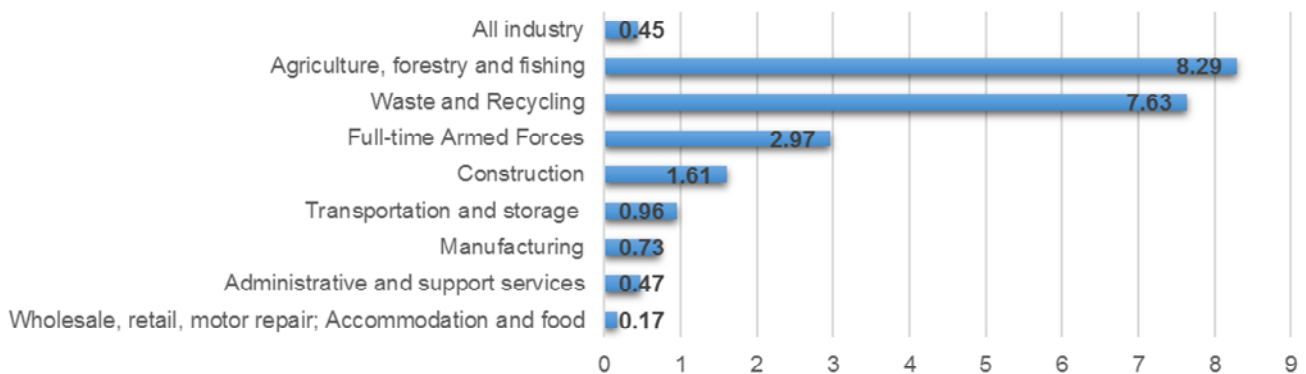


Figure 2-3 – UK Industry Comparison (2014/15 to 2018/19) Fatalities per 100,000 people.

The number of Army fatalities during training and exercises has steadily declined since 2014. Navy and RAF fatalities are too infrequent to draw conclusions over the same period (Figure 2-4).¹⁴

¹² HSE, [Workplace fatal injuries in Great Britain, 2019](#), 2019, p. 5.

¹³ 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.

¹⁴ MOD, [Training and Exercise deaths in the UK armed forces 1 January 2000 to 29 February 2020](#), 2020, p. 5.

Figure 2: Naval Service^{1,2} deaths³ on training⁴ or exercise by calendar year⁵, numbers
1 January 2000 to 29 February 2020

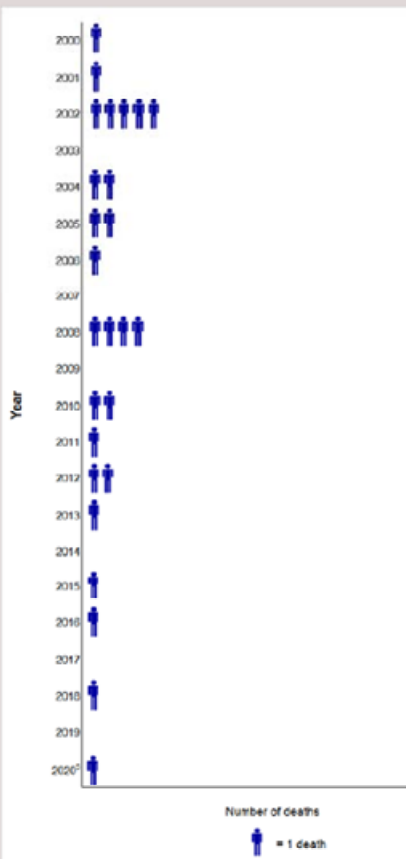


Figure 3: Army¹ deaths³ on training⁴ or exercise by calendar year⁵, numbers
1 January 2000 to 29 February 2020

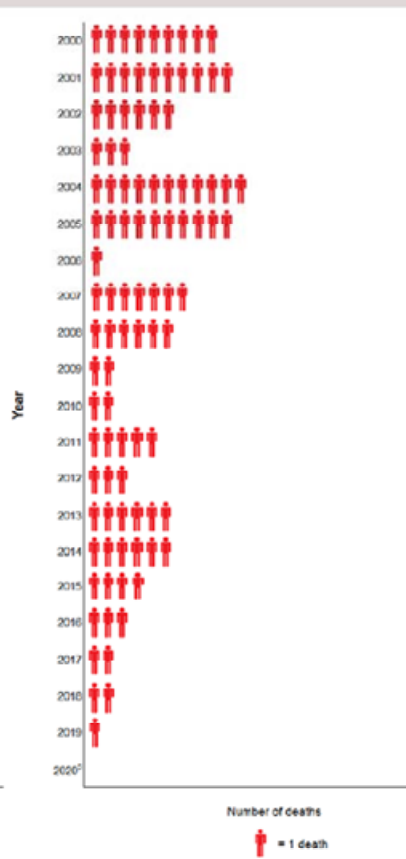
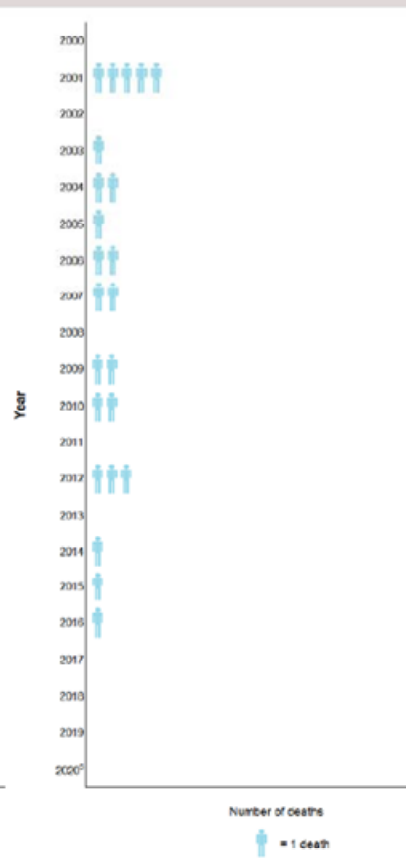


Figure 4: RAF¹ deaths³ on training⁴ or exercise by calendar year⁵, numbers
1 January 2000 to 29 February 2020



Source: Defence Statistics Health

1. Figures are for regular and reservist personnel 'on duty'.
2. Royal Navy and Royal Marines.
3. Figures are for all causes of death and therefore include those deaths that occurred due to injury or natural causes whilst on training or exercise.
4. Figures are for all types of training and exercise.
5. Up to and including 29 February 2020.

Figure 2-4 – Armed Forces Deaths on Training or Exercise 2000-2020.¹⁵

2.1.2 Injuries.

The number of injuries reported in 2018/19 are in Figure 2-5, and the trend over time is represented in Figure 2-6. Defence Statistics again reported that the rate of injury and ill-health had statistically significantly increased, and that while the actual number of incidents has not increased by a large amount, decreasing populations of these groups mean that the rate had increased.

¹⁵ These statistics come from [Training and Exercise Deaths in the Armed Forces – 1 January 2000 to 29 February 2020](#) (p5) and include safety-related deaths in operational theatres, but not deaths as a result of combat activity. The only operational theatre deaths are five in a helicopter accident in Afghanistan 2014 and one in a kayaking accident in Cyprus in 2015 (Op TOSCA). Non-safety related deaths in operational theatres are covered by a separate Defence Statistics report, [UK Armed Forces Deaths: Operational Deaths Post World War II – 30 September 1945 to 15 March 2020](#) (graph on p6).

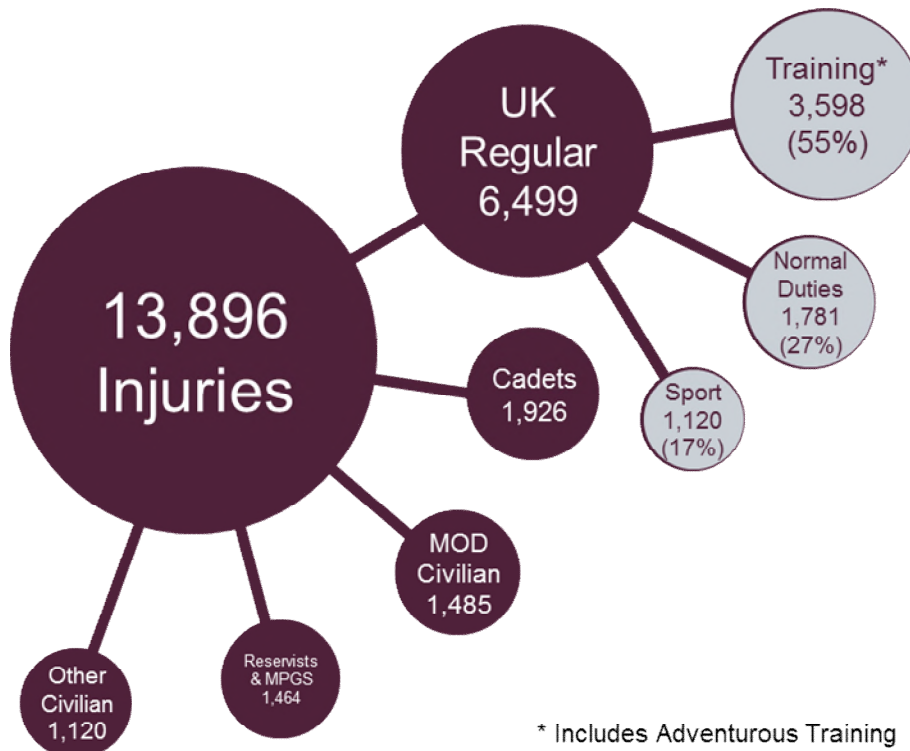


Figure 2-5 – Injuries to Defence people reported in 2018/19.¹⁶

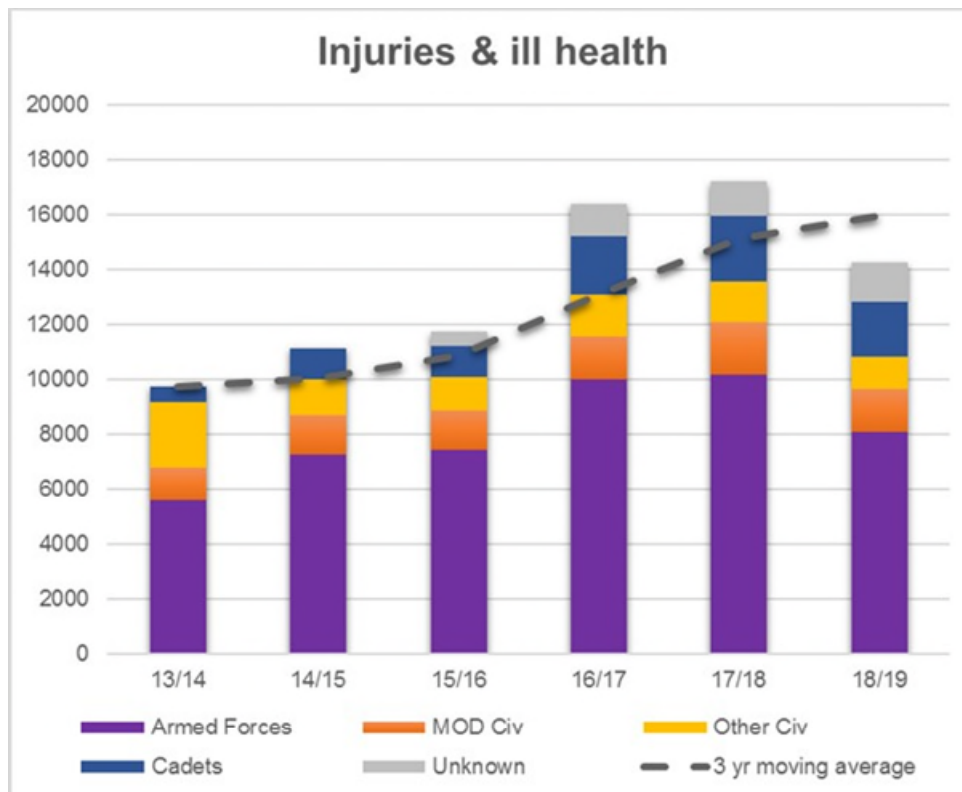


Figure 2-6 – Safety-related Injuries and Ill Health reported in Defence 2013 to 2019.¹⁷

¹⁶ MOD, [MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2014/15 – 2018/19](#), November 2019, revised 22 September 2020. Figures are provisional and are highly likely to increase due to late reporting.

¹⁷ MOD, [MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2013/14 – 2017/18](#), 2018; and MOD, [MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2014/15 – 2018/19](#), 2019. Figures for 2018/19 are provisional and are likely to increase.

2.1.3 Asbestos.

Last year's AAR noted the DSA's oversight of the way in which the Department discharges its legal responsibilities to protect people against exposure to asbestos and other harmful substances. This year the DSA has assisted the DSEC and D HS&EP to understand these areas better with a review of work by Defence Equipment & Support (DE&S)¹⁸ and Defence Infrastructure Organisation (DIO) to improve understanding and management of asbestos risks to meet statutory requirements. The initial review of DE&S found that policy and procedures were in place and that, if followed, they would enable compliance with both the law and Defence Policy. However, it also found that evidence was not held at the top level of the DE&S to show whether these requirements were being followed. A further audit of DE&S Operating Centres is now being conducted alongside a non-statutory inquiry (NSI) by the DAIB into the historic causes of failure of compliance such as the discovery of Asbestos Containing Material (ACM) at the Ashchurch vehicle storage depot and in Sea King helicopters when all such material had been thought removed some years ago.

2.2 Defence Service Inquiries and Non-Statutory Inquiries.

There were 9 Service Inquiries (SI) and 3 Non-Statutory Inquiries (NSI) new or ongoing during the period 1 April 2019 to 31 March 2020 (see Annex A). The Defence Accident Investigation Branch (DAIB) was deployed on 18 occasions to conduct the initial triage of incidents and has provided specialist support to SIs, NSIs and investigations conducted by other MOD organisations. DAIB deployments included eight vehicle incidents, one air systems incident, three maritime incidents, two incidents involving weapons and explosives, two sporting incidents, one involving a wild elephant and one physical training incident. This is a significant reduction in the number of deployments when compared to previous years,¹⁹ noting that the threshold of seriousness for deployment to an incident has not changed in this time. However, it is too soon to consider this as an indicative trend of improving safety across Defence.

Further analysis of the incident data shows that of the 18 incidents attended by the DAIB in 2019/20, the triage reports²⁰ continue to highlight similar findings: failure to follow procedures, lack of or inadequate leadership,²¹ lack of appropriate supervision and inappropriate risk management including appetite, ownership and transfer of risk. The following two high profile incidents identified a number of lessons, some of which will resonate across other domains and activities.

Loss of Hawk aircraft XX204, RAF Aerobatics Team (RAFAT) Red 3, with the loss of one life.

The SI panel investigating the loss of the Red Arrows Hawk XX204 noted that the contribution of induced pressure to deliver, reduction in training and currency requirements resulting in skill fade, sub-optimal administration of risk management and incomplete or inaccurate documentation all had a part to play in the outcome of the accident. It also identified a number of performance shaping factors,²² including working routines, fatigue, and distraction that contributed to the accident.

Luge Training Incident leading to serious injury.

The NSI panel investigating the serious injury of a Servicewoman on a luge during winter sports training found that the activity had been practiced by all the Services for many years, potentially 'normalising' the associated risk. There was an absence of formalised progressive training, competency assessment and assurance oversight. Limited knowledge and application of safety and

¹⁸ A bespoke trading entity (BTE) and arm's length body of the MOD.

¹⁹ FY16/17 - 47, FY17/18 - 34, FY18/19 - 37, FY 19/20 - 18

²⁰ An initial information gathering report, designed to furnish DG DSA with sufficient information to determine follow-on investigation requirements.

²¹ 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.

²² Performance Shaping Factors are the characteristics and interactions of the task, the individual and the organisation that influence human performance.

assurance policies, together with the use of generic risk assessments lacking specific-to-task details and medical plans, all combined to compromise the adequate management and mitigation of risk and thus increase the likelihood of an accident.

2.3 Enforcement Action.

While there was no Crown enforcement served on the MOD during the reporting period, it is anticipated that two Crown Censures will be served for the fatalities in March and November 2018.²³

The majority of findings during DSA audits or inspections are minor in nature and are 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 hazard which, if left unaddressed, could impact on 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.

2.4 Governance of Safety in Defence – DSA Improvement Notice.

Last year's AAR noted²⁴ that in April 2018 DG DSA served an Improvement Notice²⁵ on the Permanent Secretary for failing to put in place suitable arrangements in Head Office for governance of HS&EP.²⁶ During this reporting period the DSA reviewed the progress of the DSEC's work to define appropriate governance arrangements, nominate and delegate HS&EP responsibilities effectively and develop appropriate mechanisms for safety assurance. There was clear evidence in all four areas²⁷ that it was working effectively, with strong support from the Service Chiefs and substantive discussions of the issues underlying safety management, including the need for changes to policies and cultures to support continuous improvement. Steady progress was being made, which although slow was making clear headway to improve safety performance through a better collective understanding of risk and the use of more effective management information. Key supporting documentation²⁸ had been updated to reflect the new governance and management arrangements for HS&EP in Defence. Increased DSA involvement in the P&RR process indicates good progress to incorporate HS&EP performance assessments with evidence that the process is being tested and adjusted in light of experience. As a result, in November 2019 DG DSA lifted the Improvement Notice,²⁹ while noting some concern over the speed of mobilisation of the HS&EP Directorate and the need for the DSEC's supporting Working Group to find its effective working level and be adequately empowered to make progress. The DSA will continue to monitor the progress of further improvements in all of these areas through the DSEC and its routine assurance activities. Since the Improvement Notice was lifted there has been continued evidence of further progress, including the forthcoming publication of a Functional Strategy for the HS&EP function in Defence provides the foundation for sustained development,³⁰ as recommended in last year's AAR.³¹

²³ The death of a soldier during Army Diver training at the National Diving and Activity Centre, Chepstow, on 26 March 2018 and a death during combat swimmer diving training in Portland Harbour on 14 November 2018.

²⁴ MOD, *Defence Safety Authority Annual Assurance Report April 2018 – March 2019*, dated 9 January 2020, Section 5.4.1.

²⁵ DSA/IN/DSA/HQ/18/1-Perm Sec dated 24 April 2018.

²⁶ Non-compliance with the requirements of Chapter 2 – Requirement for Safety & Environment Management Systems (SEMS) in Defence – of DSA01.2 – Implementation of Defence Policy for Health, Safety and Environmental Protection (HS&EP).

²⁷ The establishment of Director HS&EP and the new policy unit. The effective and sustained operation of the new DSEC with 4* membership. Progress of the DSEC's work programme, including the recommendations of the Head Office Safety Governance Review and DSA External Audit reports together with a process for closing them through defined closure authorities and the DSEC. Evidence of the proper treatment of safety in the Performance and Risk Review (P&RR) process.

²⁸ HS&EP in Defence: Policy Statement by the Secretary of State for Defence, updated 2 April 2020. DSA Charter reissued 2 April 2020. General Agreement between the MOD and the Health and Safety Executive (HSE) in course of reissue.

²⁹ Closure of DSA Improvement Notice DSA/HQ/1-Perm Sec Ministry of Defence – Inadequate Safety & Environmental Management System, DSA/IN/DSA/HQ/18/1-Perm Sec dated 19 November 2019.

³⁰ Ministry of Defence, Health, Safety and Environmental Protection Functional Strategy issued June 2020.

³¹ MOD, *Defence Safety Authority Annual Assurance Report April 2018 – March 2019*, dated 9 January 2020, Recommendation 7.

Section 3 – Safety and Environmental Assurance

3.1 – Scope

Defence is bound by UK Health, Safety & Environmental Protection (HS&EP) laws which are appropriate and proportionate for managing risks in the workplace and addressing the effects of Defence activities on the natural environment. This principle is at the core of the SofS's Policy Statement for HS&EP.³² However, the span of Defence activities includes inherently hazardous tasks for which the well-ordered UK statutory health and safety regime can in some cases be inadequate or inappropriate. In these dynamic and challenging environments, it is vital for military commanders to be able to develop skills and expertise in managing significant safety risks during high fidelity and exacting military training, where personnel *'train as they fight'*, to prevent risk being transferred to the operational commander.

To cater for these specific circumstances, Defence has a number of disapplications, exemptions and derogations (DEDs) from UK Law.³³ In the case of these DEDs it is the role of the DSA, on behalf of the SofS, to maintain arrangements in the form of regulations where there is no statutory requirement or where assurance of specific hazardous activities is required.³⁴ The DSA is also required to provide independent assurance to the SofS that Defence is complying with his HS&EP Policy Statement,³⁵ and to investigate accidents.

In this context, regulation of Defence Safety & Environmental Protection is divided into seven domains and functional areas, each overseen by a Defence Regulator:



³² MOD, *Health, Safety and Environmental Protection in Defence: Policy Statement by the Secretary of State for Defence*, dated 2 April 2020, updating previous version of 29 June 2018.

³³ A **disapplication** means that a law or article does not apply to the MOD. An **exemption** from an aspect of law can be granted by the SofS for Defence in exceptional circumstances. **Derogations** from particular provisions of legislation may be sought by the MOD, normally during the drafting process.

³⁴ *'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: Policy Statement by the Secretary of State for Defence*, dated 2 April 2020, para 3.

³⁵ Defence Safety Authority Charter, para 2.

- Aviation
- Maritime
- Land
- Fire
- Ordnance, Munitions and Explosives
- Medical Services
- Nuclear

Each Regulator assures, regulates and enforces where the MOD has DEDs from statute, where the MOD itself is considered to be the appointed statutory regulator³⁶ or for certain high hazard activities in their domain for which civil statute does not exist³⁷, while some assurance of compliance with the SofS's HS&EP policy is provided by the DSA HQ Defence Safety Policy & Assurance Team.³⁸

3.1.1 Assurance Model.

Defence Safety uses a 3 Level Assurance Model:³⁹

- **1st Party Assurance (1PA):** Self-assurance (formation/unit/section level)
- **2nd Party Assurance (2PA):** Management oversight (higher Command (Cmd)/formation)
- **3rd Party Assurance (3PA):** Independent assurance (DSA, statutory regulator or peer)

Each DSA regulator conducts 3PA in its domain or functional area across all relevant Top-Level Budget (TLB)⁴⁰ to make an evidence-led assessment of HS&EP compliance. This is done by conducting independent audits and, in certain conditions, by inspection while also drawing on the results of the 2PA activity and, where necessary, 1PA conducted by TLBs. The DSA does not act on specific HS&EP risks owned and managed by TLBs.⁴¹ The DSA also assists TLBs by drawing parallels or trends where issues or causes are cross-cutting or systemic.

3.1.2 Safety Assurance Assessment.

The DSA's assessment of the Safety Assurance Level of each of the regulated domains and functional areas⁴² is based on the Regulators' assurance assessments of each respective Regulated Community (RC)⁴³, based on evidence collected throughout the reporting year and inputs from TLBs.⁴⁴ Levels of assurance are categorised as: Full, Substantial, Limited or No Assurance (see Figure 3-1 for definitions and colour-coding used in the diagrams).⁴⁵

³⁶ The Defence Fire Safety Regulator has statutory powers under the Regulatory Reform (Fire Safety) Order 2005 and the Fire Scotland (Regulations) 2006.

³⁷ Such as complex conventional or nuclear weapons systems.

³⁸ This role will progressively transfer to the Head Office Health, Safety & Environmental Protection Directorate during 2020/21, although it is likely that the DSA will still play some part in the assurance of SEMS on behalf of D HS&EP.

³⁹ DSA01.1, *Defence Policy for HS&EP, Chapter 5 – Checking and Performance Reporting*, para 3.

⁴⁰ Throughout this report TLBs are referred to collectively as Commands (Cmds) and Enabling Organisations (EO).

⁴¹ That is the role of the respective TLB senior risk owner and Senior Duty Holder reporting through to the Defence Board risk owner in accordance with existing Departmental policy.

⁴² For ease throughout this report the term 'domain' equates to 'domain and functional area'.

⁴³ defined as the organisations or units within a TLB or Executive Agency whose activities fall under Defence safety regulations for a specific domain.

⁴⁴ Each TLB was invited to provide DSA with any additional evidence (in the form of annual assurance report, risk registers, etc) to inform the safety assurance assessment.

⁴⁵ Defence Internal Audit definitions of assurance which originate from the Chartered Institute of Internal Auditors.

Assurance Levels	Definition
Full	System of control established and operating effectively.
Substantial	System of internal control established and operating effectively with some minor weaknesses.
Limited	System of internal control operating effectively except for some areas where significant weaknesses have been identified.
No Assurance	System of internal control poorly developed or non-existent, or major levels of non-compliance identified.

Figure 3-1 – Defence Safety Assurance Levels.

For each domain this report provides in the following sections a clear statement of regulatory assurance for the domain as a whole and the regulatory assurance of each TLB operating in the domain,⁴⁶ with the report for the Nuclear domain at Annex B.⁴⁷ Each section contains a graphical representation in the format of Figure 3-2, showing relative levels of activity by TLBs active in the domain, and an assessment of assurance is given for each.

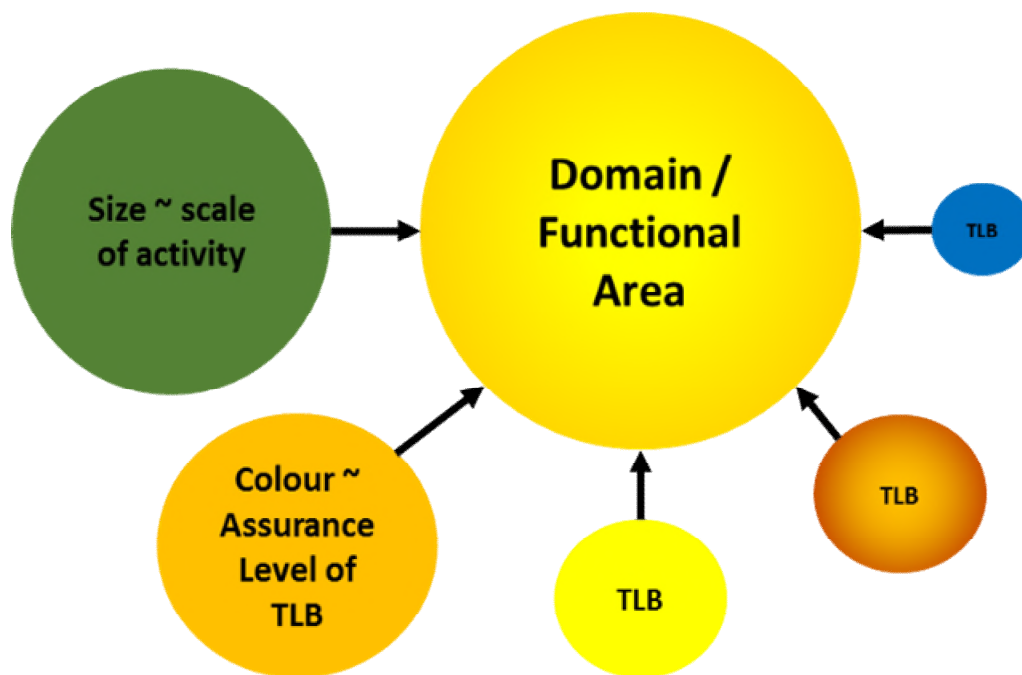


Figure 3-2 – Depiction of Defence Safety Assurance Levels for Domains.

To provide TLBs and risk owners with guidance, the report specifies any areas of significant weakness within each domain or functional area supported by evidence.⁴⁸ Where the Safety Assurance Level has changed from the preceding year, the level of evidence provides sufficient detail to support the change and provide the respective TLB with guidance upon which they can act.

⁴⁶ Each TLB operates across many regulated domains and functional areas.

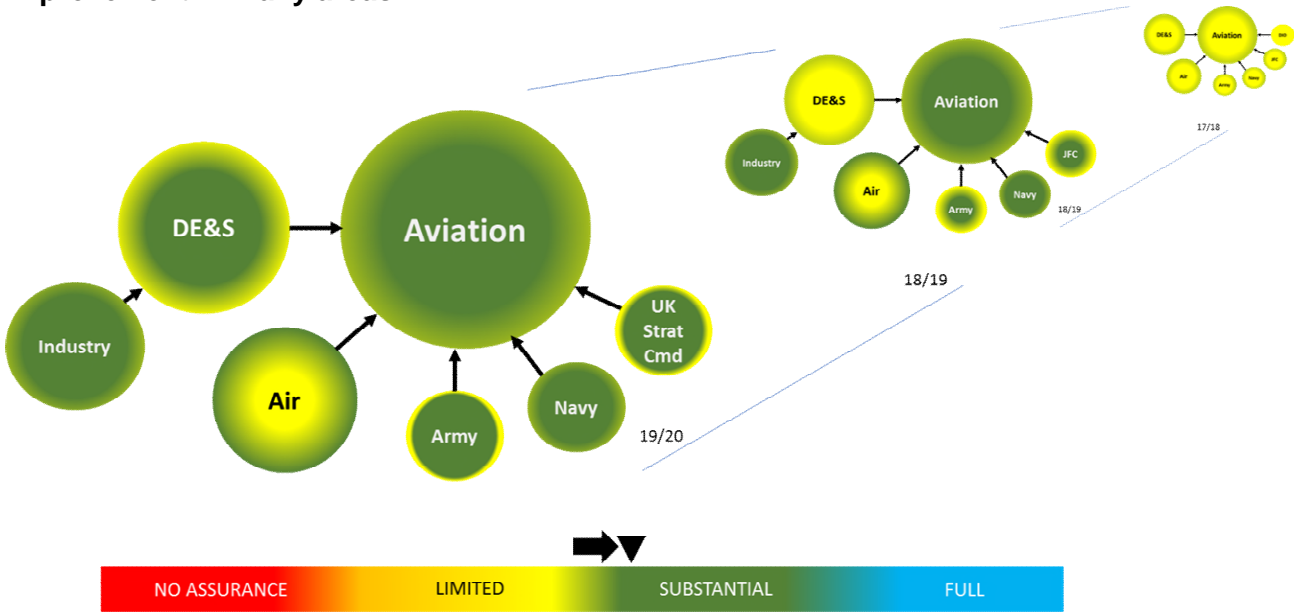
⁴⁷ Marked SECRET.

⁴⁸ It is the role of the DSA to advise Head Office of the 'ends', allowing TLBs the freedoms to exploit the 'ways' and 'means'.

Aviation

3.2 Assurance Level.

SUBSTANTIAL Assurance – building on last year’s assessment with continuing improvement in many areas.



3.2.1 Scope

Defence has an almost total exemption from the United Kingdom’s Air Navigation Order⁴⁹ requiring it to regulate all Defence activity in the Defence Aviation Environment (DAE). This is done by the Military Aviation Authority (MAA), the safety regulator for all UK military aviation. All three Services and UK Strategic Cmd (UK Strat Cmd) operate in the Aviation Domain with significant support from DE&S and Industry which is also subject to MAA regulation and assurance.

3.2.2 Regulator Activity

The MAA conducts a risk-based approach to assurance,⁵⁰ covering all areas of the DAE: Duty Holder (DH) organisations, DE&S Delivery Teams (DT) and industry Approved Organisation Schemes.⁵¹ Assurance is conducted through a combination of audit, surveillance and oversight, the frequency of which is informed by the Air Safety rich picture. During the reporting period the MAA conducted 688 audit, oversight or surveillance events. It issued or reviewed 123 organisational approvals, issued 90 Type Certificates and Certificates of Safety (Aviation) and delivered or managed and oversaw 169 training courses attended by some 3,800 people from across Defence and industry. This activity covered Industry approved organisations, the four Military Cmds and DE&S, whose Delivery Teams are fundamental in ensuring Air Systems are appropriately certified and ‘Safe to Operate’.⁵²

3.2.3 Findings

This was the second concurrent year which saw safety improvements across the DAE and without a fatal air accident. These improvements, coupled with the existence of only minor Air Safety control

⁴⁹ Civil Aviation Authority Publication 393 (CAP 393), ‘The Air Navigation Order 2016 (ANO) and Regulations’, Article 22, 25 August 2016.

⁵⁰ The MAA’s approach to risk-based assurance is among the more mature in the DSA. This has enabled the DSA to reduce its reliance on simple programme-based inspection regimes and to focus activities on the areas of greater concern.

⁵¹ The MAA maintains industry Approved Organisation Schemes for Contractor Flying organisations (CFAOS), Air Traffic Management Equipment providers (AAOS), air system Design organisations (DAOS) and maintenance providers (MAOS).

⁵² Whereas the Front-Line Commands through their Duty Holders (DHs) ensure they ‘Operate Safely’.

weaknesses and managed issues, have maintained the assessment of the DAE's assurance level as **SUBSTANTIAL Assurance**. This assessment further reinforces the improvement seen last year, but more work is required for all areas of the DAE to maintain this assurance level.

Aviation Duty Holders (ADHs) in all commands are managing risk to tolerable levels, whilst facing significant pressures to deliver. Often this is by reducing outputs, as Operating Duty Holders (ODHs) do not always have the necessary levers to mitigate risks by other means.⁵³ Several ADHs find themselves to be closer to the boundary of ALARP and Tolerable risk without the necessary levers to satisfactorily address the risks. However, weaknesses in ADH assurance⁵⁴ have the potential, if not addressed now, to become the top strategic risk in the Aviation domain in the coming reporting period.

There was evidence in Air Cmd of effective Air Safety Management Systems (ASMS) and clear evidence that Operating Risk to Life (RtL) is understood and managed. The significant amount of change in 11 Gp has stretched those responsible for its management and delivery and with focus on reacting to Air Cmd direction.⁵⁵ Lack of formal 1PA & 2PA of the engineering desks has led to over-reliance on 3PA by the MAA, which is recognised by the ODH. Safety governance within 11 Gp is embryonic but growing, with corrective action on the Space & Battlespace Management (BM) Force organisations being monitored well by the DH-chain. AOC 38 Gp clearly understands Duty Holding and is making good progress with his Duty Holder-facing Human Factors responsibilities in most areas.⁵⁶ The 38 Gp Safety Cell is growing, although hampered by the changeover of key personalities. There was also evidence of poor management of the Safety risks resulting from RAF Transformation, with no Organisational Safety Assessment (OSA) of the formation of 11 Gp or the moves of the BM Force into 11 Gp or back to 2 Gp. Other key risk drivers noted included weaknesses in enterprise governance, limited consideration by Capability staff of the safety factors involved in extending out of service dates for air systems, the time taken to embody safety modifications, including those arising from Service Inquiry recommendations and ineffective Air Safety assurance, driven by under-manning in the RAF Safety Centre and the resultant increased reliance on stretched and similarly under-resourced Air Safety Teams (AST) at Group level. Assurance across Air, but most especially at Cmd level, requires urgent attention if ADHs are to maintain an accurate picture of their Air Safety risks and the breadth of some ADHs' responsibilities should be reviewed. Change requires careful management, especially when the secondary effects of large change programmes - such as RAF Transformation - are not appropriately considered early during the decision-making process, while the introduction of new equipment programmes and OSD extensions are often intrinsically linked yet may not be considered holistically. Rapid progress must be made addressing SI safety modification recommendations and embodying Mid Air Collision mitigation modifications. Addressing these Air Safety issues would enable Air Cmd to achieve a strong SUBSTANTIAL assurance level.

There is evidence of significant improvement in HQ JHC's Air Safety management and culture, with an improved Air Safety Management Plan. This has flowed through to their Air System Safety Working Groups (ASSWG), which have become very effective in managing Air Safety risks and aligned to the Air System Safety Cases (ASSC). Manning and experience levels (SQEP) in the AST have improved, although this is still a work in progress and recognised as such by the ODH. There have been significant improvements in JHC's 2PA over the reporting period, with a long-term strategy in place to further enhance effectiveness. Project COLINDALE⁵⁷ will affect the ADH chain. The need for an OSA was initially regarded as a compliance exercise and poorly understood, but both use and understanding of it have now improved. ASSWGs in Navy Cmd are very effective, with direct reference to the relevant ASSC and clear links between evidence, arguments and claims

⁵³ As readily attested to by UKMFTS, A400M and the recently expressed ODH concern over Hawk T Mk1.

⁵⁴ Key component weaknesses were raised with the MAA Operators Council at 20191107-DMAA_MOC_REF_Letter-OS dated 7 Nov 19.

⁵⁵ Reformed in October 2018, the RAF's No 11 Gp includes the capabilities of the Chief of Staff Operations and the Air Battle Staff, comprising the deployable Joint Force Air Component (JFAC), the National Air & Space Operations Centre (NASOC) and, for a period, the Battlespace Management Force.

⁵⁶ Less so in the A4 (Engineering and Logistics) and A6 (Communications) areas.

⁵⁷ The restructuring of the Army Air Corps (AAC) into an Aviation Brigade.

for safety. 2PA at both ODH and Delivery Duty Holder (DDH) levels is mature and effective, and regarded as 'first in class'. Evidence of effective and timely investigation and review of Air Safety occurrences, with good use of specialist resource by sharing of investigators across the ODH's units. Good evidence of the use of OSAs to manage a wider range of infrastructure changes at RNAS Culdrose, often led by empowered OF4s or OF3s. However, at Navy Cmd HQ-level recognition that an OSA conducted early could help inform Navy Transformation programme decisions has been slow, with OSAs being used instead to manage the resultant risks.⁵⁸ Although UK Strat Cmd has no ADHs there is evidence of effective working relationships between the Operational Chain of Command and ADHs, together with improved understanding of the delineation between operating and operational risks.

Air Safety concerns over the Information & Knowledge Management challenges being experienced by DE&S are increasing. Through-life access to Air Safety information is vital. It underpins ASSCs and informs risk management decisions. There is evidence of widespread issues accessing both soft and hard copy data. The DE&S Airworthiness Team (DAT) is working with the Chief Information Officer to address these as a priority, but the scale of the issue may be significant. Limited DE&S assurance capabilities – predominantly for 2PA – have limited Director General Air's (DG Air)⁵⁹ ability to fully assure the DE&S CEO and the ADHs that DTs continue to deliver Air Systems. This is recognised in the DE&S High Level Audit report as an issue DE&S has yet to fully address, although some progress has been made. There is evidence of degraded 1PA in several DTs due to persistent resource and/or SQEP problems exacerbated by poor alignment of 2PA activity between the DE&S Airworthiness Team (DAT) and Air Operating Centres' Safety and Environmental (S&E) Teams. SQEP issues in Acquisition Safety & Environmental (ASE) and Engineering Authority personnel persist despite significant sustained efforts by DE&S Leadership. There is continued evidence that manning and SQEP levels have the potential to impact safety with some routine safety management and capability delivery tasks either being delayed or not done. Good levels of assurance over industry organisations is provided by the MAA Approved Organisation Schemes. Each scheme has a narrow focus and organisations are required to maintain approval in order to fulfil their contracts. Accountable Managers hold or strongly influence the financial and other resource levers, enabling them to address issues.

The top strategic safety threats in the Aviation Domain reported in last year's AAR remain, as outlined below, with significant issues relating to enterprise management emerging during this reporting period to raise it as a strategic concern too.

Mid-Air Collision

Military Air Proximity (Airprox)⁶⁰ statistics show a steady decline in reported near-miss incidents within the UK over the last 10 years. However, when normalised against UK military flying hours over the same period, the mean rate remains broadly similar, which appears consistent with the reduction in military flying rates rather than any other factor. Airprox against the General Aviation (GA) community accounts for the largest number of Military Airprox, as shown at Figure 3.3. The number of reported Airprox varies by month, with demonstrable peaks in the summer period as a result of higher levels of GA activity. The number of reports of Airprox between military aircraft and drones has reduced,⁶¹ mirroring a reduction in the total number of UK Airprox reports⁶² involving a drone from 139 in 2018, to 125 in 2019. Analysis by the UK Airprox Board indicates that, proportionally, the percentage of all UK Airprox reports involving a drone at low altitude has reduced in the past 12 months,⁶³ although there has been an increase in the altitude of drone Airproxes: up

⁵⁸ Navy Transformation only began to take effect towards the end of the reporting period and will be further assessed in next year's report.

⁵⁹ The 3* domain leads in DE&S, previously referred to as 'Chief of Materiel', were retitled 'Director General' on 1 June 2020.

⁶⁰ An Airprox is defined as 'a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft, as well as their relative positions and speed, have been such that the safety of the aircraft involved may have been compromised.'
<https://www.caa.co.uk/Safety-initiatives-and-resources/Airprox/> Airprox in the UK are reported to and assessed by the UK Airprox Board.

⁶¹ From 12 in 2018, to 8 in 2019.

⁶² Including both civilian and military aircraft reports.

⁶³ 41% of 2018 UK Airprox involving drones occurred below 2000 ft AGL, in 2019 this reduced to 28%.

from 1000-2000 ft to 2000-3000 ft. This suggests that targeted consumer education, combined with the introduction of Flight Restriction Zones (FRZ) around airfields and the 400 ft (Above Ground Level) maximum height restriction on drones,⁶⁴ is having a positive effect on the number of occurrences at lower altitudes, where a significant proportion of military flying occurs. However, more work is needed to understand why drone Airproxes are conversely occurring at higher altitudes and significantly above the 400 ft height limit. ADHs continue to seek to address the MAC risk through a variety of mitigations, including the fitment of Collision Warning Systems (CWS) with some progress,⁶⁵ although with evidence of delays in a number of areas.⁶⁶

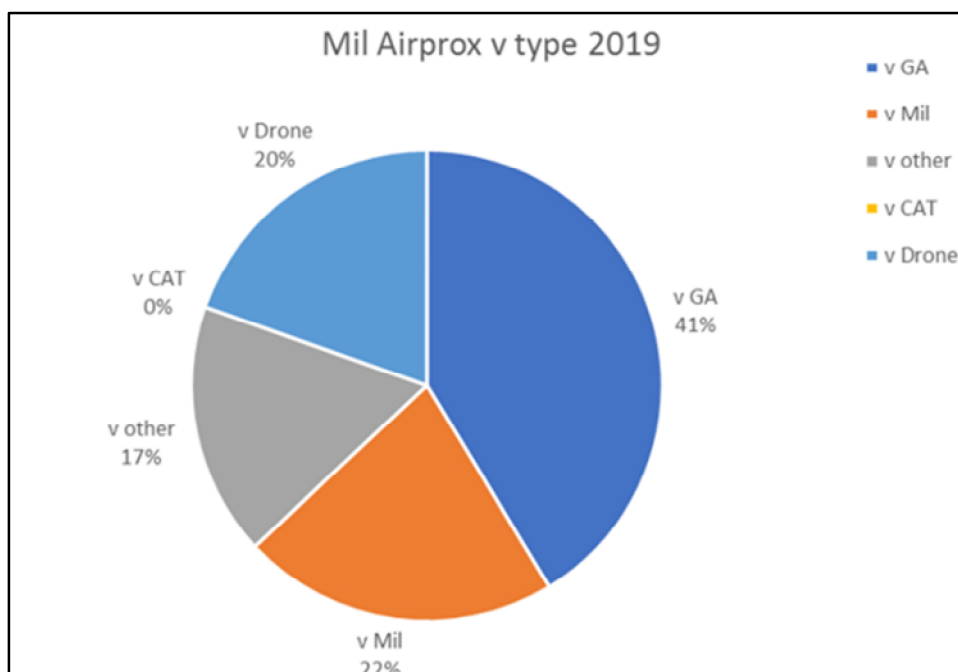


Figure 3-3 – Percentage of Mil Airprox Against Airspace User Categories.

Change

There is evidence of improved understanding of the use of OSAs, with some organisations⁶⁷ recognising the benefits gained through continued engagement with an OSA throughout the change programme. However, such realisation is not universal, particularly when considering major equipment programmes, where an OSA⁶⁸ would help identify potential safety risks to associated platforms and activities beyond the programme itself. Whilst MAA regulation for ASSC⁶⁹ will help close the gap, an ASSC is not a substitute for an OSA. For example, the decision to transfer the Battlespace Management (BM) Force⁷⁰ to 2 Gp by 1 Apr 20 was taken without having conducted an

⁶⁴ FRZ and 400 ft AGL restrictions were introduced in Mar 19. Flight above 400ft requires CAA permission.

⁶⁵ For example, the fitment of [PowerFLARM](#) (a collision alerting system) to the Battle of Britain Memorial Flight aircraft.

⁶⁶ Hawk T Mk1 remains without a CWS, making the ADH ALARP and Tolerable judgement difficult to sustain, with the Equipment Delivery Date, when equipment elements of the modification should be available at 50% confidence, currently Jan 22. The Typhoon Enhanced Collision Awareness System (ECAS) was subject to operational evaluation in summer 2019, which concluded that it was not fit for purpose. A revised schedule seeks to deliver a capability in early 2022. Lightning II is not fitted with a dedicated airborne CWS or Automated Collision Avoidance System (ACAS). Through collaboration with the US DoD, the UK is looking to develop manual and auto collision avoidance systems for implementation on the aircraft through the Joint Strike Fighter Programme. The potential replacement of the Centralised Airspace Data System (CADS), a tool to improve low flying activity awareness during flight planning, has been delayed due to cost, with the current contract extended to Mar 25, and the option of a further extension to Mar 27 if required. Air Cmd manages the current CADS contract and the replacement requirement. A Post Design Service task placed on Grob to address performance issues with Prefect Traffic Alerting System (TAS) resulted in a software change which has not completely resolved the problems. The Delivery Duty Holder (DDH) continues efforts to obtain a better system such as that already in use with other military Prefect operators.

⁶⁷ For example, the Lossiemouth Development Programme (although the LDP OSA originated from an MAA CAR Level 2 for failure to conduct an OSA for introduction to service of P8 Poseidon), RAF Northolt Bolthole, FWMAS Transition from the Army to RAF, and RNAS Culdrose's infrastructure changes.

⁶⁸ For example, there has not been an SRO-initiated OSA for Protector or E7 Wedgetail.

⁶⁹ RA 1205 – Air System Safety Cases.

⁷⁰ Under Air Transformation the BM Force was initially transferred from 1 Gp to 11 Gp on 1 Nov 18, also without a suitable OSA.

OSA. The transformation of NCHQ involves significant change, especially in the DH field with ACNS(A&C)⁷¹ becoming ODH for all surface and sub-surface ships, in addition to retaining his ADH responsibilities - a large and very broad portfolio with potential implications for Air Safety management. DE&S conducted an OSA as part of its transformation programme, which is now complete although some of the tools and processes⁷² are yet to be fully employed. DE&S has reported it is in a continuous improvement phase, focussed upon numerous individual change initiatives which in combination seek to deliver the 'DE&S@21' Vision and Strategic Objectives. Such activity should be tracked through use of the 'live' OSA. There are a large number of such initiatives⁷³ which affect DE&S output and resources with the potential to impact on Air Safety.

SQEP

Addressing SQEP shortfalls is a long-term challenge which receives appropriate attention from within the ADH community, but ODHs do not always own all the levers to resolve the issues. Some rest with the Service manning agencies⁷⁴ who face an increasingly competitive market, while others are held elsewhere. There have been some improvements, but a significant amount of work remains before this is no longer a strategic threat.⁷⁵ Three specific areas of SQEP shortfall remain of particular concern:

- ADH understanding of their assurance responsibilities, particularly in relation to their Continuing Airworthiness Management Organisations (CAMOs) and the importance of Continuing Airworthiness (CAW) activity, has improved. The message is resonating and there is greater understanding of the importance of assurance, helped by some improvements to AST manning.
- While HQ 11 Gp⁷⁶ has implemented a plan to improve the Air Operations (Control) manning situation within Air Cmd by 2022, frontline units are yet to see a significant improvement in the number of fully qualified personnel from the BM cadre. The challenge is being exacerbated by the wider civilian demand⁷⁷ for experienced Air Traffic Control (ATC) personnel, posing a threat to delivering the plan. In the meantime, the effects are being managed at unit level, principally through the reduction of core outputs.⁷⁸
- DE&S initiatives to increase workforce levels in recent years⁷⁹ have been successful in many areas. The recent Acquisition Safety Programme initiative, which clarifies the taxonomy for DE&S personnel involved in decision-making as part of safety-related activities, has also been successful. Notwithstanding such efforts, historical SQEP issues persist⁸⁰ and the impact of a distinct change in the DE&S staff demographic remains unclear.⁸¹ Shortfalls in key areas such as Acquisition Safety and Environmental Practitioner (ASEP) also remain, as well as wider engineering function staff to support Air Safety decision makers.⁸² The exact Air Safety effects of such SQEP shortages are currently difficult to measure accurately while Acquisition Safety Programme metrics mature⁸³ and new DE&S HR management information tools bed in. However, many DTs report shortages and/or SQEP loss in safety delegated or safety core roles. There is clear evidence that DE&S manning and SQEP levels have the potential to impact safety, with

⁷¹ As part of the transition he becomes retitled Director Force Generation (D FGen), the title used hereafter.

⁷² For example, Programme, Portfolio and Project Management (P3M).

⁷³ c.43 as of Mar 20.

⁷⁴ For military, while personnel departments within the 4 TLBs and DE&S manage recruitment and employment of Civil Service staff.

⁷⁵ Whilst progress has been made filling posts, achievement of the requisite qualifications and competence will naturally lag.

⁷⁶ Responsibility for the BM Force has since transferred to 2 Gp.

⁷⁷ National Air Traffic Services (NATS).

⁷⁸ RAF Shawbury provides an example of how terminal ATC units dynamically manage the availability of satellite airfields and ATC services to mitigate reduced numbers of qualified ATC personnel. Meanwhile, the implementation of reduced hours of operation at Swanwick Mil ensures sufficient personnel are available at peak times.

⁷⁹ Through external recruitment campaigns, graduate and apprenticeship schemes.

⁸⁰ As reported in the DE&S High Level Audit report, MAA_DE&S_Executive_19.

⁸¹ This is primarily a result of churn, exacerbated by increased levels of outflow, which has resulted in c.50% of all current DE&S staff having been employed there for less than 4 years; as reported in several DE&S High Level Audit interviews.

⁸² Engineering Authorities (EA) and Type Airworthiness Authorities (TAA).

⁸³ The Acquisition Safety Programme is a DE&S initiative, headed by Dir Eng & Safety to deliver an Acquisition Safety Framework.

tensions between core Air Safety tasking and further capability delivery to Cmds resulting in some routine safety management tasks and capability delivery tasking either being delayed or not being done.⁸⁴

ADH Internal Assurance

A number of facets combine to enable effective ADH internal assurance. These include the ADHs' understanding of their assurance responsibilities (see comments on SQEP below), suitable SQEP in ASTs, comprehensive ASSC, effective interaction between elements responsible for CAW, effectiveness of 2PA, use of 'bow tie' risk management tools and DE&S quality assurance. AST manning has generally improved since mid-2019 but some variance remains across the DAE,⁸⁵ developing⁸⁶ their SQEP will naturally lag. Good progress in Navy Cmd by Director Force Generation has resulted in an exemplar 2PA system, but elsewhere elements of 2PA are not being done effectively⁸⁷. Air Cmd faces a special challenge due to the size and span of its Groups (Gp), with a particular concern over the lack of clarity, appreciation of scope/capacity in implementing CAW management and the variability in approach taken by the Gps to Air Safety, operations, engineering and airworthiness assurance activities. There have been improvements in honest reporting and grading in Air Safety and operations assurance activity; however, engineering assurance requires further attention. The 38 Gp Continuing Airworthiness Improvement Programme (CAWIP) now seeks to improve organisational clarity and coherence, although any resulting policy changes will need to be agreed cross-Service. The DE&S High Level Audit⁸⁸ confirmed that DE&S 2PA capacity remains somewhat limited, primarily due to resource and coherence issues between the DAT and Operating Centre S&E Teams. Across all TLBs, there is extremely limited 2PA of aerodrome safety. ADH assurance has the potential, if not addressed now, to become the top significant threat to safety assurance in the air domain in the coming reporting period.

Infrastructure

Poor infrastructure poses Air Safety risks, ranging from maintenance errors attributable to inadequate lighting through to aircraft damage due to poor runway surface condition. There has been a reduction⁸⁹ in infrastructure-related Air Safety occurrence reports this year,⁹⁰ although continued reference to issues during MAA surveillance visits indicates possible reporting fatigue. ODHs confirmed⁹¹ that non-Air Safety related infrastructure issues are also now being raised and that infrastructure problems remain a significant issue. Infrastructure improvements delivered as part of new capability programmes⁹² only serve to highlight the disparity across the estate, which is especially stark at those locations that also continue to operate legacy capabilities. Repairing safety-critical airfield infrastructure is also a challenge even when funding is available.⁹³ The relationship between a DDH/Head of Establishment (HoE) and nominated DIO representative are undermined by constant change, whether at the unit itself, as a result of DIO transformations or by changes in their prime contractor,⁹⁴ although there are examples where the relationship works well.

⁸⁴ For example, although DTs address urgent amendments to the Air System Document Sets (MOD F765s) in a timely manner, many are unable to significantly reduce the backlog of amendments triaged as "routine". This is reported during the DE&S High Level Audit, MAA_DE&S_Executive_19.

⁸⁵ For example, the Central Flying School and RAFAT Air Safety Management System (ASMS) was noted, during 2PA reports and MAA oversight, as constrained by resource. Typhoon Force HQ has not had an AST since Jan 20.

⁸⁶ Notably within JHC and some Air ASTs, but improvements are now evident.

⁸⁷ For example, JHC's 2PA of 1 ISR Brigade incorrectly sentenced a Regulatory Non-Compliance as a Minor Observation. The RAF Safety Centre recently announced (RAF Safety Centre 2nd Party Assurance Activity dated 19 Feb 20) a significant reduction in assurance activity due to post gapping.

⁸⁸ DSA_MAA-DE&S_Executive_19.

⁸⁹ A total of 241 infrastructure-related DASORs were submitted in 2018 and 167 during 2019.

⁹⁰ Air Safety occurrences are reported through the Air Safety Information Management System (ASIMS), the internal MOD tool used for the reporting, management and exploitation of air safety occurrence and investigation information.

⁹¹ MAA Operators Council dated 12 Mar 20.

⁹² e.g. F35, P8.

⁹³ For example, it took one year to commence runway surface repairs at RAF Valley despite being a DDH and HoE priority, with available funding. Of note, there was no DDH-HoE conflict at RAF Valley as the same individual holds both roles. Such lengthy delays to commencing works are a frequent occurrence across the DAE.

⁹⁴ Amey.

There has been recent significant investment at RNAS Yeovilton and RNAS Culdrose, but it will not be possible to understand how JHC's infrastructure issues might be addressed in the medium to longer term until the Defence Rotary Wing Basing Strategy has been confirmed.

3.2.4 New Issues

Enterprise Governance.⁹⁵

Defence is introducing new capabilities to replace legacy (ageing) platforms and fill emerging capability gaps, but there are often delays. This results in those same legacy platforms being extended in service, with attendant risks associated with ageing aircraft. The delays have second order effects on those older fleets⁹⁶ and on the need to sustain aircrew and type engineering training pipelines. In some cases, incrementally increasing Out of Service Dates (OSD)s has significant allied Air Safety risks, as evidenced by the long outstanding safety mods required to be fitted to Hawk T Mk1. The governance of such programmes needs to be robust and well understood by all parties; this is not always the case.⁹⁷ The effects of late capability decision making result in ageing platforms being asked to deliver more capability, whilst it should be reducing as they approach OSD.⁹⁸ Departmental short-term funding decisions⁹⁹ exacerbate the situation. Force generation responsibility remains with an ODH who has neither the levers nor ability to properly manage the associated Air Safety risks,¹⁰⁰ less for reducing output – conversely adding further pressure as the demand signal increases. MAA regulation for ASSCs should help address some of the issues felt by ODHs as it requires the Senior Responsible Officer (SRO) to develop an ASSC from an equipment programme's concept stage, in concert with ADHs and the MAA.¹⁰¹ SROs are perhaps best placed to ensure Defence's enterprises are governed, across programmes and pan-Defence Lines of Development, with due consideration of the broader safety consequences.

Summary – SUBSTANTIAL

There has been a slight improvement this year in the DAE's Safety Assurance Level, although the assessment remains at SUBSTANTIAL Assurance. Minor weaknesses remain and the picture is not consistent across TLBs. The top Air Safety strategic threats are, in priority order: MAC, managing change safely, SQEP, ADH assurance, enterprise governance and infrastructure. Lack of robust 2PA and change management using OSAs remain control weaknesses, with new issues over enterprise management giving cause for concern. MAC, SQEP and infrastructure are the managed issues, with steps continue to be taken to address these issues, although they will take some time to deliver further substantial improvement and our infrastructure is unlikely to be addressed for some time. ADH assurance, if not addressed now, has the potential to become the most significant strategic threat this coming year, due to the risks we have identified surrounding DE&S and the lack of effective 2PA leading to overstretched ASTs being asked to do more. This risks slowing the changes required to embed the mature Air Safety culture necessary to achieve an enduring SUBSTANTIAL safety assurance level.

⁹⁵ In this report, enterprise governance considers the full breadth of aviation activity; a 360-degree view of Defence's collective efforts. As such, it considers all aspects of a TLB's aviation endeavours; including facets such as the management of capability portfolios, delivery of flying, CAw, logistics, infrastructure and DH-Facing organisations. Enterprise governance therefore requires the involvement of all stakeholders and cross-boundary coordination.

⁹⁶ For example, delays in delivering the range of A400M capabilities has resulted in the extension in service of the C130J and significant additional tasking allocation on C17. Of note, the UK C17 aircraft are now the world fleet leaders in terms of hours flown.

⁹⁷ The MAA Hawk T Mk1 E2E Audit report (published 12 Feb 20) clearly reported that the Hawk T Mk1 enterprise lacked overall governance; with no SRO, or associated programme management or capability development meetings.

⁹⁸ For example, Sentinel OSD extension, requiring a major block upgrade whilst still declared to NATO; and C130J extension - due to A400M - requiring short notice obsolescence measures.

⁹⁹ As reported by the NAO in their report: [The Equipment Plan 2019 to 2029](#), summary para 9.

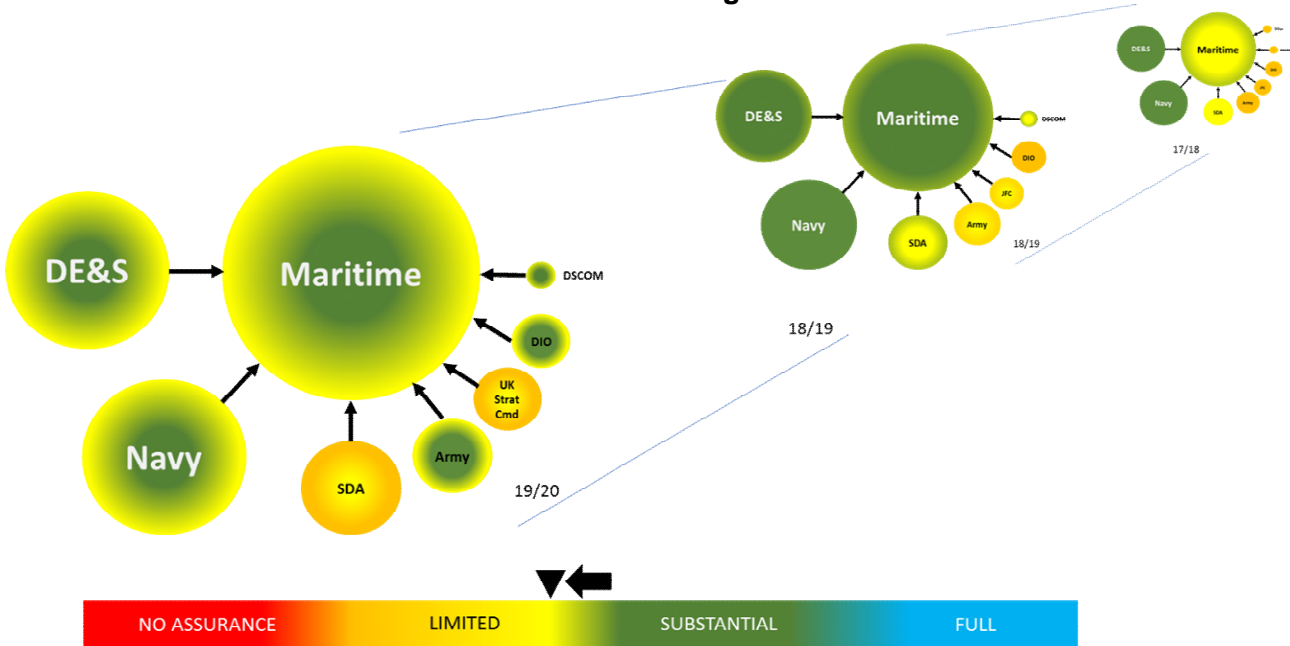
¹⁰⁰ Managed decline of Sentry is a realism measure, bridging the gap until E7 Wedgetail is introduced, acknowledged by the ODH without an ability to further improve the situation.

¹⁰¹ [RA 1205](#) defines the MAA's role providing independent ASSC assurance. Recent MAA endorsement of the ASSC Acquisition Basis Report, supporting the Chinook Extended Range Full Business Case, was a good example of the benefits to be gained through SRO engagement with the ODH - and subsequent independent review by the MAA - in the generation of an ASSC at the outset of a project.

Maritime

3.3 Assurance Level.

LIMITED Assurance reflecting a re-baselining arising from the domain’s better understanding of the risks it faces and the issues it needs to manage.



3.3.1 Scope

The Maritime domain has over 250 DEDs from the numerous Acts, Charters and international treaties which govern Defence maritime activities (including ports and diving), making it one of the more complex legislative environments in which Defence operates. This is simplified into the DSA’s regulation and assurance of all Defence activity in MOD Shipping,¹⁰² MOD Ports at home and overseas¹⁰³ and MOD Diving.¹⁰⁴ The Defence Maritime Regulator (DMR) fulfils these regulatory roles for Defence, operating closely with the Maritime and Coastguard Agency (MCA) and the Health and Safety Executive (HSE).

3.3.2 Regulator Activity

The Maritime domain covers six Cmds and Enabling Organisations (EO) with a regulatory framework of regulation, assurance and enforcement across MOD shipping (ships and submarines), Ports, Harbours and Maritime Facilities, and Defence Diving. Activity in the domain is divided into ‘safe to operate’ in DE&S (both DG Ships and DG Land areas), the Submarine Delivery Agency (SDA), the Defence Nuclear Organisation (DNO) and in DIO, while ‘operate safely’ comprises the Navy, Army and UK Strat Cmds, across a spread of platforms, port facilities and diving operations that constitutes Maritime activity.

The DMR model focuses on 3PA activity at the Operating Duty Holder (ODH) or equivalent level and four of these formal audits were conducted during the period.¹⁰⁵ The Regulator uses four

¹⁰² Royal Navy, Royal Fleet Auxiliary, MOD Chartered, Army and Adventurous Training.

¹⁰³ Ports and harbours protected under the Dockyard Ports Regulation Act 1865.

¹⁰⁴ Military, MOD Commercial and AT Diving of which military diving has disapplications in the Diving at Work Regulations 1997.

¹⁰⁵ DMR completed audits of COM (Ships) and the Royal Navy Director of Support, with the former having the most in-depth examination to review the Project SALUS work of 2018/19 to improve SQEP levels. DMR audit and assurance of the NAG and Captain Port Operations as DAOs was also completed in year, reviewing both Charters and clarifying the relationship of Captain Port Ops with overseas and UK ports and harbour facilities, as well as the Naval Dockyards.

authorised organisations¹⁰⁶ to conduct audit and certification interventions with 86 diving certification audits during the period. DMR surveillance and oversight activity is conducted through attending safety meetings, regular interactions with the Regulated Community (RC) and a risk-based assurance programme coupled to an audit programme of the key areas. The DMR risk-based assurance model using regulatory intelligence, data analysis and the Poseidon management tool, which has been developed to enable focused interventions and targeting of assurance resource to areas of greatest risk. There are five outstanding Improvement/Prohibition notices in the Maritime Domain, with three in DE&S (two with DG Ships and one with Commercially Supported Shipping (CSS) Boats), one in Navy Cmd at ODH level, and one in DIO.¹⁰⁷ The HSE has declared its intention to issue two Crown Censures relating to fatalities during diving training. The DMR is supporting the action being taken by Cmds in response to these cases and reviewing its portfolio of diving guidance publications.¹⁰⁸

3.3.3 Findings

The reporting period saw considerable organisational upheaval in the maritime domain with evolving personnel and organisational change. As a consequence of this and the resulting re-baselining of the risks involved, the whole domain is assessed as **LIMITED Assurance**. There are still some areas of challenge with significant transformation of Navy Cmd and of the Army Duty Holding model, the realignment and change programme in UK Strat Cmd and continuing transformation in DE&S. The SDA, having gone through some initial growing pains, is also now realigning and revising its structure. All TLBs will need to maintain clear oversight of this considerable change with sound accountability and responsibility transfer programmes to maintain the current level of assurance into the coming year and to maintain those areas of improvement seen in the last 12 months. The rigorous application of OSAs will be key to this.

The change in assessment from previous years is due to the domain itself having a much better understanding of the risks and issues it needs to manage, so this is effectively a re-baselining of the assurance assessment. This re-baselining is also a consequence of improved DMR processes in reviewing domain activity and the assessment has been agreed with the key 3* Accountable officers: the Fleet Commander in Navy Cmd and DG Ships in DE&S. Extensive and maturing work in both legislative understanding and compliance, with increased focus on environmental protection and management, have identified significant challenges for the domain that will require focus and resource. There is evidence of both commitment and good process in place to do so successfully.

SQEP

Availability of SQEP in the maritime domain continues to be a challenge, with an overall downward trend as an enduring threat. While numbers of qualified personnel in the MOD civil service are improving slowly,¹⁰⁹ there is still a shortage of engineers and the recruiting market remains competitive. Delays in completing the recruitment process and achieving security clearances are still leading to the loss of capable candidates who cannot wait several months for these to be completed and take other employment.

The lack of personnel within some Platform Authorities, areas of the NAG and CSS(Boats) is an ongoing concern, recognised by COM (Ships) and the SDA and with some Platform or Equipment Authorities escalating the SQEP issue because they are not able to fulfil their safety delegations.

¹⁰⁶ Naval Authority Group (NAG), Defence Diving Standards Team (DDST), Captain Port Operations and FOST Operational Sea Training Team.

¹⁰⁷ DMR-IN02-19 COM (Ships) – Insufficient Environmental Management Arrangements; DMR-IN04-19 COM (Ships) – Lack of Environmental Information for Equipment; DMR-IN06-19 CSS (Boats) – Failure to Identify the Accountable Person (AP) for users of Boats; DMR-IN01-18 ACOS Submarines – Lack of In Water Trainer for C and DMR-IN02-15 DIO - Lack of Management Arrangements.

¹⁰⁸ The death of a soldier during diving training at the National Diving and Activity Centre, Chepstow, on 26 March 2018 was the subject of a Navy Cmd Service Inquiry. The report was published on 31 July 2019. A death during combat swimmer diving training in Portland Harbour on 14 November 2018 is the subject of a current DSA Service Inquiry. Both deaths reported in the 2018/19 DSA AAR.

¹⁰⁹ Thanks in large part to the initiative put in place by Project SALUS in previous years. SALUS completed in 2018/19.

Lack of resource and an ageing workforce indicates there will not be a quick solution and increasing risk is likely in the domain. A particular impact already being seen is the inability to stay abreast of safety related responsibilities, notably safety cases and supporting technical documentation.¹¹⁰ Poor availability of training course places and even cancelled courses are causing further issues in developing both qualifications and experience of personnel.

There has also been much activity to tackle shortages of SQEP military personnel, with studies and reports published and new initiatives under Navy Cmd transformation¹¹¹ to improve recruiting and retention, develop and deliver training, utilise the workforce differently and improve the availability of SQEP. Many of these programmes are showing progress but the changes and improvements will take time to deliver safety and environmental benefits.

There is some evidence¹¹² that the 'Experience' aspect of SQEP is becoming the more significant concern with many examples in which failure to follow process and inexperience of operators were factors leading to incidents. However, there are also indications¹¹³ that the challenges of programme pressure and both reduced and accelerated training are also key factors in such incidents with seemingly experienced personnel cutting corners to get things done quickly and junior people not following process on some occasions as they were unaware of the correct methods.

Collectively Assessed 2PA

There is evidence of good levels of 2PA activity across the maritime domain, but less to show that it is being used to form a collective assessment of levels of assurance. Navy Cmd has continued to evolve with a stable Safety Centre developing tools and instructions to enable the Cmd picture to be maintained and these developments¹¹⁴ are allowing the SDH and senior decision makers to have a clearer view of the Service from a Safety perspective. The quality of input reports and assessments to both the Navy Cmd Operating Safety Statement Review (OSSR) process and the Platform Authority Safety & Environmental Committees (PSEC) are continually improving and are enabling the presentation of clearer pictures of platforms. The 'safe to operate' and 'operate safely' areas come together through these two meetings and the information exchange continues to improve in quality. The OSSR has grown and is used at key points, not just in the generation to operation cycle but also in the bringing into service phase of a platform's life. Governance and assurance of maritime activity within Army has improved following approval of a new Accountability and Governance structure in December 2019. A new post 'Chief Maritime Officer (Army)' (with a maritime background) will be established to work in Army HQ with the aim of drawing together and managing all areas of the Army maritime capability. The programme is showing good progress but there is still work to do. Fully understanding the accountability and links to the platform authorities in DE&S should be a priority into the next reporting period.¹¹⁵ DE&S is the only area of the domain with a reporting tool (ASSERT) that uses Risk Control System scores to monitor the health of their area of responsibility. These assessments by platform teams record a continuing safety improvement and provide an example of how more substantial levels of assurance can be achieved.

DMR's analysis of data from meetings, feedback from the community and information in reports and records from meetings show that while 2PA is clearly occurring, the analysis of information and the development of trends is still lagging. In Navy Cmd, placing the DDH at flotilla level forms the core for this activity as part of an evolving force generation programme and has created the opportunity to use the significant amount of 2PA more coherently. This has begun to evolve but there remains a lack of coherent assessment of this range of 2PA and little evidence of analysis of the products to enable better risk management, identification of trends and application of lessons identified. Inadequate 2PA remains one of the top three significant threats in the maritime domain.

¹¹⁰ Noted in particular during the DMR audit of COM (Ships). Lack of personnel resources manifested in several areas with undermanned teams were struggling to maintain safety artefact documentary records or conduct mandated reviews in the required timescales.

¹¹¹ Notably the Royal Navy's Project Hecate.

¹¹² From analysis of NLIMS incident reports.

¹¹³ From formal assurance activity and informal discussions.

¹¹⁴ For example, in NLIMS, the Navy Recommendations Tracker and at the Maritime Safety Board.

¹¹⁵ DMR is currently helping to establish the post and start work on a workable Safety & Environmental Management Plan (SEMP).

Legislative Compliance

The maritime domain has the most complex legislative landscape and work continues to educate and improve understanding. There are many requirements, standards and certificates required for compliance and the most recognised method for maintaining records is through a compliance register. The DMR-developed Maritime Legislation Database (MLD) continues to evolve as the Defence Legislation Support Tool (DLST) for all of the DSA's Regulators and has the scope and potential to be used as the record for a register for domain users. New projects such as Type 26, Type 31 and Dreadnought are all actively engaged to understand their compliance requirements, but further work is needed for older platforms across the Fleet.

A programme of legislation compliance improvement is under way to improve understanding, led by DMR working with DG Ships, the SDA, and Navy Cmd.¹¹⁶ This is a real opportunity to address concerns, as lack of evidence of statutory compliance is a significant risk to the department and management of compliance needs to become a key component of governance and of safety & environmental cases that can then be proactively managed by the Accountable Person or ODH as applicable. Overall, there has been a very positive response across the domain to the programme to date, including feedback to the internal compliance baseline work, as well as attendance of the recent compliance guidance workshops. However, the domain remains exposed with a distinct lack of current legislative compliance registers and limited completion of compliance arguments and statements in the DLST.¹¹⁷ In addition, the quality of statements entered on to the database has historically been poor. While the new data entered in 2019/20 shows there has been some improvement in the information entered there are still serious quality concerns.¹¹⁸ The two most common issues are ownership, with input from all the relevant accountable persons required to manage legislative compliance,¹¹⁹ and quality, with continuing evidence of inappropriate cross-referencing of evidence, of the use of obsolete or inadequate evidence and reference to repealed, revoked or otherwise inapplicable legislation. With good engagement from all accountable persons this legislation compliance improvement programme should achieve a measurable improvement in compliance maturity in 2020/21. However, until this is confirmed inadequate legislative compliance registers remains among the top three strategic threats to safety in the maritime domain.

3.3.4 New Issues

Environmental Protection (EP) Assurance

Assurance of EP in the maritime domain is growing in importance, with new UK environment legislation in progress through Parliament¹²⁰ and growing societal pressure to improve environmental compliance. The Maritime domain has been leading for some time with EP embedded in much of the maritime legislation cascading from the MARPOL convention and through the Merchant Shipping Act. 1SL's EP Policy Statement has been updated and much work is in progress in Navy Cmd to develop and track the necessary systems and processes and refine the associated targets beyond the original narrow objectives. There is a clear opportunity to drive improvements in environmental management, although this will depend on adequate resourcing. There is evidence¹²¹ that EP issues and challenges are recognised across the domain, but a lack of resource and Environmental SQEP means slow progress.

¹¹⁶ There are approximately 1200 'rules' relating to legislation, regulation and international treaty obligations in the DLST, with a core of 180 items under consideration in the maritime domain as the basis for a sensible and pragmatic compliance register.

¹¹⁷ In January 2020 772 new or updated statements were entered onto the system for Landing Craft (LCU, LCVP), Landing Platform Docks (LPD) and Type 45 classes. This represents over a third of the total compliance statements on the DLST. No other classes had updated any of their compliance statements since the completion of Project SALUS in February 2019.

¹¹⁸ Only 37 (18%) of the new records contained all of the elements required, with 84 (40%) containing none.

¹¹⁹ Including platform chief engineers for 'safe to operate' requirements and from the relevant Duty Holding organisation for 'operate safely' requirements.

¹²⁰ The Environment Bill 2019-2021, currently at Commons Committee stage, will update the Environment Act 1995.

¹²¹ Both from formal audits, working group discussions and other sources.

Growing international pressure and increasingly demanding environmental targets are challenging suppliers and raising contractual issues. DMR conducted an Environmental Baseline Review (EBR) across 23 of the larger Royal Navy Platforms, in collaboration with both NCHQ and the Platform Authorities.¹²² The key findings identified that deficiencies in environmental management processes and resources are significant and will need attention early to enable the domain to move forward in EP. This will require attention at the 2* Accountable Person level in operating commands including the development of a SQEP resource plan while DE&S and the SDA will similarly need to review their EP responsibilities, organisational baselines, Environmental Management Plans and develop environmental resourcing and SQEP plans.

DMR also conducted an environmental analysis of leaks and spills of oil and F-Gas¹²³ in the Defence maritime environment during 2019.¹²⁴ There were 157 hydrocarbon spills in the Defence maritime domain, resulting in the overboard loss of 1,535 litres of hydrocarbon.¹²⁵ Since 2017 the number of spills has reduced, but the volume of hydrocarbon lost has increased. In 2019 there were also 84 losses of F-Gas from Royal Navy vessels or facilities, resulting in the release of 6.67 tonnes of F-Gas with the equivalent Global Warming Potential (GWP) of 13,763 tonnes of carbon dioxide (CO₂).¹²⁶ The analysis also noted that 70% of spills occurred outside the core working day and that almost 40% of spills were due to SQEP failings or failure to follow process.¹²⁷

All these factors mean that EP compliance and assurance has risen in both importance and urgency in the maritime domain. As a significant threat it is now recognised among the top three by both Navy Cmd and DMR and will require concerted effort to resolve.

Summary – LIMITED

The Maritime domain has been re-baselined as LIMITED Assurance as the domain itself has a much better understanding of the risks and issues it needs to manage. There are still some areas of challenge with transformation of Navy Cmd and Army, the realignment and change programme in UK Strat Cmd and continued transformation in DE&S and the SDA. Clear oversight of these considerable changes is required with sound accountability and responsibility transfer programmes, supported by effective use of OSAs, to consolidate and improve the current level of assurance. Extensive and maturing work in both legislative understanding and compliance, coupled to the increased focus on environmental protection and management have identified significant challenges for the domain that will require focus and resource in the coming years. There is evidence of both the commitment and processes required to do so, but shortage of competent SQEP resource remains a pervading theme and consequent limitation. In addition to this, the top three significant threats to HS&EP in the maritime domain are the lack of evidence of Legislative Compliance, management and assurance of EP and the need for better collectively assessed 2PA.

¹²² Defence Maritime Regulator: Environmental Baseline Review of Navy Cmd and its Vessels, dated 30 March 2020.

¹²³ Fluorinated gases (F-Gas) are environmentally damaging and closely regulated substances, mainly hydrocarbons, used in maritime refrigeration, pumping and fire extinguishing systems. Under the Kigali Agreement of 2016 (under the Montreal Protocol) there is now an internationally binding agreement to phase out the use of F-Gas.

¹²⁴ Analysis of NLIMS reports submitted between 1 January and 31 December 2019.

¹²⁵ This includes spills from vessels owned by civilians or other nations that occurred in Ports and Harbours under MOD jurisdiction.

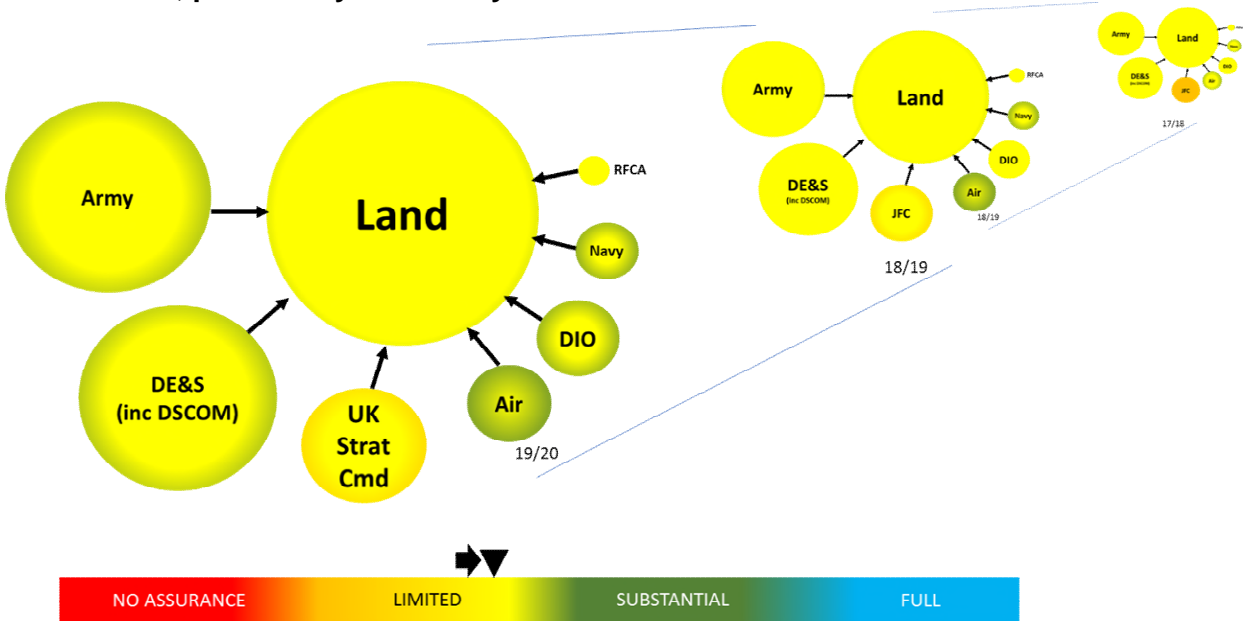
¹²⁶ Further research is required to compare these losses to equivalent industries and other militaries and will be a focus of development work in the next reporting period.

¹²⁷ While such releases are currently covered by DEDs or by Crown Immunity, there is growing challenge to the current DEDs and pressure for MOD action in response to environmental concerns. In 2019 a merchant ship spilling fuel in Southampton Harbour received a six-figure fine and the Vessels Master a suspended prison sentence. In the same port a MOD vessel had a similar spill with a warning.

Land

3.4 Assurance Level.

LIMITED Assurance – Further improvements, including in Army, DIO and DE&S, but still weaknesses, particularly in Land Systems.



3.4.1 Scope

The Land domain has the broadest span of statutory regulation of all the domains or functional areas.¹²⁸ The majority of activity in the Land domain is regulated by the UK's statutory regulators and not Defence, as there are fewer DEDs than in other domains.¹²⁹ As a result, a high proportion of safety-related incidents and injuries in the Land domain occur outside Defence regulated areas. The Defence Land Safety Regulator (DLSR) regulates in four areas against DEDs, where it has delegations from the HSE and for high-risk activities:

- 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 the Cmds, 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.

3.4.2 Regulator Activity

During the reporting period the DLSR conducted 180 audits and inspections consisting of 89 Fuel & Gas Infrastructure (FGI) installations, 63 Movement & Transport activities, 7 Land Systems and 21 Adventurous Training Centres. This was lower than last year, primarily due to a change in the focus

¹²⁸ Examples such as the Health & Safety at Work, etc Act 1974, Road Traffic Act 1988, the Carriage of Dangerous Goods by Road Regulations 1996, et al.

¹²⁹ For example, the Health & Safety Executive (HSE), the Driver & Vehicle Standards Agency (DVSA), the Driver & Vehicle Licensing Agency (DVLA), the Office of Rail & Road (ORR).

of LSSR audits and the need to recruit new staff. It again included the inspection of most active Defence fuel installations and 88 Liquid Petroleum Gas (LPG) sites and the licensing of many Defence AT Centres. DLSR also approved 11 requests for exemption from statutory regulations.¹³⁰ The number of extant DLSR Enforcement Notices (EN) has reduced from 29 to 22 across the year,¹³¹ mainly due to improvements in fuel infrastructure. One Prohibit Notice was issued for fuel infrastructure failings in the Falkland Islands which has now been addressed and lifted. In addition to formal ENs DLSR also uses Corrective Action Requirements (CAR) as the initial means of enforcing regulations. This year, the number of CARs issued has reduced from 2023 to 1544 and there has been progress with closing legacy CARs, with more CARs having been lifted than issued.¹³²

3.4.3 Findings

Based on DLSR assurance activity, the overall assurance level for Defence across the areas that DLSR regulates remains at **LIMITED Assurance**, although with a slightly overall improving picture compared to previous years.¹³³ FGSR's assessment remains at LIMITED with growing signs of improvement as the results of the investment programme starts to take place but with concerns remaining over outlying sites and in particular the installations in the Falkland Islands.¹³⁴ LSSR's assessment remains at LIMITED but improving with evidence from more focussed assurance activity this year that confirms that most Cmds have robust processes in place for land systems safety. However, there remain concerns on how these processes are being implemented and assured in some areas, with a consequent impact on land systems safety which is also threatened by poor management of safety information, particularly in DE&S. The MTSR assessment remains LIMITED with no material change from last year. The ATSR assessment remains SUBSTANTIAL, also with no change. The issues identified are different in each area, albeit with some common themes outlined below, and the measures to address them will all take time and sustained effort to make a meaningful difference.

SQEP

The availability of SQEP and the necessary competence for specialist tasks remains a general concern across a broad range of fields in all regulated areas. SQEP in managing and supervising Movements & Transport activity remains an issue.¹³⁵ There is evidence that HoEs are increasingly (and unknowingly) accepting risk in allowing insufficiently competent personnel to hold positions responsible for fuel safety. More generally there is often a lack of clarity across the Defence Land domain on competence requirements and the difference between this and simple lack of manpower. Movements activity observed during Exercise TRACTABLE 2019¹³⁶ showed further improvement over previous exercises, particularly in biosecurity and management of drivers' hours. Rail activity was well managed throughout TRACTABLE 2019 although a few issues were identified with supervision and management arrangements for container stuffing during the deployment phase.

2PA

In addition to unit-level audits and inspections by all four DLSR functional regulators, this year both LSSR and MTSR have begun assurance activity at TLB level,¹³⁷ enabling a better view of the

¹³⁰ The DLSR Team Leader approves routine exemption requests on behalf of the SofS under Carltona principles at the Land Exemptions Committee.

¹³¹ One Prohibit Notice issued for fuel infrastructure failings in the Falkland Islands but now lifted. One Urgent Improvement Notice issued, also for fuel issues in the Falkland Islands now rectified and lifted. Twelve Improvement Notices issued, 19 lifted, 22 still in force.

¹³² 1150 CARs still active at the end of the reporting period.

¹³³ Army Cmd and the Royal Marines assessed as SUBSTANTIAL Assurance for their systems of internal controls.

¹³⁴ 'Outlying sites' include those in overseas locations and more remote and minor sites in the UK, such as those used by the RFCA.

¹³⁵ Particularly in Dangerous Goods training and Mechanical Transport management.

¹³⁶ Exercise TRACTABLE is the undertaking to move personnel, vehicles and equipment across Europe in support of NATO commitments, in 2019 to complete a routine fleet rotation from storage of vehicles deployed as part of Operation CABRIT, the UK's enhanced Forward Presence (eFP) in Estonia.

¹³⁷ ATSR and FGSR have not conducted any assurance activity at TLB level during this reporting period.

strength of 2PA arrangements for Land domain activity. In both cases initial findings indicate that the capacity for 2PA to provide TLB-level assurance of compliance with their own systems is lacking in most TLBs, mainly due to the limited resources allocated to assurance functions. These shortfalls often result in TLBs developing a reliance on 3PA by the DSA or statutory regulators for their assurance of compliance so that they are not fully in control of their own assurance programmes.¹³⁸ This is particularly so in the case of UK Strat Cmd who often rely on 2PA being provided by the single Services.¹³⁹ This 2PA dependency is recognised in the UK Strat Cmd Command Plan, but this has not yet resulted in a more robust 2PA output. As UK Strat Cmd cover a number of locations and activities with known Land domain issues (fuel & gas installations, use of land systems and transport & movements) this shortfall in their 2PA capabilities remains a significant threat.

Land Systems Safety Management

Last year's AAR identified land systems safety management as the top Land domain safety threat, based on evidence of weaknesses across the whole life cycle. Further evidence this year indicates that this remains the case. Analysis by LSSR of recent DAIB reports highlights weaknesses in both 'safe to operate' and 'operate safely' functions. While human factors, such as failure to follow process, are often significant in the causes of Land domain accidents the severity of outcome of accidents is more strongly influenced by inherent equipment design factors. LSSR have issued updated regulations,¹⁴⁰ developed in close consultation with all stakeholders, to provide more clarity on the requirements for land systems safety. LSSR have also adopted a new approach to assurance, concentrating initially on gaining a deeper understanding of the TLB safety management systems. In general, where land systems are a major contributor to a TLB's operational outputs, a robust safety management system is in place, although the weaknesses in 2PA noted above make compliance with these systems less certain. The Capability Sponsor¹⁴¹ land systems 2PA function in the Army's Capability Directorate has yet to be implemented although the safety management system has been amended to reflect the requirement and suitable training has recently been completed.¹⁴² Air Cmd¹⁴³ and DE&S¹⁴⁴ have recognised their own specific areas of 2PA weakness for land systems and are in the process of developing substantive arrangements. Next year, LSSR will move on to check that those systems are being or have been properly implemented. LSSR will also support Navy Cmd to develop their land systems 2PA system beyond 3 Commando Brigade.

Fuel & Gas Infrastructure (FGI)

Fuel and gas infrastructure across Defence remains a significant risk with potential high impacts on both safety and the environment. This period has seen a further £13.3M investment in this area based on the DIO-led plan. The ability to attribute expenditure in fuel infrastructure solely to the original plan is becoming more difficult as the funding now resides with the TLBs and is integrated with other infrastructure spend. Nevertheless, this investment is now showing benefits on the ground in terms of reduced high-risk non-compliances.¹⁴⁵ Longer-term improvements should be seen through the ACDS Log Ops-initiated Defence Fuels Enterprise Strategy (DFES) programme which has completed Phase 1 (Discovery). Phase 2 will include further work on options for the ownership, maintenance and operation of the Defence fuels estate, including potentially the 6 Naval Oil Fuel Depots currently operated by the Oil Pipeline Agency.

¹³⁸ For example, 2PA of DELTA offices and the Transport of Dangerous Goods.

¹³⁹ No evidence of 2PA being conducted and only limited evidence 1PA in the Falkland Islands during this reporting period.

¹⁴⁰ Including the incorporation of JSP 930 'Generic maintenance inspection certification and testing (MICaT) for vehicles' into the LSSR's core regulation set as an Equipment Standards Regulatory Schedule.

¹⁴¹ Army Director Capability is, as 'Lead User', the Capability Sponsor for most land systems across Defence.

¹⁴² Army Cmd Standing Order 3216 - The Army's Safety and Environmental Management System (SEMS).

¹⁴³ Air Cmd currently do not conduct 2PA on their land systems user function but are setting up a land pillar in the RAF Safety Centre.

¹⁴⁴ 2PA of Delivery Team activity. DE&S have established a land Head of Engineering Assurance to lead 2PA for land systems.

¹⁴⁵ FGSR Enforcement Notices (EN) have reduced from 19 to 13 and CARs have reduced from 1438 to 1118 over the last 12 months.

This year, FGSR has again inspected/reviewed most active fuel sites/installations across Defence.¹⁴⁶ Although the non-compliance rate for these inspections has sadly remained at 100%,¹⁴⁷ with every inspection identifying at least one non-compliance with FGSR Regulations, these inspections have resulted in only 10 Enforcement Notices (ENs) being issued,¹⁴⁸ compared with 27 last year. This represents a 3.5% failure rate for 2019/20, which is a significant improvement on the 9.5% for 2018/19.¹⁴⁹ This is the third annual reduction in a row. However, one of the ENs issued this year was a Prohibit Notice (PN) on British Forces South Atlantic Islands (BFSAI), the first PN issued in the last 2 years, which was accompanied by an Urgent Improvement Notice (UIN) and an Improvement Notice (IN) on the same facilities. This indicates that the BFSAI fuel infrastructure is not being maintained to the required safety levels and is not representative of the general trend of improving overseas fuel infrastructure. Across the overseas sites the secondary containment project for overseas Oil Fuel Depots should be completed this year and the time to resolve overseas non-compliances is now broadly in line with the UK fuel estate. This suggests that there are specific issues regarding BFSAI that are different to other overseas locations.

Since FGSR's formal gas safety assurance inspection regime began in April 2015 all known MOD gas installations have been inspected. As noted in last year's AAR the interest taken by the HSE in breaches of statute by the MOD in this area has focused attention and DIO has issued policy on the use of the Gas Safety Management Plan (GSMP). The continued LPG vessel exchanges following the change of the MOD's LPG contract from FloGas to Calor mean that the number of LPG installations identified on the MOD estate continues to change.¹⁵⁰ As the GSMP continues to mature the Maintenance Management Organisations (MMOs) have reported 55 new installations requiring audit by FGSR, bringing the total of MOD-regulated LPG compounds to 410. In 2019/20 89 LPG installations were audited and none found to be fully compliant. LPG installations account for 40% of all non-compliances across the Defence FGI, although the use of the GSMP means that the maintenance and physical condition of LPG compounds continues to improve. However, operator managed administrative non-compliance has not improved at the same rate as the MMO maintenance improvements. Another emerging concern is the continued non-compliance of the gas infrastructure for many RFCA sites. This should be addressed through the implementation of the GSMP across the RFCA estate which began on 1 Apr 20, carried out by a 3rd Party Consultancy Team overseen by DIO.

Land Transport Accidents

As noted in last year's AAR, Land Transport Accidents (LTA) remain one of the main causes of fatalities and injuries in Defence.¹⁵¹ In the calendar year 2019,¹⁵² 2,989 Road Traffic Collisions (RTC) were reported to MTSR.¹⁵³ This figure includes one fatality on-duty,¹⁵⁴ 170 injuries on-duty and 17 fatalities whilst off-duty.¹⁵⁵ The potential cost to Government of these fatalities and injuries is estimated at £42.4M,¹⁵⁶ a significant percentage of which will fall to Defence. This year has seen the continued implementation of three initiatives to improve analysis and to reduce RTC. In continued

¹⁴⁶ Dormant sites are not inspected.

¹⁴⁷ Non-Compliance rate is the % of inspections that result in either a formal EN or a CAR.

¹⁴⁸ One PN, two UINs and seven INs.

¹⁴⁹ 'Failure Rate' is the % of inspections that result in a formal EN in the form of a PN, UIN or IN.

¹⁵⁰ The 377 LPG installations on the FGSR audit database last year has reduced to 355.

¹⁵¹ The top three causes of fatalities (in order) in 2019: cancer (21), suicide or suspected suicide (18), Land Transport Accident (13). Source: Defence Statistics: Deaths in the UK regular armed forces: Annual summary and trends over time 1 Jan to 31 Dec 19, published 26 Mar 20.

¹⁵² RTC data is reported on by calendar year (Jan/Dec) but the AAR reporting year is (Apr/Mar). In the future, eIMPACT should enable this inconsistency to be removed.

¹⁵³ The term Road Traffic Collision (RTC) is the term used by the road safety community, which is broadly analogous with the term Land Transport Accident (LTA) used by the statistical community, although LTA also includes accidents involving any mode of land transport whether on a public highway or not.

¹⁵⁴ On 29 Jan 19 a driver undergoing cross-country driver training in an MWMIK (JACKAL) on Catterick driver training area was killed and the passenger seriously injured when the vehicle rolled. See Annex A.

¹⁵⁵ Of the 17 off-duty fatalities, five were outside the vehicles involved in the collision (cyclists and pedestrians).

¹⁵⁶ This figure uses a methodology previously developed by the Government and takes account of lost output, medical costs, police and fire, recovery and road closures, clean-up requirements and human costs. Costs have been updated using Government provided figures for 2018.

partnership with the Emergency Services, MTSR has delivered a further 70 'Survive the Drive' road safety presentations to more than 10,000 participants across Defence. The feedback from those attending has, without exception, been positive, appreciative, and very welcoming of the innovative delivery and the message it relays. MTSR will continue to facilitate this high-impact activity next year, with the direct support of a newly arranged secondment from the Fire & Rescue Services. The new RTC reporting tool (eIMPACT) is now being rolled out across Defence, with an intended Full Operating Capability planned for Autumn 2020.¹⁵⁷ This tool will significantly improve the RTC reporting and analysis functions available across Defence and will enable DLSR to provide enhanced support to the TLBs in their development of future road safety campaigns. MTSR are working closely in support of D HS&EP and TLB staff with the development and implementation of a Defence Road Safety Strategy, including consideration of options for the next road safety initiative.

3.4.4 New Issues

Defence Rail Capability

Currently, MOD indigenous rail capability is limited to operations on some of the MOD Depots. MTSR assurance has identified that the standard of rolling stock observed, while in date for relevant safety inspections, was low and the condition and maintenance of fixed infrastructure (loading ramps, etc) is a concern. Furthermore, much of the MOD-owned rolling stock is aging and will need replacement soon. There is also now a growing desire for Defence to grow an organic capability in strategic rail movement, which is currently provided by contractor support. There is currently no 'Rail Project Team' in DE&S, which may to an extent account for the poor state of the current equipment. A decision on the need for such a team will be taken following an engineering survey on the current fleet which is due to complete towards the end of 2020.¹⁵⁸ DLSR does not have the full competences required to support both current and proposed levels of rail capability, but will work with the statutory regulator to close this capability gap.¹⁵⁹

Summary – LIMITED

Similar assurance levels to last year in movements & transport and adventurous training together with gradually increasing assurance of safety in fuels and gases and land systems lead to an overall assessment of increased assurance in the Land domain this year. However, despite good work by Cmds there remain a number of areas of concern with DIO, DE&S and UK Strat Cmd particularly over the safety management and assurance of land systems and about overall levels of 2PA for land domain activity, especially in UK Strat Cmd. Compliance rates for FGI are improving, with good results apparent from DIO's improvement plans and use of the GSMP. However, particular problems have been identified with the state of the fuel infrastructure in the Falkland Islands and gas infrastructure for some RFCA sites. Land Transport Accidents continue to be costly to Defence, although there are a number of good initiatives to improve road safety. A growing focus on Defence rail capabilities will require cooperation between DE&S, DLSR and the civilian regulator if these are to be managed safely.

¹⁵⁷ FOC was originally planned for Jun 20 but will now be delayed due to COVID-19 restrictions.

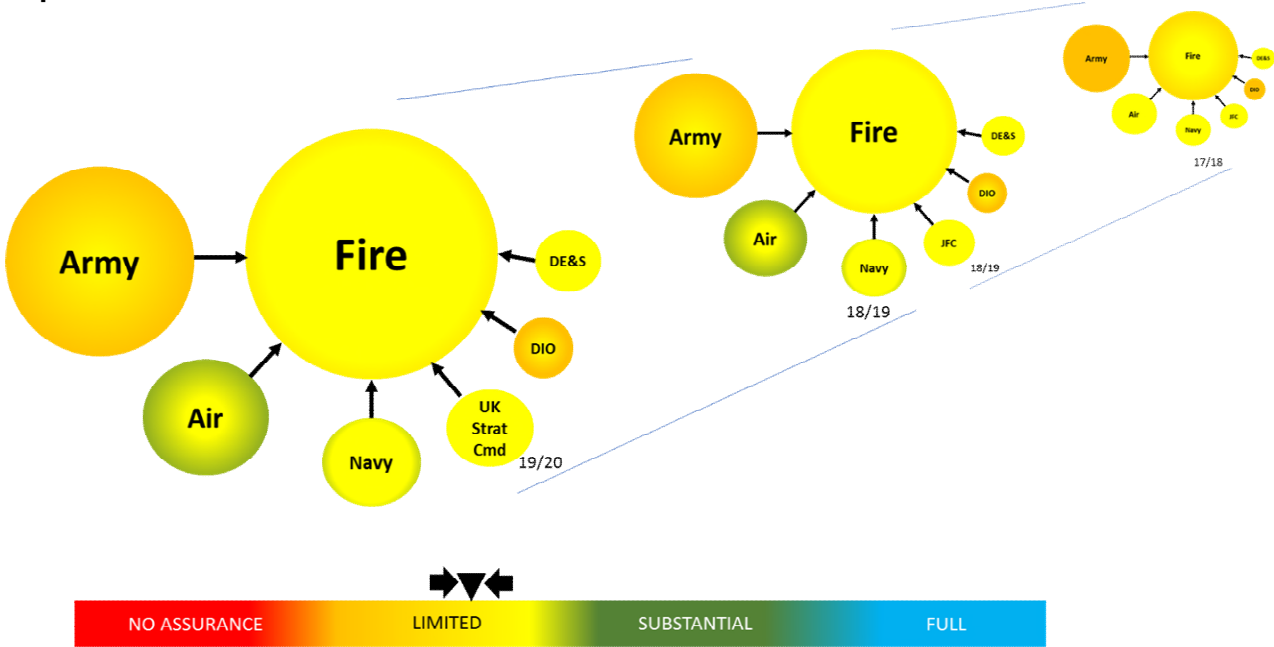
¹⁵⁸ At the direction of COM (Land).

¹⁵⁹ The civil regulator for the railways is the Office for Rail and Road (ORR).

Fire

3.5 Assurance Level.

LIMITED Assurance - unchanged from the last three years' assessments with continuing failings in performance and compliance against many of the key regulatory articles but small improvements in areas of fire risk assessment and maintenance.



3.5.1 Scope

As a statutory regulator¹⁶⁰ the Defence Fire Safety Regulator's (DFSR) role is to provide assurance that Defence is compliant with the law and Defence Fire Regulations (for both Fire Safety and Fire & Rescue) and to issue enforcement notices where regulatory breaches have been found.¹⁶¹ This encompasses the legal requirement for Accountable Persons (AP) to take adequate fire precautions to ensure the safety of all relevant persons in their establishment or area of responsibility.¹⁶² It is discharged through risk-based audits and an agreed formal consultation process.¹⁶³ Post-fire audits may also be undertaken¹⁶⁴ to determine possible failings in compliance and suitable corrective/enforcement action where appropriate. In delivering its role, the DFSR works closely with its statutory peers and is represented on the National Fire Chiefs' Council (NFCC).

3.5.2 Regulator Activity

During the reporting period there were 374 reported fires across the Defence estate (down 11% since last year and reversing a similar increase last year¹⁶⁵) and 2,821 recorded false alarms (down

¹⁶⁰ 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.

¹⁶¹ Defence Fire Regulations comprise Defence Fire Safety Regulations and Defence Aerodrome Rescue and Fire Fighting (ARFF) Regulations.

¹⁶² 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) is used in this AAR is the same as the fire safety legislative terminology that cites the Responsible Person (RP).

¹⁶³ Article 45 of the Fire Safety Order 2005 and Building (Scotland) Regulations 2004 Regulation 11.

¹⁶⁴ In concert with the Defence Accident Investigation Branch for major incidents.

¹⁶⁵ A 23% reduction over the last four years.

13% since last year¹⁶⁶). The DFSR conducted 122 risk-based audits¹⁶⁷ across all of the TLBs which resulted in the issue of 2 Enforcement Notices and 1 Prohibition Notice.¹⁶⁸ Under the statutory Duty to Consult (D2C) process it provided a further 935 consultations on building works and appointed Fire Safety Inspectors on 613 occasions to advise on the more technical and complex projects.¹⁶⁹ The DFSR Fire & Rescue team, who have been working alongside the MAA on audits since 2017/18, conducted 18 audit, oversight and surveillance visits of Defence Aerodrome Rescue & Fire Fighting (ARFF) and MACR sites¹⁷⁰ and issued 33 CARs;¹⁷¹ an increase from last year attributed to the new, more simplified, regulations making it clearer to identify areas of non-compliance. DFSR also continues to track and report to the DSEC the progress TLBs are making in implementing the recommendations of the 2018 DSA-led review of Fire Safety in Single Living Accommodation (SLA).¹⁷² Finally, the DFSR has been fully committed to work at national level resulting from Dame Judith Hackitt's Review¹⁷³ of the Grenfell Tower tragedy in 2017. DFSR has contributed to development of the National Competency Framework for Fire Safety Regulators¹⁷⁴ and is working with the DIO on a Defence building control and fire safety regulatory framework model that will support the Defence Joint Competent Authority (JCA) to mirror the national JCA Building Safety Regulator set up as a result of Dame Judith's recommendations for improving oversight of building regulations and fire safety management. Defence Fire Safety Regulations and associated direction and guidance were completed and reissued in October 2019.¹⁷⁵

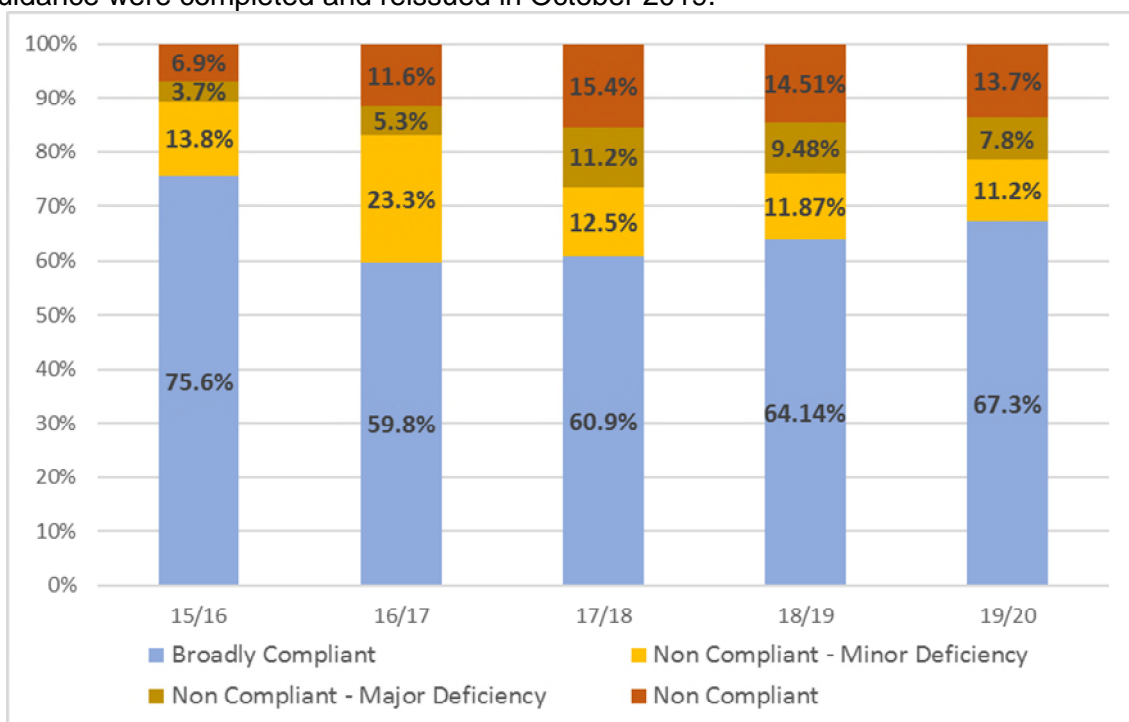


Figure 3-4 – Defence Fire Audit Non-Compliance Rates 2015 to 2020.

¹⁶⁶ This represents a 39% reduction over the last four years, although there is a lack of consistent false alarm reporting, particularly on Defence sites where there is no Defence Fire & Rescue (DFR) presence.

¹⁶⁷ A lower number than last year due to gapping of some DFSR inspector posts and an increase in the volume of D2C work, particularly arising from Army rebasing in the South Region.

¹⁶⁸ A Prohibition Notice was served on Ashchurch Vehicle Storage Depot for significant deficiencies in fire safety managements and management control. Of note, the unit has responded very positively to the enforcement action and is working tirelessly on corrective action, although constrained by the requirement for investment.

¹⁶⁹ Representing a 14% increase in consulting activity but a steady rate (65%) of those requiring specialist advice.

¹⁷⁰ Including seven Defence ARFF sites across four FLCs/EOs, an increase of two from last year, five MACR Tier 1 sites and providing oversight at six Task Resource Analysis (TRA) events.

¹⁷¹ Five Level 1 (Major) and 28 Level 2 (Minor), up from 22 (one Level 1 and 21 Level 2) in 2018/19 and 17 (2 Level 1 and 15 Level 2) in 2017/18.

¹⁷² DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFSR/18/001/Report dated 14 August 2018 and published on gov.uk on 4 January 2019.

¹⁷³ Dame Judith Hackitt, *Building a Safer Future: Independent Review of Building Regulations and Fire Safety: Final Report*, May 2018.

¹⁷⁴ NFCC Competency Framework for Fire Safety Regulators, Version 1.0, 2020.

¹⁷⁵ Defence Fire Safety Regulations and associated direction and guidance were revised and republished in October 2019 as DSA02 Defence Fire Safety Regulations, DSA02 Defence Aerodrome Rescue and Fire Fighting (ARFF) Regulations and DSA03 Defence Fire Safety Regulatory Guidance.

3.5.3 Findings

DFSR audits this year have again found that the majority of areas examined were 'broadly compliant'.¹⁷⁶ As Figure 3-4 shows compliance rates continue to recover slowly from the decline identified in 2016/17 with audit evidence for this reporting period showing small improvements in the areas of fire risk assessment and maintenance. However, concerns remain over the appointment and availability of competent persons for fire safety management responsibilities and overall assurance activity continues to identify failings in performance and compliance against many of the key regulatory articles.¹⁷⁷ Fire Safety Management across Defence is therefore assessed as **LIMITED Assurance**, largely unchanged from last year's assessment, although there is evidence of a decline in assurance in Fire & Rescue. Evidence during this reporting period suggests that small improvements reported in last year's AAR continue in the majority of Cmds and EOs audited by the DFSR, although for Army progress has been challenging with little measurable improvement yet. Serious fires continue to occur across the Army and failings in competence, fire safety responsibilities and infrastructure have regularly been identified by risk-based and post-fire audits, made worse by deliberate action to compromise both passive and active fire safety systems including fire door damage and tamper with Automatic Fire Detection and Alarm Systems preventing them from functioning correctly.¹⁷⁸ These failings are not unique to the Army, having been highlighted to all TLBs before,¹⁷⁹ and there is clear evidence of action by the Army's leadership to address them.¹⁸⁰ One notable improvement this year was the creation of SQEP fire safety positions in the RAF Safety Centre and of a Fire Safety Management System in the RAF SEMS,¹⁸¹ with benchmarking of all RAF stations and subsequent 2PA activity.

In DIO Programme Project Delivery (PPD) there is evidence of increased compliance with the necessary fire safety processes and of Project Managers (PM) actively managing the processes in place to meet relevant fire safety legislation. There have been fewer instances where completed works are handed over with no sign-off against these requirements, although this improvement has been less evident at overseas locations. Examples of poor fire safety on deployed operations, where there is often over-reliance on mitigation, best practice and monitoring rather than prevention are also reducing year on year and with the creation of the Defence JCA, there is now a degree of confidence that incidence of these failures can be reduced further. The DFSR now conduct 'inform and educate' sessions with PMs in both the PPD and Service Delivery teams to help improve their understanding of the fire safety duties associated with infrastructure. However, previously reported improvements in the maintenance of infrastructure and fire safety equipment¹⁸² appear to have stalled over this reporting period. Particular issues have been noted at Defence nuclear sites,

¹⁷⁶ 67%, compared to 64% last year, 61% in 2017/18 and 60% in 2016/17. Broadly compliant is NFCC terminology defined as few deficiencies found during audit and those minor in nature only.

¹⁷⁷ Among common factors observed are the ability of occupants of SLA to silence and reset fire alarm panels before a full, or any, investigation has been completed to determine the cause of the fire alarm, and failure to manage sources of ignition such as use of candles in rooms, tumble dryers and cooking appliance resulting in fire incidents. Failure to recognise and report faulty fire doors is also common. This could result in fires and smoke spreading rapidly from the room of origin into escape routes; thus, placing all the occupants at risk when a fire occurs. Failure to control and check the contractors' scheduled maintenance visits to initially confirm the check has taken place and secondly to gain confirmation that the systems are in working order. Failure to request a review of the FRA when something has changed, or a matter of concern is raised that requires SME advice.

¹⁷⁸ A Post-Fire Audit in one instance identified fire doors wedged open to such an extent that the damage from fire and products of combustion had spread from the room of origin and caused extensive damage to the wider storey of the building. Another fire in barracks at Aldershot resulted in two individuals being hospitalised for smoke inhalation and the spread of smoke extending throughout the entire storey because the self-closing devices had been forced off the fire doors by the room occupants.

¹⁷⁹ In September 2018 the Vice Chief of the Defence Staff wrote to the Service Chiefs, Commander Joint Forces Command and the Chief Executives of DE&S and DIO to remind them of their responsibilities for Fire Safety Management. VCDS/4/3/1 dated 7 September 2018.

¹⁸⁰ In November 2019 the Deputy Chief of the General Staff wrote to Army Commanders to stress the importance of Single Living Accommodation Fire Safety Management. DCGS/Safety/Fire-021 dated 21 November 2019. In September 2019 he had already instigated a review by the Army Inspector of the Army's Fire Safety Policy, DCGS/Fire/01/02/01 dated 19 September 2019. Commander Home Command has committed to improving fire safety across Defence as chairman of the Defence Fire Safety Leadership Board.

¹⁸¹ AP 8000 – Air TLB Safety and Environmental Management System.

¹⁸² Fire Safety legislation requires that any equipment and devices provided to protect relevant persons from the dangers of fire, such as fire extinguishers, alarm systems and emergency lighting, shall be subject to a suitable system of maintenance: they must be regularly checked and properly maintained (including inspection and testing by a competent person, as necessary) at suitable intervals and any faults found rectified as quickly as possible. This article covers anything that has been provided for the purposes of fire safety.

where discussions continue between Defence and statutory regulators¹⁸³ to establish Enforcing Authority responsibilities for the various permutations of licenced and Defence Authorised sites, and at Reserve Forces Cadet Association (RFCA) premises, where it is often difficult to identify who the AP is. This can cause problems with enforcing legislation and Defence Regulation. Overall, while audit activity continues to observe small but measurable pan-Defence improvements and there are signs of an emerging and encouraging change in culture and attitudes in some areas, there is still more to do to reinforce the capability of Defence to manage fire safety.

Fire Safety Governance and Assurance

Last year's AAR noted the intent to establish fire safety specialist posts in TLB and EO Safety Centres and CESO teams. In addition to the existing posts in Navy Cmd HQ and the new SQEP posts in the RAF Safety Centre, UK Strat Cmd have recently recruited SQEP to fill newly created fire safety positions and others plan to do so. These embedded fire safety SQEP with a detailed understanding of the Cmd/EO operating model will enable Safety Centres and CESOs to conduct, report and sustain their own 2PA more effectively. This will help to reduce dependence for such assurance on Defence Fire & Rescue (DFR) and DIO. DFR have been responsible for managing and delivering a fire risk assessment programme across relevant Defence premises and providing support, fire safety advice and training of personnel to Cmd/EO with appointed persons,¹⁸⁴ although these responsibilities are now being taken on by Capita under the Defence Fire and Rescue Project (DFRP) contract.¹⁸⁵ The arrangements for provision of these services are recorded in high level Joint Business Agreements (JBA) and Customer Service Agreements (CSA) and there is still evidence that some of these are in need of updating.¹⁸⁶ The transfer of responsibility to Capita provides an opportunity to complete this work and ensure better governance and assurance. DIO are responsible for providing facilities management for fire safety through contracts with industry providers to keep the estate in safe and compliant condition, with minimum levels of maintenance and inspection schedules that should be based on industry good practice to keep the premises safe and compliant.¹⁸⁷ Evidence from DFSA assurance activity indicates that fire safety systems in place to maintain safety on premises are still not sufficiently robust. Deficiencies are still being identified, although less often.¹⁸⁸ The largest area of major deficiencies and non-compliances is maintenance and inspection of buildings, with evidence of inadequate assurance of this through DIO contract administration and by a lack of technical resource within DIO to implement an effective independent assurance process. Defence has a well-established framework to ensure Fire & Rescue assurance arrangements are in place. However, DFSA Fire & Rescue audit activity this year has found little evidence that 2PA audits are being conducted.¹⁸⁹ What evidence there is indicates a low level of interaction between DFR Area Management Teams (AMT) and the Units, Establishments and fire stations they should be supporting.

SQEP

Fire Safety legislation and Defence fire safety regulations require that persons appointed with duties to manage the preventative and protective measures must be competent (SQEP). SQEP covers several roles including APs, fire safety risk assessors and those with duties to install, maintain and test fire safety systems. SQEP shortfalls can be exacerbated by a lack of co-operation and co-ordination between these persons and results in a failure to share information so that HoEs have no

¹⁸³ The Office of Nuclear Regulation (ONR), the Defence Nuclear Safety Regulator (DNSR) and the DFSA.

¹⁸⁴ Regulatory Reform (Fire Safety) Order 2005 Article 18 places a duty on the responsible person to appoint one or more persons to assist them in undertaking their preventative and protective measures.

¹⁸⁵ The DFRP contract was awarded to Capita 1 August 2019. Elements of Defence Fire & Rescue responsibilities, personnel, equipment and facilities have begun to transfer to the contractor and will do so progressively through 2020.

¹⁸⁶ This was a key recommendation of the August 2018 report on the DSA Fire Safety Review of Defence Single Living Accommodation.

¹⁸⁷ A comprehensive list of references is available at the back of several government guides designed to support Responsible Persons in complying with fire safety legislation on www.gov.uk (Fire Safety Guidance).

¹⁸⁸ The most common failures relate to fire warning arrangements, emergency routes and exits, Fire Safety Arrangements and training.

¹⁸⁹ Audits have now been carried out on 50% of Defence Aerodromes, with no evidence of 2PA reports yet found.

knowledge of unserviceable fire safety systems. Fire SQEP is a key pinchpoint both in Defence and nationally, so well-defined responsibilities, clear communication and good training remain critical.

Defence fire safety competency levels are aligned with the National Competency Framework. DFR currently deliver training services for their own staff at the Defence Fire Training & Development Centre, where they have developed a course to train all staff undertaking Fire Risk Assessments (FRA), based on Fire Safety National Occupational Standards (NOS).¹⁹⁰ This course is providing a continuous improvement in the quality of the FRAs delivered to the Cmds and EOs, although many extant FRAs were undertaken by personnel without the benefit of this enhanced FRA delivery training. This training will transfer to the Fire Service College later this year as part of the DFRP contract. DFR is also continuing work to provide training to non-professional staff designed in the main to support the Army who have no organic fire safety SQEP as opposed the RN, RAF and, most recently, UK Strat Cmd who have specialist fire staff. PJHQ also have a Theatre Fire Officer in place for broader Middle East Locations and SMEs embedded the PJHQ Op Safety Team for other CJO locations, although this is not the case for other deployed operations. DFR Unit Fire Safety Manager (UFSM) courses have been subject to criticism from students and customers alike and DFR are working to ensure that the course will meet a pan-Command/EO requirement.

Change

The management of change without proper consideration of fire safety requirements continues to introduce risk. There is further evidence this year that new infrastructure works are still going ahead without a suitable and sufficient assessment of the risk of fire to Defence capability being established, with two examples raising particular concerns. In each significant Defence capability and assets have been put at risk of loss to fire through failure to carry a Business Impact Analysis (BIA)¹⁹¹ of its supporting infrastructure programme.¹⁹² This led to incorrect assumptions being made while failure to consult during decision making left those accountable (as APs) to carry unexpected risks as a *fait accompli*. The DFRP contract with Capita means that the operational delivery of Fire and Rescue Services in Defence is currently in the mobilisation, migration and transformation (MMT) phase of the contract. With this comes a period of increased risk and interest for the DFRS Fire & Rescue oversight. There are a number of areas that will require particular attention by the contractor, by DFR as contract manager and by the DFRS as the regulator. The need to focus more on meeting key milestones for additional tasks, such as training of staff, new processes and procedures, and delivery of new vehicles and equipment may distract from meeting crucial operational outputs during the MMT period. Unforeseen commercial technicalities may lead to failure to meet key milestones,¹⁹³ while any organisational change management brings the potential for misperceptions associated with complex contracts. The complexity of the project itself will offer challenges to delivery of operational capability through the MMT phase and beyond, while the exclusion from the contract of activities previously provided by DFR may present HoE and APs with unforeseen choices and expense.¹⁹⁴ While DFRP has significant potential to modernise and improve the provision of Fire & Rescue Services to Defence it also presents change management and operational delivery risks. The 2017/18 AAR recommended an independent assurance of the

¹⁹⁰ National Occupational Standards for Fire and Rescue Services <https://www.ukstandards.org.uk/>.

¹⁹¹ As required by DSA02 - Defence Fire Safety Regulations and DSA03 - Defence Fire Safety Regulatory Guidance.

¹⁹² The Poseidon Project (P-8) Hangar at RAF Lossiemouth will accommodate critical Defence Air capability, but failure to carry out a BIA means the current design does not effectively mitigate the risk from fire to the P-8 platform, with insufficient preventive and protective arrangements for the aircraft in the event of a fire in the hangar. The decision not to use suitable options, such as compartmentalisation or sprinklers, appears to have been taken locally and without seeking the risk appetite of AOC No1 Group who now carries the risk. At AAC Wattisham a single point holding of AH-64 spares has been created in a storage warehouse without any automatic fire suppression system such as sprinklers. Failure to carry out a BIA at an appropriate design stage left meant the fire risks were not defined or communicated to the AP to agree suitable fire protection measures. Left with limited options now due to design maturity, the AP has accepted further recommendations to mitigate the risk of fire in the form of additional compartmentation and enhanced fire detection.

¹⁹³ The migration of the vehicle fleet and equipment due to transfer on 1 Feb 2020 was extended to 1 April 2020 for this reason.

¹⁹⁴ For example, the exclusion of fire extinguisher servicing from the services to be provided by Capita requires HoEs to establish an alternative solution and funding provision.

DFRP a year after initial service delivery,¹⁹⁵ while the DFSR will include an assessment of both fire safety service delivery and operational delivery its 2020/21 report.

SLA Fire Safety Review

The DFSR Review of Fire Safety in Defence Single Living Accommodation (SLA) took place in mid-2018 following a number of serious fire incidents in SLA premises.¹⁹⁶ The report, published in January 2019,¹⁹⁷ identified the limited ability of TLBs to fulfil their fire safety duties and identified risks that were magnified by cultural and management factors¹⁹⁸ with potential to produce pan-Defence Safety and Environmental Management Systems (SEMS) failures. It made eight recommendations relating to organisation, governance and assurance arrangements for fire safety, roles and responsibilities of APs, including the Chief Fire Officer (CFO), updating of JBAs and CSAs, management of Defence building works and infrastructure maintenance contracts and the creation of a single authoritative premises database to allow the Accountable Persons to manage fire safety on premises based on risk and need. DFSR put in place a system to monitor progress with the implementation of these recommendations through audit of Cmd/EO Fire Safety Management Systems and has provided updates to the DSEC and the DSEC Working Group. The last AAR noted that only six of the eight recommendations had been completed and the DSEC meeting in July 2019 agreed to revised timescales and achievable target dates for the remaining recommendations. All but two of the eight recommendations have now been completed to the agreed revised timescales, including all of the highest priority ones.¹⁹⁹

Governance post-Grenfell

The Hackitt Review following the Grenfell Tower fire in 2017 recommended the creation of a National JCA as lead authority for the functions of Building Control, Health & Safety and Fire Safety regulation. DIO and the DFSR have now approved the requirements for a Defence building control and fire safety regulatory framework model that will mirror National JCA for the Defence estate as far as is reasonably practicable. The Defence JCA will redefine the current DFSR D2C model and place more control with the Defence Building Control Authority during planning, design and construction. Regulatory authority will transfer to the DFSR once the building is occupied when the premises fall under fire safety legislation. Early cross-regulatory consultation and agreement at planning stages will be key with the adoption of Safety Cases and Fire Safety Files. The new model will retain the benefits of the current D2C process but will eradicate weaknesses in the current system and simplify the process for all those that need to fulfil a function to provide verifiably safe buildings for Defence purposes. The DFSR and DIO remain engaged with the Ministry of Housing, Communities & Local Government and other members of the NFCC on a number of building and fire safety cross-government consultations and analysis. Among these are the establishment by the HSE of the new Building Safety Regulator, which will be implemented through the Building Safety Bill being introduced to Parliament later in 2020.²⁰⁰ The new legislation, which will be applicable in full to Defence, will clarify the Regulatory Reform (Fire Safety) Order 2005 and require the owners of residential buildings of any height to fully consider and mitigate the risks of external wall systems.

¹⁹⁵ Defence Safety Authority: Annual Assurance Report April 2017-March 2018, published 26 October 2018. Recommendation 10: The Perm Sec should request the Infrastructure and Projects Authority conduct an independent assurance review, supported by the DSA, of DFRP and DFR approximately 12 months after initial service delivery.

¹⁹⁶ Enforcement Notice (EN) issued post-fire in SLA at Aliwal Barracks, Tidworth garrison. EN issued post-fire at Thiepval Barracks and fire safety risk-based audits brought forward for Lisburn, Northern Ireland.

¹⁹⁷ DSA, *Fire Safety Review: Defence Single Living Accommodation*.

¹⁹⁸ Such as misunderstandings among Heads of Establishment of their Fire Safety responsibilities and tolerance of breaches of fire safety precautions such as disabling of smoke alarms, broken fire doors and blocked fire exits.

¹⁹⁹ Two outstanding recommendations relate to updating of CSAs and JBAs between DFR and TLBs, including the responsibilities of the DFRP contractor and to creating a single premises database to allow APs to manage fire safety on premises based on risk and need.

²⁰⁰ The Building Safety Bill <https://commonslibrary.parliament.uk/research-briefings/cbp-8781/> was announced in the Queen's Speech on 19 December 2019. As a result the HSE will be establishing a [Building Safety Regulator](https://commonslibrary.parliament.uk/research-briefings/cbp-8781/) in conjunction with the Ministry of Housing, Communities & Local Government, the Home Office, Local regulators, building control bodies, building owners, housing providers, the construction industry, the Local Government Association, Local Authority Building Control and the National Fire Chiefs Council.

3.5.4 New Issues

Fire & Rescue

Regulation for Fire & Rescue in Defence is well established, based on a combination of MAA Regulatory Articles, which prescribes the need for Emergency Services at aerodromes, and DFSR regulation aligned to International, NATO, European and National standards for the delivery of ARFF services in the UK and Overseas and on deployable operations.²⁰¹ However, based on evidence gathered through DFSR Fire & Rescue audit and inspection activities conducted through the reporting year, there are clear deficiencies and risks being held that are common across all the Fire Rescue services assessed so far. These include the need for improvements in the training environment to improve the knowledge and competencies of the operational staff in delivering the principle objectives of ARFF. Serious shortfalls have been identified in the tactics, techniques and procedures currently employed which are not effective or efficient and often not in accordance with Defence ARFF Regulations or other relevant instructions.²⁰² There is also evidence of a reluctance to change things which have historically been considered tolerable by the organisation. This is impairing the ability of the service to improve operational capability and ultimately the safety of firefighters. Other shortfalls in Fire & Rescue provision include lack of training provision and information for personnel in areas such as new Aircraft Systems,²⁰³ the use of incident command systems²⁰⁴ and the correct testing of breathing equipment.²⁰⁵ Although units should provide training facilities for the FRS personnel providing ARFF to enable maintenance of life safety critical training, including the wearing of breathing apparatus in heat and smoke or the use of aircraft fire training simulators, these facilities are often inadequate or poorly maintained.²⁰⁶ Changes to Regional Prime Contractor arrangements continues to cause issues with many of the training facilities no longer receiving maintenance work nor, in some cases, rectification and overhaul work when the facility has become unserviceable. This is impacting on the ability of ARFF response personnel to maintain safety critical competency requirements.

Summary – LIMITED

There is clear evidence that the gradual improvements seen in Fire Safety in Defence over the past two AARs have continued this year. With leadership commitment and the establishment of dedicated Fire Safety SQEP in Safety Centres governance of Fire Safety has been re-established and the formation of the Defence JCA should help to consolidate infrastructure compliance. The change management challenges presented by the transfer of responsibilities, personnel and equipment to the new contractual arrangements as a result of DFRP remain a concern, as do some of the underlying cultural attitudes to fire prevention, especially in SLA. As the DFSR matures in Fire & Rescue assurance, the training and operational capabilities of the Fire & Rescue services have been identified as a new strategic threat to this specialised area of Fire Safety. Overall, despite some encouraging signs there are still serious deficiencies in Fire Safety SQEP and management arrangements and the domain remains at LIMITED Assurance.

²⁰¹ Regulatory Article 3261 (2) Aerodrome Emergency Services.

²⁰² Neither the now obsolete JSP 426 Vol3 Lft2 nor the current DSA DFSR 02: Defence ARFF Regulations.

²⁰³ STANAG 3896 details the information that should be provided to emergency response crews attending aircraft incidents and informs Defence Regulation. It requires ARFF personnel to be provided with standardised aircraft rescue and firefighting information for new aircraft and systems, including fire and special hazards, aircraft entry and engine shutdown procedures and escape system safety. It also provides for uniformity and a systematic approach for the provision of national aircraft information to ensure inter-operability of aircraft rescue processes. The UK has accepted this STANAG in full, with no reservations. A number of aircraft, for example the Grob Prefect T1 and the Beechcraft Texan T1, have recently been introduced to service with no provision for the relevant emergency response information to be made available to emergency response personnel at the point of release to service.

²⁰⁴ The Incident Command System provides incident commanders with a framework for an all hazard approach to incident command and is essential for implementing safe systems of work when responding to emergency incident. The policy for its use sets annual and two-yearly training and competence assessment requirements. During this reporting period six of seven ARFF sections audited failed to provide sufficient evidence to confirm the ICS competency is being maintained or independent assessments are being conducted.

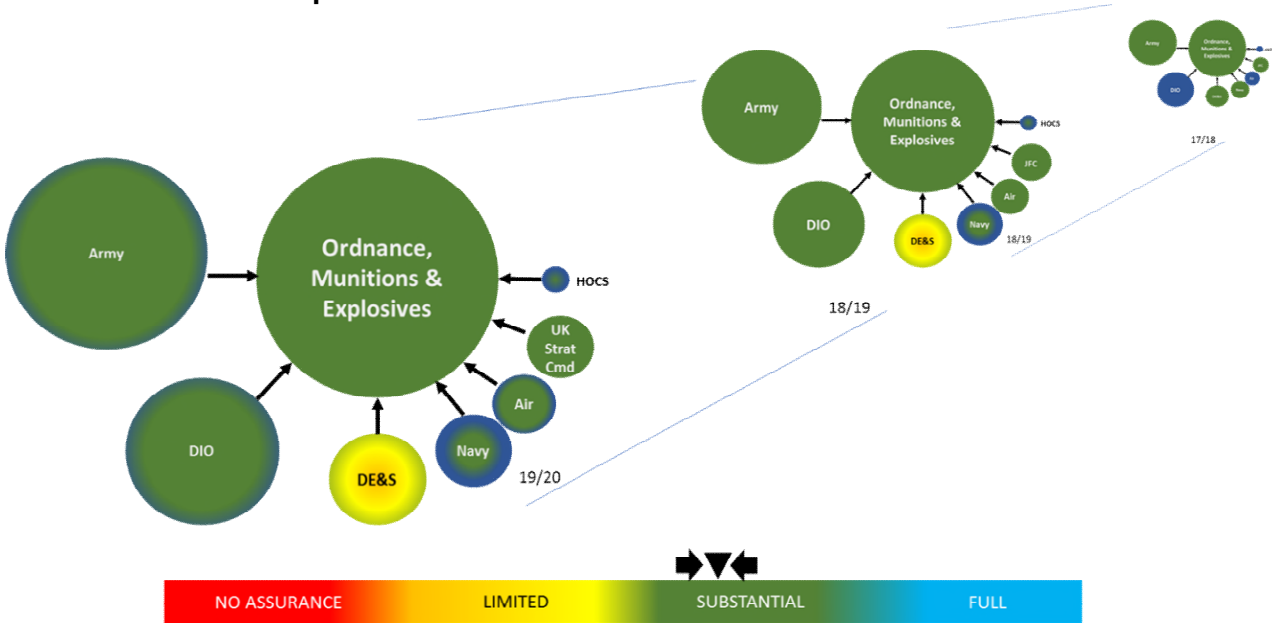
²⁰⁵ The Control of Substances Hazardous to Health (COSHH) regulations include a requirement for all tight-fitting facepieces be subject to a face fit test to ensure the wearer has a correctly fitting device. This is required for all facepieces including filtered facemasks, disposable face masks, half and full facemasks includes all Non-Positive pressure breathing equipment. Evidence and findings gathered through audit show that many ARFF units are non-compliant.

²⁰⁶ MAA RA 3261 (2) requires that the Aerodrome Operator (AO) to ensure that the ARFF Service is fit to meet the flying task. However, the AO has no financial control to ensure that training facilities are both provided and maintained.

Ordnance, Munitions and Explosives

3.6 Assurance Level.

SUBSTANTIAL Assurance – similar to last year with weaknesses still apparent in DE&S assurance of OME acquisition.



3.6.1 Scope

Defence has a range of DEDs from statute²⁰⁷ requiring regulation of all Defence Ordnance, Munitions & Explosives (OME) activity from acquisition to disposal. This also includes regulating all MOD explosives storage sites, ranges used for live firing, laser safety and Major Accident Control (MACR) establishments.²⁰⁸ This is conducted by the Defence OME Safety Regulator (DOSR). All Cmds and most of the EOs in Defence have some activity or involvement in the OME area.

3.6.2 Regulator Activity

During the reporting period the DOSR conducted 512 audits and inspections across Defence.²⁰⁹ 472 of its ranges, 23 of its explosives establishments and 20 of its MACR sites, spanning the 6 major TLBs.²¹⁰ This year DOSR continued assurance activity on the acquisition of OME systems in Defence, with currently only 787 of 1155 items (68%) meeting the requirements for assurance during acquisition. As a result of audit and assurance activity this year the Regulator issued six Prohibit Notices (PNs) and twelve Improvement Notices (INs).²¹¹ In addition, DOSR provided advice and assistance to TLBs on Operations SHADER and NEWCOMBE and to the Joint Counter Terrorist Training Advisory Team (JCTTAT).²¹² DOSR continues to work with NATO and European Defence Agency committees and groups on common standards and methodology for Explosives

²⁰⁷ Principally the Explosives Regulations 2014, the Health and Safety at Work Act 1974 and the Dangerous Goods in Harbour Areas Regulations 2016.

²⁰⁸ Major Accident Control Regulations (MACR, JSP 498) are the equivalent of the Control of Major Accident Hazard Regulations 2015 (COMAH) for Defence sites, of which the Defence Ordnance Safety Regulator also acts as the MOD's Competent Authority.

²⁰⁹ Each of these inspection programmes works to a different cycle. All 1,914 Defence ranges in the UK and overseas will be inspected over a three-year period. Inspection of the 1,062 explosives establishments is risk based, focusing on those presenting the highest risks. Each of the 27 Defence MACR sites will receive two visits in a five-year period, one inspection and one exercise.

²¹⁰ Army (338 audits), Navy Cmd (8 audits), Air Cmd (20), UK Strat Cmd (11), HOCS (12), DE&S (30) and DIO (65 audits).

²¹¹ Compared to three PN and INs in 2018/19. The PNs were issued for range safety issues relating to inspection and maintenance. Five other enforcement notices (two PN and three IN) remain extant for range safety (PN) and MACR (IN) failings.

²¹² Advice on explosives licensing at RAF Akrotiri for Op SHADER. Op NEWCOMBE is a JHC operation in Mali. Overseas range safety inspections support the JCTTAT.

Safety Cases (ESCs). It also provided OME safety management advice and briefings to the MOD of Kazakhstan and presented at PARARI 2019, the premier international explosive ordnance safety symposium at the Australian Defence Force Academy in November 2019.

3.6.3 Findings

The overall assessment for OME HS&EP across Defence activities is **SUBSTANTIAL Assurance**, the same level reported last year. For OME Acquisition the assessment is LIMITED Assurance due to the lack of 2PA in Defence as a result of inadequate use of OME Safety Review Panels (OSRP) for independent peer review of documentary evidence to assure the inherent safety of OME items being procured,²¹³ with some Delivery Teams assessed as NO Assurance. The proportion of OME assets compliant with the requirement to have a valid OSRP Assurance Statement (OAS) varied between DE&S Operating Centres,²¹⁴ but overall only 68% of items in the Defence OME inventory are OME Acquisition compliant.²¹⁵ This represents only an 8% increase since last year, when the deficiencies in OME Acquisition were first highlighted. For In-Service and Operational Safety the picture is better, with an overall assessment of SUBSTANTIAL Assurance and three TLBs reaching FULL assurance compared to one last year.²¹⁶ The assessment for Defence Ranges is also SUBSTANTIAL Assurance, with all TLBs achieving this level.²¹⁷ Finally compliance with MACR regulations across the 27 Defence MACR sites is assessed as SUBSTANTIAL Assurance, with 4 TLBs achieving FULL Assurance for their sites compared to none last year.²¹⁸

DOSR has refined its understanding of the number of Explosives Establishments and Defence Ranges in its scope, reducing the total number of Ranges recorded by 50 and making changes to the way explosives quantities are represented. As a result, while HoEs hold licences for individual explosives facilities/buildings and a single establishment may have multiple licences and registered locations (for small arms ammunition/low risk items), the establishment is the area under control of one person, with authorisation to hold licences, and has a unique UIN. Inspections are required every 2 years for licences and 3 years for registered locations, with DOSR independent sampling carried out on a risk-based approach. These changes have led to a more accurate assessment of OME assurance across Defence, with better electronic record-keeping and incremental improvements in analysis and exploitation of data for a risk-based approach to assurance.

2PA

While it is clear that the systems for management of in-service and operational OME safety management, ranges and Major Accident Control are robust systems and working well, these assurance assessments indicate that the lack of 2PA in DE&S Acquisition remains a concern. DE&S are tackling this issue as a high priority, although improvement is slow, requiring strong leadership involvement, close management and constant commitment to OME safety as a top priority. Six of the seven INs raised at Operating Centre level remain in place, although some areas have done better than others and one notice should be lifted soon.²¹⁹ However, several OME systems are already in service, but without the safety case arguments having been subject to robust 2PA by the OSRP to ensure the assumptions and evidence underpinning the system's safety case remain valid. It is thus possible that OME risks may have been unknowingly transferred to platform Delivery Teams and to end users in the Cmds. This essential 2PA is a key element of the multi-layered assurance model to demonstrate Defence OME is inherently safe. DOSR is developing a

²¹³ As required by DSA02 Defence OME Regulations, Regulation 02 OME (18) OME Safety Review Panel and Assurance Statement.

²¹⁴ Weapons Operating Centre (OC) 70%, Ships OC 100%, Land Equipment OC 79%, Air Support OC 4%, Combat Air OC 33%, Helicopters OC 88%, SDA 100%.

²¹⁵ 785 of 1153 Ammunition Descriptor Asset Codes. The threshold for SUBSTANTIAL Assurance for OME Acquisition is 75%.

²¹⁶ Based on one PN, one IN and 19 CARs issued in the course of 23 inspections with two INs and 6 CARs still extant at the end of the year. Those achieving FULL Assurance were Navy Cmd, Air Cmd and DIO, although it should be borne in mind that Army has by far the largest number of Explosives Establishments (898 of 1062 – 85%).

²¹⁷ Again, Army Cmd has the bulk of the ranges, with 1242 of 1914, followed by DIO with 271 and UK Strat Cmd with 125.

²¹⁸ Army Cmd, Dstl, DE&S and DIO.

²¹⁹ Notable improvements in the Ships, Land Equipment and Helicopters OCs, with the IN on the Ships OC close to closure.

proposal for Certification of Defence OME which will include early engagement with capability sponsors and delivery teams to avoid situations such as that of the Mk 54 Torpedo,²²⁰ where the lack of such engagement means that as the platform and weapon approach Initial Operating Capability (IOC) the user Duty Holder is being asked to accept risks that should have identified and addressed during procurement. This remains an area of enhanced Regulatory focus for DOSR.

Infrastructure

Last year's report noted the challenge of maintaining OME establishments and licensed explosives facilities and the opportunities presented by delegation of infrastructure funding to TLBs. For TLBs to be able to maintain their licensed explosives facilities as fit for purpose they should ensure that mandatory building and electrical tests are carried out at the correct periodicity. There has been some improvement from last year but there are still signs of a worrying trend and evidence that, where sub-contractors are used to carry out this work, it is not being completed to the required standard with some safety-critical outcomes being incorrectly reported. DIO continues to address the issue with its contractors, including meetings with DOSR and workshops with all stakeholders. The appropriate MOD Licensing Authorities have been instructed to withdraw explosives licenses where there is any concern.²²¹ MOD MACR establishments often have fuels and gas infrastructure as well as explosives facilities, so if there is a requirement for enforcement action against MACR requirements there is close coordination between the DLSR FGSR and DOSR to ensure good visibility of significant Defence Infrastructure issues that cross regulatory boundaries.

SQEP

Last year's report noted the challenges of managing the small, niche cadre of OME SQEP in the face of an ageing demographic. It has become apparent this year that one area of a potential increase in OME safety risks is from SQEP shortfalls in the management of safety information. There is evidence of failings in the identification, obtaining, updating, configuration control and review of safety related documents and information. In particular, and related to the OSRP 2PA problem highlighted above, the upkeep and review of Safety and Environment Case Reports (SECR) in DE&S and the submission of such information to the OSRP to gain 2PA has been seen to be lacking due to SQEP problems. Generally, all TLBs have initiatives in place to manage their levels of OME SQEP but it remains an on-going complex and difficult issue to measure.

Change

DOSR continues to use the full range of assurance activities to monitor major organisational change programmes in Defence and consider how OME safety might be affected by them. One example highlighted this year has been the effect of change, albeit minor, on the management of ranges in the Falkland Islands. The Command Secretariat at Mount Pleasant has not yet recruited for the Range Safety Officer post which has been vacant for 9 months. Consequently, there has been a noticeable loss of leadership in the Ranges team and a significant loss of their collective SQEP knowledge. As a result, the Falklands Ranges will be re-inspected by DOSR during 2020/21.

3.6.4 New Issues

Weak Culture in Management of OME Safety on Operations.

The DOSR Team continues to focus on support to operations and is committed to working closely with stakeholders to provide advice, guidance and support where necessary. This included a brief

²²⁰ The American Mk 54 lightweight torpedo is being procured for use on the P8A Poseidon Maritime Patrol Aircraft as it is already part of the weapons suite in use with the aircraft by the US Navy and other users.

²²¹ Each of the 3 Services and DE&S has an Inspector of Explosives (IE) who issues explosives licences on behalf of the DOSR TL who is the Chief IE MOD (CIE MOD). UK Strat Cmd does not currently have an IE, but has arrangements in place to be supported by other IEs as appropriate to the activities and locations required. DSA02 Regulation 02 OME (20) Appointment of TLB Inspectors of Explosives.

to the Chief of Joint Operations (CJO) earlier this year to resolve some issues and misunderstandings in relation to OME safety and acceptance of risk. Many of the issues at current operating locations overseas arising from having to operate on a much reduced or limited operating footprint with temporary infrastructure.²²² Invariably, this does not lend itself to achieving full application of MOD explosives regulations and the level of safety that affords.²²³ Before deploying MOD explosives to overseas locations there should be a safety review, by a competent person behalf of the relevant IE, of the facilities available at the host location to ensure that Defence OME Regulations will not be infringed. An Explosives Safety Case (ESC) should be compiled to outline the risks posed to UK personnel and assets and to the Host Nation military and civilian populations, assets and infrastructure from UK explosives operations. The ESC should also outline acceptance of risks by TLB Duty Holders or CJO as the Operational Commander.²²⁴ However, evidence from DOSR engagement with these reviews and ESCs suggests a potential normalisation of deviance creeping in to the safety culture on such operations with compliance with well-established OME Regulations, which offer strong lines of defence against risks, giving way to an increasing reliance on risk assessment and referral, which provide unnecessarily weaker lines of defence. This is developing into the default position with little or no consideration given to effectively managing the potential consequences by taking steps to ensure compliance.²²⁵ CJO has expressed concern at the amount of OME risk being referred to him for such operations without proper consideration of whether proportionate risk reduction measures might be possible by other Duty Holders and stakeholders, who control the levers to reduce that risk.²²⁶ As with OME acquisition 2PA, early engagement between PJHQ and Cmd risk owners and the right OME SQEP SMEs at an early stage in planning for operations would prevent many of these issues arising in the first place. More needs to be done to educate operational commanders and senior staff to ensure we have strong leadership from the very top, demanding and demonstrating by example active and constant commitment to OME safety. This is fundamental to the continued safeguarding of members of the public, UK Defence personnel and our assets and by extension, the effectiveness of our operational capability.

Summary – SUBSTANTIAL

Arrangements for the management of In-service and operational safety of OME at Explosives Establishments, the Safety of Defence Ranges and compliance with MACR are robust and provide SUBSTANTIAL Assurance. However, arrangements for management of Acquisition of OME provide only LIMITED Assurance due to shortfalls in 2PA, with evidence to assure the inherent safety of OME items being procured not being subject to proper independent scrutiny. In some cases where items are in service or close to IOC this could mean that risks are unknowingly being transferred to equipment users in the Cmds. DE&S is working hard to address this and DOSR continues to monitor. SQEP shortages in the niche OME cadre, maintenance of infrastructure and the effects of change all continue to present challenges, and there is some evidence of a weak safety culture in managing OME on operations, with 'normalisation of deviation' where regulations are concerned and over-reliance on transfer of risk to operational commanders without proper controls in place. However, overall the OME domain continues to demonstrate SUBSTANTIAL Assurance of safety.

²²² Current examples include RAF Akrotiri in Cyprus for Op SHADER and Op NEWCOMBE in Mali, but similar problems have been observed in other operations over the past 20+ years including Op ALLIED FORCE (Balkans 1999), Op TELIC (Iraq, 2003 to 2009), Op HERRICK (Afghanistan, 2002-2014) and Op ELLAMY (Libya, 2011).

²²³ For example, difficulties with weapons storage and parking of armed aircraft, including failure to meet prescribed separation distances between armed aircraft, failure to achieve flare danger areas and poor directional weapons safety.

²²⁴ DOSR provide TLBs with advice and assistance in compiling ESCs. Recent examples include those for Ops SHADER and NEWCOMBE and for the Joint Counter Terrorist Training Advisory Team (JCTTAT), involving visits to small, specialist units using Host Nation ranges overseas to train foreign troops, under Defence Engagement tasks or for the zeroing of the weapons of operational units.

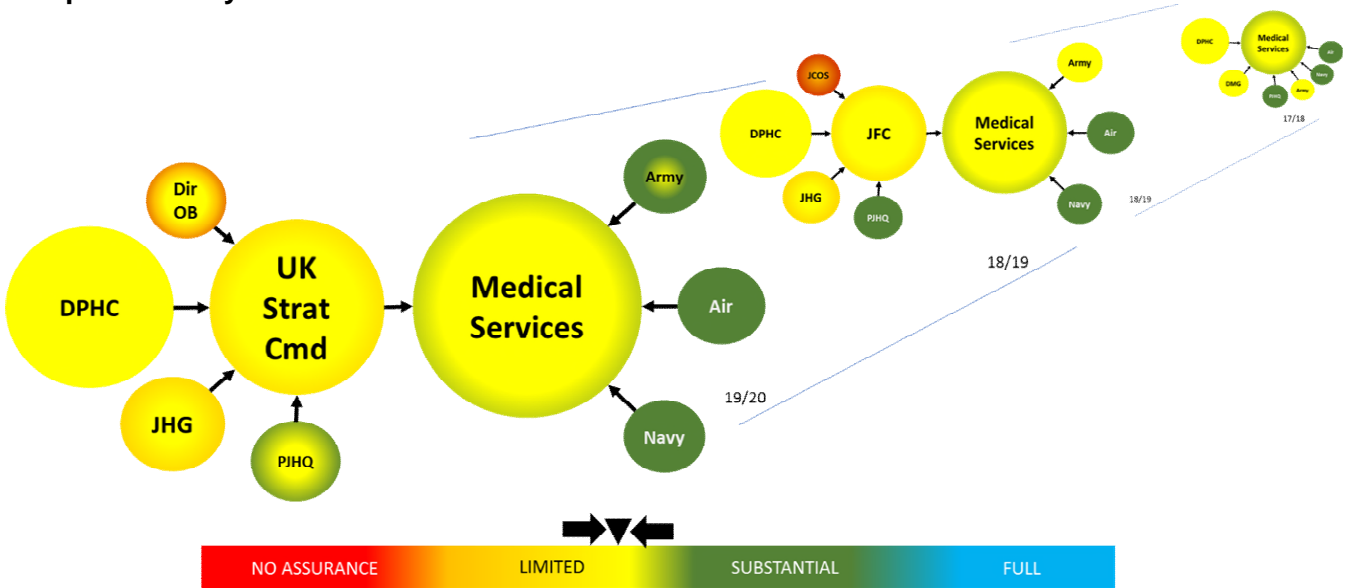
²²⁵ Such as designing and building more effective infrastructure such as Combat Aircraft Parking Areas, blast walls and barriers and more appropriately located technical and accommodation facilities, or simply moving people further away from the risks.

²²⁶ Leading to a workshop in MOD Main Building involving CJO, Cmd representatives and the DSA to discuss a range of scenarios involving both operating and operational risks.

Medical Services

3.7 Assurance Level

LIMITED Assurance – unchanged from last year, with effectiveness of assurance systems compromised by shortfalls in SQEP.



3.7.1 Scope

Defence Medical Services (DMS)²²⁷ have a disapplication from the Health and Social Care Act 2008 (Regulated Activities) Regulations 2014. Defence is therefore required to regulate and assure the delivery of healthcare to Service Personnel and entitled civilians,²²⁸ a role conducted by the Defence Medical Services Regulator (DMSR).²²⁹ The DMSR is empowered to undertake proportional and risk-based safety assurance, regulation and enforcement of Defence Medical Services (DMS) in order to enhance Defence capabilities. It works closely with the Care Quality Commission (CQC) and the other UK statutory regulators when required.²³⁰ The DMSR does not assure delivery of the care or treatment of Service Personnel in NHS funded facilities,²³¹ nor has it the authority to assure Host Nation healthcare facilities overseas.

3.7.2 Regulator Activity

Individual Medical Treatment Facilities (MTF) undertake 1PA, while the Cmds,²³² the Joint Medical Group²³³ and PJHQ undertake 2PA of Defence Medical Services and the DMSR undertakes 3PA. During 2019/20 the CQC conducted a further²³⁴ 55 initial inspections²³⁵ and 26 re-inspections²³⁶ of

²²⁷ Defence Medical Services (DMS) is the collective term for the personnel of the three single Services and the integrated civilian workforce who provide medical operational capability, firm base healthcare and medical advice to Defence. Director General DMS who is currently the Healthcare and Medical Defence Authority and will become the Healthcare Functional Lead for Defence. The Defence senior medical officer and medical Head of Profession is the Surgeon General, who is also Defence Medical Director in the JMG.

²²⁸ Service personnel in the UK, abroad and at sea, and in some circumstances entitled civilians and dependents of service personnel.

²²⁹ Formerly the Surgeon General's Inspector General team which transferred to the DSA on 1 December 2017.

²³⁰ Including non-healthcare regulatory bodies.

²³¹ This is assured by the CQC as the statutory regulator in England. Regulation of health and care facilities in the Devolved Administrations lies with other bodies (Care Inspectorate in Scotland, Care and Social Services Inspectorate in Wales and Regulation and the Quality Improvement Authority in Northern Ireland), the service level agreement between CQC, DG DMS and the DMSR enables the CQC, at the DMSR's request, to inspect military healthcare services in Scotland, Wales, Northern Ireland and overseas.

²³² Navy Cmd, Army HQ and Air Cmd.

²³³ Defence Primary Healthcare (DPHC) and the Joint Hospital Group (JHG).

²³⁴ The CQC published 63 inspection reports during the first year of the programme, CQC, *Defence Medical Services CQC Inspection Programme Annual Report Year 1 (2017/2018)*, dated 30 July 2018 and 53 during the second, *CQC's Inspection Programme of Defence Medical Services, Annual Report for Year 2 (2018/19)*, dated 18 June 2019.

²³⁵ 30 medical centres, 16 dental centres, 4 Regional Rehabilitation Units (RRU), 5 Departments of Community Mental Health (DCMH).

²³⁶ 23 medical centres, 2 dental centres and one DCMH.

MTFs, completing its third year of 3PA inspections of Defence MTFs.²³⁷ Over the first three years the CQC military inspection programme now has delivered and published reports on 146 initial inspections and 45 re-inspections. The reinspection rate is most marked for medical centres, with 45% of those inspected this year requiring reinspection.²³⁸ Although this rate has fallen (from 58% in the previous reporting period), it still has major resource implications for the inspection programme to complete inspections of 100% of medical facilities. Figures 3-5 and 3-6 summarise the completed and published extant CQC ratings for medical centres, Departments of Community Mental Health (DCMH), Regional Rehabilitation Units (RRU) and dental centres for the first 3 years of the programme.²³⁹ All CQC inspection reports are in the public domain.²⁴⁰

Facility Type	Outstanding	Good	Requires Improvement	Inadequate
Medical Centre	11	53	13	5
Department of Community Mental Health	1	4	3	0
Regional Rehabilitation Unit	0	9	0	0

Figure 3-5

Facility Type	No Action Required	Requires Improvement
Dental Centre	40	4

Figure 3-6 – CQC Inspection Ratings for Defence Medical Facilities 2019/20.

The findings of the 2019/20 inspection programme were broadly comparable to those of the previous two years, with 59% of medical centres and 50% of DCMHs inspected for the first time rated as Good or Outstanding and 63% of dental centres and 100% of RRUs graded as meeting the standard required.²⁴¹ Of the MTFs re-inspected, 23 out of 25 medical centres were re-rated as Good and the two dentals centres and one DCMH all re-rated as Good. Of note, six (22%) of the medical centres inspected for the first time were rated as Outstanding for the key question ‘how well is the centre led and managed?’²⁴² This is the area where problems are most frequently found during CQC inspections, so the CQC considered that these findings were clear evidence leaders are learning from the systems and approaches of others in order to deliver care that exceeds the baseline standards and to foster a good safety culture.²⁴³ Leadership at the four RRHs inspected was seen to be generally exemplary. However, as was the case in the first two years of the programme, overall performance against the ‘does the centre deliver safe care?’ question was the poorest of the five key questions,²⁴⁴ with 56% of medical centres inspected for the first time were rated as either Inadequate or Requires Improvement. The CQC noted that this continues to call into question the capacity of the DMS to acknowledge and implement organisational learning relating to safe care and treatment. It also highlighted a clear link between lower ratings for leadership and

²³⁷ CQC, *CQC’s inspection programme of Defence Medical Services: Annual report for Year 3 (2019/20)* issued 7 July 2020.

²³⁸ The threshold for re-inspection of facilities by the CQC is a rating of Requires Improvement (triggering a re-inspection within 12 months) or Inadequate (triggering a re-inspection within 6 months).

²³⁹ Dental centres are not subject to a ratings system within the DMS or NHS and are instead assured against whether they are compliant with relevant legislation (No Action Required) or not (Requires Improvement). Both figures exclude the MTFs (medical centre and dental centre) in Cyprus as these were included in the programme as pilot inspections and not rated.

²⁴⁰ <https://www.cqc.org.uk/what-we-do/services-we-regulate/defence-medical-services>

²⁴¹ Gradings are: Outstanding, Good, Requires Improvement or Inadequate. Dental Centres either meet the required standard or not.

²⁴² Medical centres at Chepstow, Halton, Hyde Park, Innsworth, Windsor Combermere and Windsor Victoria.

²⁴³ CQC, *CQC’s inspection programme of Defence Medical Services: Annual report for Year 3 (2019/20)* issued 7 July 2020, p10.

²⁴⁴ The other three questions consider how effective, caring and responsive the MTFs were.

lower ratings for safety. Based on the historical inspection rate and reinspection requirement, at the end of Year 4 there will be approximately 50 medical or dental facilities which will not have received an initial inspection. The risk-based approach taken by DMSR, in conjunction with HQ DPHC, in planning the programme should have highlighted facilities with known issues for early inspections. However, there is a risk that facilities with as yet unknown issues will remain uninspected. A further year of inspections will be required to achieve 100% initial inspection of DPHC facilities and this would also broadly align DPHC facilities to CQC's 5-yearly assurance cycle for the NHS. In view of the DMSR's limited capacity for assurance this is vital to maintain adequate 3PA of the DMS and work is in hand to agree the terms of an extension to the existing CQC SLA. Based on the results of these inspections and additional evidence available to the DMSR,²⁴⁵ seven Enforcement Notices were served in 2019/20 comprising two Prohibit Notices (PNs) and five Urgent Improvement Notices (UINs). Of the two PNs, one medical facility²⁴⁶ has since closed permanently, and the other is undergoing infrastructure work that should allow the PN to be lifted and the facility reopened.²⁴⁷

3.7.3 Findings

The overall assessment for the DMS remains at **LIMITED Assurance**, with no material change from last year. Whilst the DMS has established systems and processes in place, there is evidence that the effectiveness of the systems is being compromised by shortfalls in manning and SQEP. Although not entirely within the ability of the DMS to treat, risks to patient safety identified last year remain and have been added to through the course of the year. The assurance level for Directorate of Overseas Bases²⁴⁸ (DIROB) has increased from NO Assurance to LIMITED Assurance following attention to the issues raised in last year's report.²⁴⁹ Assurance for Army has moved to SUBSTANTIAL Assurance as a result of better resourcing at the 3* level for Healthcare Governance and Assurance (G&A) and the introduction of a combined 3* G&A board. PJHQ assurance has declined from SUBSTANTIAL Assurance to LIMITED Assurance as a result of the greater visibility of assurance issues following the filling in Aug 19 of a long-standing gapped clinical governance post and the subsequent resumption of 2PA activity.

The significant threats identified in last year's report in relation to the DMS showed limited signs of progress or improvement in 2019/20 as outlined below and are likely to continue to endure due to their chronic nature, complexity and limitations in the JMG's ability to control the factors required to fully mitigate the risks. Other issues relating to management of medicines and medical equipment and to overseas healthcare, including medical preparations during force generation, have also been identified as significant this year.

SQEP

Shortfalls in both the civilian and military medical services workforce continue to expose limited availability of SQEP in specific healthcare delivery areas as well as healthcare governance and assurance. Gapped key posts and a lack of SQEP erodes the safety systems for identifying concerns, supporting staff and driving improvement. This is particularly evident in Defence Primary Healthcare (DPHC) where the reliance on locum staff is increased, although there are some signs of marginal improvements over the previous reporting period. However, significant shortfalls remain with 13% of positions within DPHC vacant with no identified replacement.²⁵⁰ Civilian workforce shortages are a particular concern as 58% of all DPHC posts are now civilian (an increase of 1% over the previous year) and while the fill rate has improved marginally at 82.3% (up from 80.5% in

²⁴⁵ Such as Common Assurance Framework reports, Healthcare Governance & Assurance Visit Reports, Automated Significant Event Reporting (ASER), Bi-Annual TLB Reporting and DPHC Performance Reporting.

²⁴⁶ Deepcut MTF was served a Prohibit Notice in May 2018 due to significant patient safety issues resulting from poor staffing levels and lack of SQEP and has since been closed.

²⁴⁷ Waddington PCRF remains closed with mitigating measures in place. DMSR confirmed that these measures remain safe and tolerable despite the additional delay.

²⁴⁸ Formerly Joint Command Overseas Bases (JCOS).

²⁴⁹ Inability to assure Host Nation healthcare provision for personnel at Overseas Bases.

²⁵⁰ This can be broadly compared against an overall vacancy rate of 8-8.5% within the NHS (according to the [Office of National Statistics](#)).

the last AAR) SQEP shortfalls remain in key areas.²⁵¹ Gapping of military posts has also reduced marginally,²⁵² although specific professional cadres continue to experience shortfalls in key SQEP across all 3 Services.²⁵³ Temporary gapping of military posts to cover deployments exacerbates the impact of this, particularly for smaller medical facilities with less resilience, with potentially increased risk to patient safety. SQEP shortages mean that DPHC is also heavily reliant on Temporary Healthcare Worker (THW) and manpower substitutes which are dependent on the availability of funding.²⁵⁴ A review of locum spending towards the end of 2019/20 has resulted in the delegation of this funding to the DPHC regions and allowed them to make judgements on their spend for the remainder of the financial year. This should enable decisions to be better based on clinical need. There are similar SQEP concerns in the Joint Hospital Group (JHG) over inadequate supervision of junior staff, with critical post gaps²⁵⁵ posing risks to patients from staff working without the appropriate level of mentorship or supervision. This is compounded by a lack of consistency²⁵⁶ over the arrangements to deliver mandatory military training requirements and potential to leave personnel inadequately SQEP for their operational role and thus jeopardise JHG's ability to deliver SQEP for exercises or operations. The recent development of a JMG People Strategy to be supported by a People Plan with details of the work-strands to tackle SQEP shortages across the JMG is a welcome development, as are plans to reinforce 2PA through the recruitment of a cohort of Governance and Assurance personnel to undertake Healthcare Governance and Assurance Visits (HGAVs) within DPHC. However, this will require close and continued attention by UK Strat Cmd and the three Services to ensure that the risks to patient safety of insufficient SQEP are properly managed.

Organisational Change

Organisational Change continues apace within the DMS and beyond. The appointment of the new DG DMS and his new role as the Healthcare Functional Lead has settled some of the uncertainty reported in last year's AAR and brought strategic direction, which should be reinforced by the publication of a Functional Strategy to outline the roles, responsibilities and future direction of the Healthcare function.²⁵⁷ However, there are several large-scale organisational change programmes still underway, and others on the horizon. The Defence Healthcare Development Optimisation Programme (DHDO), the introduction of CORTISONE, and the European Future Healthcare Programme are three such examples, alongside other programmes with a broader scope, such as the Service Cmds' transformation programmes, which will directly and indirectly impact on the DMS. The introduction of Unified Capability Management²⁵⁸ across the medical cadres is an initiative whose effects are yet to be fully understood. Retaining an organisational safety focus, reinforced by effective use of OSAs, through these change programmes will be fundamental to patient safety.

2PA

There is clear evidence of a widespread shortfall in effective 2PA across the DMS, compounded by the lack of SQEP and broader governance training, is the most significant risk to patient and staff safety. While the increased focus on HGAVs in DPHC is a step forward, both Air Cmd and PJHQ are carrying gaps within their small governance and assurance teams, while there is evidence of personnel from these teams being re-tasked with other roles thus diluting the effectiveness of 2PA.

²⁵¹ Key Civilian SQEP shortfalls are (Over 20%); MIAC MO 75%, Cons Psychiatrist 36%, Rheumatology/Rehabilitation Consultant 33%, Dental Hygienist 33%, ERI 31%, Social Worker 27%, Psychologist 26%, Dental Practitioner 25% (New), Pharm Tech 24% and Community Mental Health Practitioner 23% (New).

²⁵² A decrease from 7.4% last year to 7% (RN 5.5%; Army 11.2%; RAF 4.7%).

²⁵³ The RN report 44% shortfall of Dental Hygienist manning against liability. Army shortfalls are within Psychologists and Consultant Psychiatrists (75% and 70% respectively), and Pharmacists and Consultants in Occupational Medicine (both 50%). Primary Healthcare nurses (22%) and Consultants in Occupational Medicine (25%). The RAF also report gaps within Consultant Psychiatrists (50%), and Rheumatology / Rehabilitation Consultants (67%).

²⁵⁴ Between April 2019 and March 2020 there were 7 ASER raised relating to cessation or lack of funding.

²⁵⁵ Especially at the junior officer and Senior Non-Commissioned Officer and Warrant Officer levels.

²⁵⁶ Due to the lack of formal agreements between the Cmds for this and in many cases no local parenting statements or MOUs.

²⁵⁷ Due for publication in July 2020.

²⁵⁸ Outlined in 20200219-DG DMS LTR-UCM dated 19 Feb 20, this will see UK Strat Cmd take on responsibility for role allocation, career management, workforce planning and defining the career paths for all Regular medical personnel.

The readiness of Cmds to accept gaps in these core roles indicates a lack of importance placed on the role's outputs and by extension, their patient safety culture. In December 2019 the JMG Senior Leadership Team approved the implementation of its new Healthcare Assurance function within its the Corporate Governance pillar to counter the functional deficit that resulted from the formation of DMSR and subsequent loss of the Inspector General liability and function. However, the workforce resource required for this has not yet been identified.²⁵⁹ There is now also a lack of governance and assurance training (beyond basic awareness level training) for DMS personnel, whether in governance or non-governance roles, as the external training contract has not been renewed and there is currently no senior ownership of this issue within JMG.²⁶⁰ The impact of this is widespread as it limits the ability of the DMS to conduct HGAVs or undertake meaningful analysis of ASER reports. This potentially has already had a significant negative impact on 2PA capability in the DMS and is reflective of the prevalent safety culture. Increased 2PA capability is fundamental to facilitate and monitor compliance with the regulatory framework and will bring overall improvements in risk and control assurance.

Infrastructure

There have been numerous improvements across the JMG estate in the past 12 months. However, there are still longstanding issues that need to be resolved. Although many of the CQC reports highlight infrastructure problems and issues, they are not as frequent as in previous years and in most cases, there is a plan in place to mitigate or deliver a solution in the near to medium term, although contractor capacity is a limiting factor. In some cases, the risk (particularly within infection prevention and control) has to be tolerated. JMG have developed a long-term plan to improve the estate, and have worked closely with the Service Cmds to ensure coherence of their plans and those of the DEOP. Whilst JMG has appropriate processes in place, delivery is dependent on other agencies within Defence and on delivery by DIO and Amey.²⁶¹ However, JMG's plans are locked into the UK Strat Cmd Infrastructure programme, and not all have been funded. In particular, the need to fund the reduction in seismic risk in Cyprus funding for most of the TLB Major Projects is likely to be slipped by between 10 and 23 years. Clearly this will have a huge impact on the JMG estate, particularly where poor infrastructure has been taken at risk due to planned re-provision. This will in turn generate a substantial funding requirement in order to sustain those facilities where re-provision has been delayed. This is being managed by the UK Strat Cmd Infrastructure Board and work will start shortly to identify the sustainment work. The DMSR will remain closely engaged with JMG in order to understand the impact of this decision as it is quantified. Maintenance of a safe and compliant healthcare estate that is fit for purpose is a crucial determinant for patient safety.

Medical Information Systems (Med IS)

Last year's AAR highlighted issues with poor connectivity and reliability of the current Defence Medical Information Capability Programme (DMICP) Med IS and delays to the replacement Programme CORTISONE. This year has seen positive improvements made with DMICP²⁶² in both training and user support. However, network resilience continues to play a significant part in poor DMICP performance,²⁶³ with network resilience monitoring now being carried out by Defence Digital to assess the scale of the problem. Connection to the NHS is another key concern. The introduction of the MOD's new Boundary Protection System represents both opportunity and risk and the NHS's migration to Amazon Web Services threatens the MOD's continued access to the NHS Electronic Referral Service. More broadly, investigations are underway into issues concerning smartcard management, DMICP connectivity to the NHS in the Devolved Administrations, dental referrals, access to hospital websites, and the passage of clinical emails from MOD to the NHS.

²⁵⁹ Both financial and post liability.

²⁶⁰ The previous training, provided by an external partner, came to the end of its contract and was not renewed by JMG in the absence of a suitable 'owner' within the organisation.

²⁶¹ Several projects due for completion in 2019/20 have been delayed into 2020/21 because although funding was available the contractor did not have the capacity to deliver the project.

²⁶² Following concerns raised by the British Medical Association.

²⁶³ Issues over network resilience was noted in 23 CQC published reports during this reporting period,

Programme CORTISONE is intended to transfer current Med IS capabilities into a more open configuration and foundation architecture to enable future capability roll-out across Defence and provide Med IS primary healthcare (PHC) solutions to all fixed healthcare centres. The initial start date for CORTISONE was mid-2019, but the programme has been beset by difficulties and delays which are amplifying existing risks and creating new ones. The continued use of DMICP well beyond its anticipated cease date carries with it significant risk and uncertainty. Programme CORTISONE has now been re-baselined,²⁶⁴ with initial operating capability now expected by September 2022. Further approval will be sought later this year for the funding needed to achieve CORTISONE's full operating capability. Other identified risks to delivery of CORTISONE include the lack of SQEP in the programme office²⁶⁵ and the impact of potential savings measures on the programme funding for next year, which remains uncommitted as a result of the use of Agile project management techniques.²⁶⁶ While the new Med IS Programme Board provides a welcome overview of Med IS in a single forum, it must gain greater awareness of the current patient safety risks posed by Med IS.

Suicides

The DMSR works closely with the Director Defence Healthcare (D DHC) and DPHC to analyse data on suicides and unexpected deaths, noting that the current increased rate for such deaths in Defence is in line with national trends (Section 2.1.1). D DHC now chairs a review panel, with DPHC and DMSR representation, and reports are only closed once D DHC is content that all lessons have been identified and shared. Relevant lessons will be shared across Defence via the Suicide Prevention Review Implementation Board (SPRIB).²⁶⁷ There has been limited progress in completing the recommendations from the 2018 DSA Suicide review,²⁶⁸ with 12 of the 22 recommendations completed. The Senior Health Adviser (Army)²⁶⁹ has taken a key role in the implementation of the remaining recommendations that were identified in the review. DMSR remain as an observer of the SPRIB, with Chief of Defence Personnel's area leading.

3.7.4 New Issues

Management of Medicines and Medical Equipment Logistics

A number of issues are emerging relating to medicines management and medical logistics in general.²⁷⁰ Problems with cold chain management²⁷⁰ have been identified, with no published Joint Medication Protocols and the relevant medicines management policy nearly five years old.²⁷¹ The JHG have reported a significant number of medication errors,²⁷² predominantly by newly qualified nurses, due to differing medication administration systems across NHS trusts. The CQC also highlight issues with medicines management as a contributory factor to poor performance of DPHC facilities, particularly within the Key Question about safety.²⁷³ In order to better understand the issue in the DPHC the DMSR has increased the number of pharmacy Specialist Advisors and is sending them on more inspections, including to facilities without dispensaries, while Navy Cmd are developing a new audit tool, and DPHC are mandating a Patient Group Direction²⁷⁴ audit as well as planning a review of both ASER and CQC outcomes. Medical Logistics and management of medical stores is also a significant problem, exacerbated by the fundamental and enduring

²⁶⁴ By the new 2* Med IS Programme Board which met for the first time in January 2020.

²⁶⁵ A 75% shortfall in personnel following the resignation of 3 of the 4 Programme Office members in January 2020.

²⁶⁶ Agile project management is an iterative process in which work is done in short sections known as 'sprints', with each sprint building on and improving as a result of the lessons from the previous sprint. By definition, the nature of, and thus funding for, each sprint cannot be defined in advance and thus programmed.

²⁶⁷ Formerly the Suicide Prevention Working Group

²⁶⁸ DSA, [Defence Safety Authority Focused Review of Suicides among Armed Forces Personnel – Final Report](#), dated 14 August 2018.

²⁶⁹ The senior consultant in Army HQ.

²⁷⁰ 379 ASER relating to Medication and IV Fluids from 1 April 2019 to 31 March 2020.

²⁷¹ JSP 950 Medical Policy Volume 9, Medicines and Medical Material Management, Chapter 2, Pharmaceutical Policy, Leaflet 9-2-1 Management of Medicines Policy issued December 2015.

²⁷² 16 ASERs during the reporting period.

²⁷³ For example, Boulmer, Chester, Colchester and Culdrose Medical Facilities.

²⁷⁴ Patient Group Directions (PGDs) provide a legal framework that allows some registered health professionals to supply and/or administer specified medicines to a pre-defined group of patients, without them having to see a doctor or nurse prescriber).

difficulties with the current supply systems. There is a lack of clarity within JMG over where the Medical Logistics issues arising within the firm base, overseas, and in the deployed space are coordinated and managed. Linked to this is a resultant lack of oversight of the performance management of partners, such as Team Leidos. The ultimate responsibility for these long-standing medical logistics and equipment issues needs to be clarified, while the multi-factorial nature of issues within medicines management is a risk that DMSR is closely monitoring.

Overseas Healthcare and Force Generation and Preparation

Two issues combine to pose a Medical Services risk to Defence capabilities overseas. The first is the continued reliance on Host Nation medical care, linked to the limited capability to provide assurance of it (see Section 3.7.3). Host Nation care is outwith the DMSR's scope to regulate, but there is scope for standardised assessment of HN facilities, benchmarked against compliance with DMSR Regulations, to enable Commanders to exercise their Duty of Care by assessing the risks posed by Host Nation care more effectively. While some work has been done to define the role of Competent Medical Authorities (CMAs) and Defence Consultant Advisors²⁷⁵ (DCAs) in this regard (most notably in Cyprus), the requirement to properly articulate the medical risk to the respective Commander remains. There is more that can be done to improve the MOD's understanding of the safety of the facilities it uses, whether Host Nation or coalition,²⁷⁶ that will allow a more consistent picture of the residual risks carried by Commanders and better support their decision making. The approach to properly identify and quantify overseas healthcare risks remains inconsistent. The second and associated issue is failure to comply with medical Force Generation (FGen) and Force Preparation (FPrep) requirements for those deploying overseas. This poses a significant risk to both patient safety and operational capability,²⁷⁷ with the potential need to recover unprepared or ill personnel back to the UK or the Permanent Joint Operating Bases (PJOB) and generate and prepare a replacement. While a DIA audit in September 2019 found that clear and accessible controls had been provided for FGen Authorities to undertake their role and there were structured and compliant frameworks in place, it could not find evidence of compliance with these throughout the deployment cycle.²⁷⁸ It noted that the ASER system provided evidence of personnel arriving in Theatre non-compliant with Force Health Protection Instructions and of a reliance on Subject Matter Experts (SME) in Medical Centres undertaking pre-deployment checks to provide accurate records of vaccinations given. All Cmds have reported shortfalls in the FGen process with resultant increase in pressure on deployed medical capabilities and negative impact on operational capabilities.

Summary – LIMITED

Despite the overall assessment of **LIMITED Assurance** for the Medical Services domain, there are signs of improvement in assessment of safety performance, prioritisation of issues and evidence of successful action to address or mitigate them. While the DMSR, through CQC inspections, provides 3PA which is highlighting good levels of care and leadership in MTFs, 2PA by the JMG will remain inadequate until a proper Governance and Assurance capability is in place. This will enable DG DMS to undertake better his role as Defence Authority and Functional Lead for Healthcare, developing both 1PA and 2PA and using the information available through ASER reports and other systems to manage the risks to patient safety posed by shortages of key SQEP, ageing and poorly maintained infrastructure. Risk is also posed by the multitude of change programmes facing the DMS, highlighting the need for effective use of OSAs, and by delays to Programme CORTISONE which prolong the shortfalls of current Med IS. Two new significant safety issues which have been identified in the Medical Services domain, assurance of Medicines Management and Medical Logistics processes and assurance of Host Nation/Coalition healthcare, have pan-Defence implications and significant operational consequences.

²⁷⁵ Defence Consultant Advisors are the senior clinicians for their particular cadre (Orthopaedics, Psychiatry, Anaesthetics etc).

²⁷⁶ For example, patient experience surveys and securing access to existing governance and assurance information for the facilities.

²⁷⁷ For example, a ship deployed to the South Atlantic without carrying out the correct FGen medical checks. As a result, 25 of its crew were out of date for some routine immunisations. To rectify this British Falkland Island Medical Treatment Facility was required to hold a vaccination clinic, depleting the vaccine stock for their registered patients.

²⁷⁸ DIA Report: Healthcare – Pre-deployment checks with Force Health Protection Instructions by Force Generation Authorities – Adequacy of Control Framework – Functional Review. September 2019.

Section 4 – DSA Maturity

4.1 Context

The DSA provides a single independent focus for the regulation, assurance and investigation of Health, Safety & Environmental Protection (HS&EP) in Defence by bringing together the Defence Safety Regulators for seven distinct regulated domains and functions, the Defence Accident Investigation Branch (DAIB), the Defence Safety Policy & Assurance (DSPA) Team and other supporting business units.²⁷⁹ These Defence Regulators and functions have evolved independently alongside their statutory peers²⁸⁰ for many years, in many cases predating the DSA and have developed different approaches and cultures aligned to their regulated domains and functional areas. As the DSA has operational independence from Defence command chains it 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. This report uses the same Defence Internal Audit-derived assessment grades as it does for the regulated domains to assess the maturity of the DSA and its regulators since its formation in 2015. The assessed maturity level of each of the Regulators and the DSA’s overall investigative and policy capability, with indications of changes since last year is summarised in Figure 4-1 and described in the rest of this section. The definition of DSA regulator and/or team maturity associated with each grade is shown at Figure 4-2.

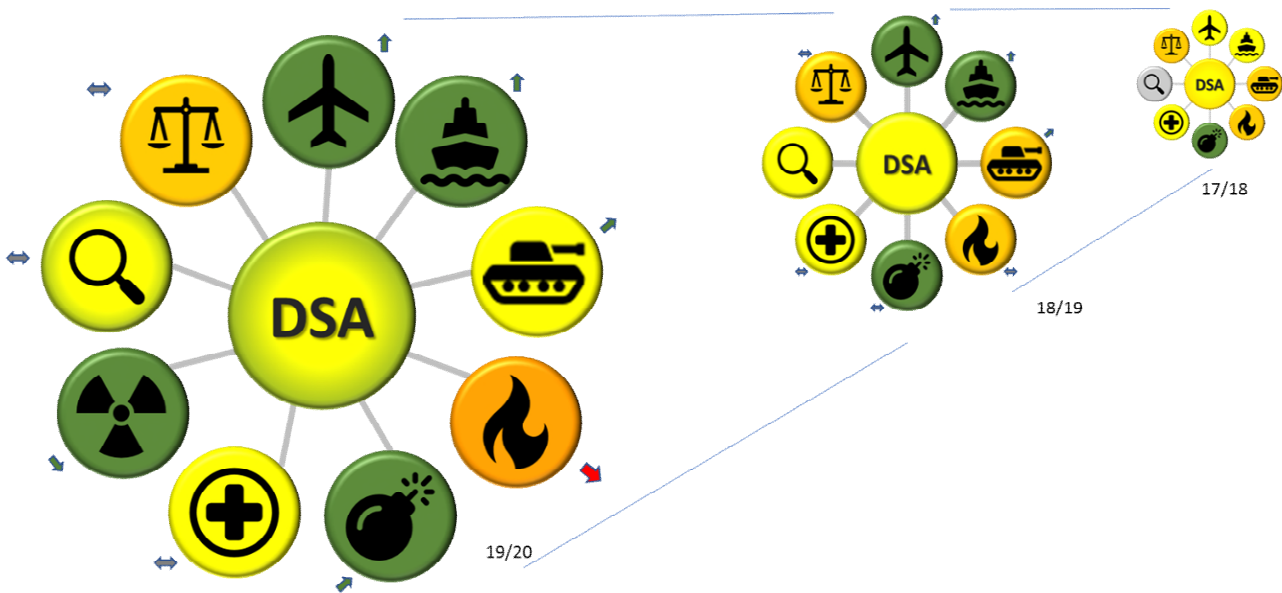


Figure 4-1 – Defence Safety Authority Maturity Assessments 2017/18 to 2019/20.

²⁷⁹ Business Services Team for workforce, finance, facilities and infrastructure, Knowledge and Information Management, security and Occupational Health & Safety and Estates across 3 main DSA sites. Command Support Team for direct support to DG DSA, secretariat, communications, support to Service Inquiries and legal advice.
²⁸⁰ 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.

Regulator Maturity Levels	Definition
Full	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. 3PA delivered is robust across all areas.</i>
Substantial	Regulator has effective regulations and processes but may have minor weaknesses. <i>Sufficient SQEP to deliver all essential regulatory and risk-based assurance functions. 3PA delivered is effective across all areas that are subject to audit.</i>
Limited	Regulator has effective regulations and processes, but may have some major weaknesses/deficiencies. <i>May have SQEP deficiencies which necessitate prioritisation of outputs. 3PA delivered is supportive where audited.</i>
No Assurance	Regulator has ineffective regulations and processes or several major weaknesses. <i>Insufficient SQEP to deliver essential functions. 3PA ineffective and unreliable.</i>

Figure 4-2 – DSA Regulator Maturity Levels.

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 3PA they provide. The assessment covers the maturity of their regulations, use of Risk-based Assurance (RBA), alignment with the principles of the Regulators’ Code,²⁸¹ relationship with their statutory peers, whether they have sufficient SQEP to deliver their full range of roles, ability to discharge those roles effectively and capacity to innovate.²⁸²

4.2 DSA Overall Maturity

Overall, the DSA is assessed at **LIMITED** maturity, albeit with improvement in some areas and overall since last year. Key to setting the path to higher maturity levels was the development and publication of *Setting the Standard*, the DSA Strategic Plan for 2019-2025, in May 2019 to guide the DSA’s detailed objectives and planning for 2019/20 and future years. *Setting the Standard* incorporates the DSA’s actions to address the recommendations from the Head Office HS&EP Governance Review, the DSA External Audit and previous AARs (a number of which are addressed by the activity outlined below), outstanding DSA related PRISM activity, and support the changes to the Defence Operating model.

The underlying framework of the DSA’s Strategy is represented in Figure 4-3 and is:

- The DSA’s **Outcomes** – the impacts on, or consequences for, Defence that the DSA seeks to achieve through the delivery of its ...
- ... **Outputs** of Regulate, Assure, Enforce and Investigate, which is enabled by its ...
- ... **Inputs**, including people, finance, facilities, equipment and systems, all of which is underpinned by ...
- ... **Good governance** and effective and thorough **Analysis and Planning**.
- Improvements to the maturity and performance of the DSA are achieved through the delivery of its **Strategic Objectives**.

²⁸¹ Department for Business Innovation and Skills, *Regulators’ Code*, April 2014.

²⁸² In assessing DAIB and DSPA maturity ‘regulations’ is substituted with ‘policy’.



Our Vision	To achieve this, we seek to:	through delivery of our Core Outputs:	enabled by our:	How we will continue to improve:
Protecting Defence personnel and operational capability through effective and independent HS&EP regulation, assurance, enforcement and investigation	Help prevent loss of life and avoidable harm	Regulate	People	Objective 1 – Develop the DSA’s organisation and people
			Finance	Objective 2 – Improve the DSA’s Safety Regulation set
	Help prevent damage to the environment	Assure	Facilities	Objective 3 – Improve the DSA’s safety assurance and enforcement frameworks
			Equipment	Objective 4 – Develop and improve the DSA’s Safety and Environmental Protection investigative capability
	Support a Just HS&EP Culture	Investigate	Systems	Objective 5 – Develop the DSA’s Environmental Protection regulation, assurance and enforcement frameworks
			underpinned by:	
	Help enhance Defence’s capability and reputation	Good governance	Objective 7 – Support improvements to HS&EP governance across Defence	
			Effective and thorough analysis and planning	

Figure 4-3 – Defence Safety Authority Strategy.

During the past year, the DSA focussed on governance—both its own and supporting the changes to the Department. Importantly, the DSA has:

- Supported the Permanent Secretary and the 4* Defence Safety & Environmental Committee as it seeks to improve the governance and management of HS&EP across Defence and to implement the recommendations of recent reviews including the 2018 External Audit of the DSA²⁸³ and the 2018 Review into MOD Head Office Governance of HS&EP.²⁸⁴
- Contributed to the development of the HS&EP elements of the revised Defence Operating Model and supported Head Office in setting up the Directorate of HS&EP. However, there is still work to do to clarify roles, particularly with regards to assurance.

²⁸³ Rear Admiral (Retd) Dr Chris Parry, *Report and Findings from the 2018 External Audit of the DSA*, published November 2018.

²⁸⁴ MOD, *Review into the MOD Head Office Governance of Health, Safety and Environmental Protection*, published December 2018.

- Assisted with the issue of a new DSA Charter and a new SofS HS&EP Policy Statement.
- Worked with D HS&EP toward a new General Agreement with the HSE and other statutory regulators.
- Begun the process of handing over policy.
- Reviewed and improved its internal governance structure, with two main Steering Groups (Regulator Group and Management Group) reporting to a revised Main Board and supported by individual Working Groups to drive work on the DSA's Strategic Objectives and improve cross-regulatory understanding and cooperation.
- Begun work on the Defence Legislation Support Tool and a review of the provenance of the DSA's regulatory frameworks to identify where regulations are required,²⁸⁵ to review and harmonise the regulations, guidance and instructions issued and to improve regulatory governance.
- Participated in a review of certification approaches across domains.
- Completed co-location of the DAIB to enable improvements to its core multi-modal HS&EP investigative capabilities.
- Improved awareness of EP seeks to understand current arrangement for assurance of EP in Defence, to identify areas where there is a need for DSA EP regulation and to develop the regulations, assurance mechanisms and enforcement frameworks needed to bring the DSA's approach to EP up to the same standards as its Safety work
- Developed plans optimise the DSA's structure to meet current and futures needs while improving recruiting, retention, talent identification and career development for DSA staff

Closure of PRISM. The Programme for Regulation and Investigation of Safety in the MOD (PRISM) was a change programme launched in June 2015 to implement the findings of the Defence Safety Regulatory Review (DSRR). While useful progress was made—specifically the delivery and implementation of the MOD generic Duty Holding policy, the establishment of Defence Accident Investigation Branch (DAIB) and the implementation of the DSA enforcement policy—the changes in the MOD's HS&EP governance meant that PRISM no longer had anything to deliver as a DSA led programme. At its meeting on 4 December 2019 the DSA Executive Board agreed to close PRISM. Any outstanding actions from the DSRR have been incorporated into D HS&EP's Transition Workstreams and the DSA's Strategic Plan 2019-2025, *Setting the Standard*.

4.3 Environmental Protection (EP)

The level of EP assurance currently applied by DSA varies between the regulated domains, but the DSA Strategic Plan now gives clear direction on the requirement to develop the DSA's EP regulation, assurance and enforcement frameworks.²⁸⁶ A baseline exercise has highlighted that there is already much inclusion of EP in current Defence Regulations,²⁸⁷ however EP has not yet been fully included in Regulators' assurance programmes and any EP findings have not been drawn together to provide assurance of Defence compliance with either EP legislation Defence EP regulation. Work is underway to understand what will be required in terms of regulation and assurance activity, how this will be prioritised in relation to existing work and how EP regulation and assurance by the DSA should be managed, whether through the existing Defence Regulators, through joined-up working where areas of relevance span multiple domains or by centralised

²⁸⁵ Whether to regulate areas covered by DEDs, to exercise responsibilities delegated from Statutory Regulators, to enhance safety management of high-risk activities, to cater for areas where no relevant UK legislation exists or UK legislation does not apply (eg overseas) or where asked to do so by Defence through the Defence Safety & Environmental Committee.

²⁸⁶ DSA Strategic Objective 5 – Develop the DSA's Environmental Protection Regulation, Assurance and Enforcement Frameworks.

²⁸⁷ The DMR is the most mature, with EP interwoven throughout all areas of the DMR Shipping Regulations to form an insightful domain baseline. The MAA is the least; EP does not currently feature in MAA surveillance, audit or review activities. The remaining regulators sit somewhere in between, but mostly at the lower edge of maturity, with the exceptions from a few 'pockets' of more developed activities. For example, DOSR assurance for MACR sites has a strong focus on EP through examination of the quality of the Environmental Risk Assessment (ERA), and recently has seen signs of improvement with successful closure of some long-standing enforcement actions. There are long-standing issues with remedial activity required on confirming the capacities of oil-water interface separators (OWIs) on several sites. However, there is no DOSR assurance of EP on Explosives establishments, with explosives disposal being the only activity having reference to not harming the environment. There is only limited independent assurance of EP on Ranges; although an Environmental Impact Assessment (EIA), including damage, waste and acoustics impacts, should be carried out during the initial siting of a range this is not integrated into DOSR assurance activities. Other Defence Regulators are in a similar position.

management. The DSA currently has only very limited EP SQEP, but is focussed on improving this position. There is a SQEP lead for EP, who has a role in developing DSA-wide approach to EP regulation and assurance and a key role in assisting with the development of Defence's approach to EP. This year, the DSA:

- Supported the National Audit Office's (NAO) review of Environmental Sustainability in Defence (September/October 2019), which was published in May 2020, and was followed by an Environmental Audit Committee Hearing in June 2020.
- Continued to provide support to DEFRA's development of UK legislation on the Environment (Principles and Governance) Bill but this has experienced delays and has not yet completed reading in Parliament.
- Routinely reviewed Cabinet Office correspondence requests of which 68% were on EP matters.²⁸⁸
- Supported the establishment of Dir HS&EP through knowledge-sharing on EP.
- Continued to participate in EUDEFNET²⁸⁹ to ensure awareness of upcoming European legislation that could impact Defence activities.²⁹⁰
- Supported the MOD's review of climate change and sustainability as they affect the Defence, which started in February 2020 and should report by the end of the year.²⁹¹

4.4 DSPA

The DSPA's activities in 2019/20 have focussed on structural review of the DSA Charter (and SofS Statement) and their amplification in DSA01.1 and DSA01.2. The core DSPA work to transition the disparate range of safety-related Joint Service Publications (JSPs) into the DSA01 set of high-level safety policies has been suspended. The obsolescent information being reworked was refocused once it was concluded that these policies should transfer to D HS&EP as JSP815 vn4 as recommended by the Head Office HS&EP Governance Review. Work began in early 2020 to start this transfer, beginning with JSP375 transferring to D HS&EP in July/August 2020.

As reported in previous AARs, the DSA HQ has a limited capability to assure the Department's compliance against the full scope of the SofS's HS&EP policies, including corporate Safety & Environmental Management Systems and sampling compliance with legislation governed by statutory regulators.²⁹² Building on the initial phase of baselining TLB Safety and Environmental Management Systems (SEMS) in 2018/19, DSPA planned to audit compliance with the SofS HS&EP policy statement in 2019/20. However, the SofS requested the DSA re-task this resource to review whether the work being undertaken by DE&S and DIO has helped better understand and manage asbestos risks, sufficient to meet statutory requirements. The DSA has begun reviewing DE&S and SDA for the management and mitigation of the health risk from asbestos in equipment; the requirement to audit the DIO will be reviewed in late 2020/early 2021 once the findings of the DSA's first report have been considered.

The DSPA has supported growth of internal DSA governance, coordination and promotion of good practices between regulators. Further policy think-pieces have been produced to assist D HS&EP

²⁸⁸ An increase from 50% last year.

²⁸⁹ The European Defence Network, an informal, expert-led group comprising of environmental focal points and specialists from Ministries of Defence (MODs) of EU Member States. Although no longer an EU member, the UK remains an invited member, as representation is not restricted to EU countries but extends to those wanting to learn/share with other nations. As most new UK EP legislation originates from Europe, it is appropriate for DSA to represent UK MOD in DEFNET, to ensure we are aware of upcoming European legislation that has the potential to impact Defence activities. UK departure from the EU will present new challenges, and UK MOD/DSA is committed to coordinating horizon scanning and influencing revised and new HS&EP legislation.

²⁹⁰ Including a Secretariat Meeting in Stockholm, Sweden (May 2019), combined with the 4th European Conference of Defence and the Environment (ECDE), and a plenary session held in Bucharest, Romania (October 2019) to update on progress with the DSA-managed 'Defence Share' site which enables global information sharing on EP topics between member countries.

²⁹¹ Climate change affects both operational capability and the MOD's efficiency as an organisation. Defence must preserve its primary purpose – to protect the nation – but must also follow Government direction and play a full role in meeting the UK's Net Zero 2050 (NZ50) commitment. To do so it needs to embed sustainability into every part of the Department. The MOD's responses to climate change fall naturally in two parts: Climate Change (the implications of and how to operate in a climate changed world (resilience & adaptation) and Sustainability (how to meet the commitment of reaching the NZ50 target).

²⁹² Such as the Health and Safety Executive, Maritime and Coastguard Agency, Food Standards Agency

and prepare for the policy hand over. The DSA's assurance of general HS&EP policy compliance and of occupational H&S remains limited; with DSPA having **LIMITED** maturity.

4.5 How others see us – Cmd/EO Perception of DSA Maturity

As well as making their own contributions to the compilation of the assurance elements of this AAR Cmds and EOs were offered the opportunity to comment on the maturity and effectiveness of the DSA and its Defence Regulators.²⁹³ Two common themes emerged from the responses. While regulation issued by DSA Regulators is generally understood and seen as necessary and proportionate, there is evidence of inconsistency between Regulators in assurance and enforcement against it. This was particularly noted by those Cmds and EOs engaged with multiple Regulators across the range of their activities. DSA work to harmonise enforcement activity through development of the DSA enforcement framework and Enforcement Management Model will take this into account,²⁹⁴ with consultation as necessary. Several Cmds/EOs also commented on the lack of high-level HS&EP policy and direction, citing inconsistencies between new DSA policy documents and extant JSPs and confusion caused by the use of different formats for policies (and some regulations) across the DSA. The current work to delineate HS&EP policy responsibilities between the DSA and D HS&EP (see Section 4.4 above) and to make the necessary transfers of sponsorship and ownership should help to address lack of direction and inconsistencies while the DSA's own work to improve its Safety Regulation set (including those policies not transferred to D HS&EP) will consider the need for standardisation of formats and terminology and the use of a DSA Style Guide for those writing regulation and policy.²⁹⁵

4.6 DAIB

The Defence Accident and Investigation Branch (DAIB) provides Defence with an independent accident and incident investigation capability. The core function of the DAIB is to investigate safety-related fatalities, injuries, near misses and equipment capability loss. It has historically been configured to cover two key Defence operating domains, namely Air and Land, and has been geographically dislocated across three sites in the south of the UK in Bristol, Andover and Farnborough. Work to collocate the three teams was scheduled for completion in March 2020 with the DAIB moving to a self-contained facility at MOD Boscombe Down. This was completed by 1 April 2020 despite the impact of Covid-19 mitigations.

The DAIB is staffed with experienced personnel professionally trained as air, land and more recently maritime investigators, with a well-established network of scientific, technical and industrial advisors available to provide specialist advice and support. The workforce is a mix of military (Regular & Full Time Reserve Service) and Civil Service, with some having considerable experience. However, both experience and recency are in proportion to the number of safety investigations undertaken and deployment rates, which vary significantly across the domains. In addition, the higher churn rates of the Regular military personnel present challenges in gaining, retaining and re-investing investigative expertise. DAIB continues to engage with the Service workforce agencies to reduce dilution of expertise and maximise return on investment through extended tour lengths and/or subsequent re-employment of qualified personnel within the branch to maintain its overall level of SQEP.

The DAIB continues to respond to Maritime and domain agnostic accidents²⁹⁶ where the most significant capability gaps reside and is delivered by best effort with personnel from the two established Air and Land teams. The next phase in the Branch's development will be to address

²⁹³ Bearing in mind that not all Cmds/EOs have contact with all of the DSA Regulators.

²⁹⁴ Through the Assurance and Enforcement Working Group under Strategic Objective 3 – Improve the DSA's Assurance and Enforcement Framework.

²⁹⁵ Through the Regulation Working Group under Strategic Objective 2 – Improve the DSA's Safety Regulation set.

²⁹⁶ Investigations into matters including sport, medical equipment and asbestos management.

these acknowledged shortfalls and will include reorganising and re-baselining the DAIB's investigative capability.

In parallel, revision of statute regulations²⁹⁷ to align Defence investigations with similar legislative protocols as those conducted by equivalent civilian bodies²⁹⁸ and establishment of Memoranda of Understanding with other investigative organisations continues to be progressed. As a result of these on-going matters the DAIB is assessed as having **LIMITED** maturity.

4.7 Military Aviation Authority (MAA)

The MAA's maturity is **SUBSTANTIAL**, which it reached last year and continues to build on. It continues to engage the Regulated Community (RC) through early exposure, guiding and mentoring, while retaining its position as an independent Regulator. This is a fine balancing act but is proving successful and has been widely welcomed. There is clear evidence, including good progress in closing ENs and CARs, together with a reduction in those issued this year,²⁹⁹ that this approach helps the DAE to proactively address emergent Air Safety issues at an earlier stage. Risk Based Assurance, now fully adopted, and end-to-end (E2E) auditing³⁰⁰ help to identify the issues and provide a coherent, richer Air Safety risk picture across an enterprise. This is fundamental to the efficient and effective conduct of MAA assurance, enabling an appropriate focus for mentoring and guiding. SQEP issues in the MAA have been addressed, with notable success in the Cybersecurity and Artificial Intelligence (AI) fields. However, minor weaknesses remain in areas such as Fast Jet, CAw, CAMO and Defence parachuting.³⁰¹ The MAA continues to work very closely with the CAA, who now attend the MAA's termly Risk Exposure Forums and have reported similar risks in the civil aviation sector. This relationship continues to deepen with both organisations learning from each other, particularly in the emerging technology and capabilities such as space, drones, AI and autonomous vehicles. Similarly, on an international front, through its formal recognition process, the MAA is strengthening its relationship with other national military aviation authorities around the world but in particular across Europe as the UK leaves the EU. The MAA is influential in reinforcing the UK position within NATO and Five-Eyes Air Force Interoperability Council (AFIC) partners, fostering collaboration by leading on several interoperability enhancement initiatives.³⁰² Finally, unlike other DSA Regulators the MAA also provides safety training to its Regulated Community. Its training portfolio has matured over the past 10 years, particularly in training of Aviation Duty Holders.

4.8 Defence Maritime Regulator (DMR)

The DMR's maturity is **SUBSTANTIAL**, also achieved last year and also improving. During the reporting period DMR has continued to evolve with growing maturity and understanding. Its Policy and Legislation section is now up to strength to manage the Regulation set, the legislation compliance programme and register and the MLD/DLST tool. The Analysis & Plans section manages regulatory intelligence and other assurance data using a new analysis and information management tool called POSEIDON which will provide the important additional capability DMR requires to facilitate Risk Based Assurance and more effectively plan corresponding regulatory activity. The Inspectorate consists of 15 posts conducting oversight, audit and assurance activities

²⁹⁷ The Armed Forces Act 2006 and The Armed Forces (Service Inquiries) Regulations 2008.

²⁹⁸ Air Accident Investigation Branch and Maritime Accident Investigation Branch.

²⁹⁹ In line with RBA, coupled with our guiding and mentoring approach, we have seen a reduced volume but improved targeting of CARs, with focused escalation where necessary. This has contributed to a 41% reduction in the time taken for organisations to close CARs. In 2018/19 the MAA issued 783 CARs, taking an average of 72 days to close; we also issued one EN. The MAA issued 444 CARs in 2019/20 but the average time to close them reduced to 51 days; no ENs were issued as 2* engagement delivered the required effect.

³⁰⁰ For example, Hawk T Mk1 E2E Audit report, published 12 Feb 20.

³⁰¹ The Defence Land Safety Regulator assures Joint Service Adventurous Training (JSAT) parachute centres. Currently, there is no resourced Third-Party Assurance activity conducted on following Defence parachuting activities: generation of Force Elements at Readiness, JSAT expedition, parachute display teams, sporting competitions and clubs/associations.

³⁰² For example, establishing pathways to enable cross-servicing and recognition of aeromedical clearances. Cross-servicing would enable a recognised nation's approved organisation to conduct specified servicing tasks on UK platforms, e.g. US Air Force maintenance of a UK C17. Recognition of another nation's aeromedical clearance process would then speed clearance of that aeromedical equipment onto a UK Air System.

across the domain. DMR utilises four organisations as Duly Authorised Organisations (DAO) to support the lean regulator model.³⁰³ Each is held to account by DMR and key representatives of the domain twice a year at the Maritime Authority Council with the outcome and reports shared with the domain. The DMR Regulation Set now has an annual review with full engagement from the RC and the statutory bodies. The latest issue was effective from 1 January 2020 and is stabilising and proving effective in the domain, with welcome, constructive and effective contributions and management from all key stakeholders. The NAG Certification Rules and the Warships in Harbour Rules publications have been reviewed in similar continual improvement programmes, with a controlled step change to certification underway that will deliver through the next cycle of certification strategies. The Defence Shipping Register, first published in 2019, is a regulatory requirement and is aligned to the UK Shipping Register produced by the MCA. The register has been updated as part of the annual review cycle and the DMR and MCA registrars meet formally twice a year as part of the review process. The register records all vessels operating under the red, white or blue ensigns depending on the role and ownership whether in the acquisition, in-service or disposal phases of their life cycles. Interactions with the statutory regulators have continued to be constructive and effective and DMR has maintained complete support from the MCA, HSE and EA for the regulation set, the developed Defence Shipping Register and the direction of travel with legislative compliance. DMR is actively involved with the MCA-led UK Delegation to the International Maritime Organisation (IMO) and is to the fore with the International Naval Safety Authority in developing guidance for environmental compliance with international conventions for Naval Shipping.

4.9 DLSR

The DLSR's maturity remains **LIMITED**, although it continues to improve and three of its four regulatory areas are now assessed as **SUBSTANTIAL** Maturity.³⁰⁴ However, with the wide and increasing variety of activity types that each of the DLSR sections covers with a small number of people they remains fragile with singleton posts meaning that any gapping can have a disproportionate effect on its outputs. While the LSSR has grown,³⁰⁵ it still remains significantly under-resourced for the size and scale of its assurance remit and does not yet possess the capability for land vehicle certification should it be agreed that vehicle certification is to be applied across the Defence Land domain. Options for land vehicle certification, including a certification body in DE&S and an assurance capability in the LSSR,³⁰⁶ are being considered and until these have been resolved and any further increase in the size of the LSSR required has been funded it is unlikely that its maturity will improve.³⁰⁷ The MTSR has revised its regulation set this year to provide more focused guidance.³⁰⁸ The FGSR has been able to effectively discharge its programme of inspections this year against a mature regulation set.³⁰⁹ The ATSR has maintained its strong reputation in the AT community and also reissued its regulation and guidance material this year.³¹⁰ It is currently conducting a limited review of the need for greater regulation and assurance of high-risk, on-duty sports and the results of this may affect its maturity assessment in next year's AAR if there is a need for it to conduct 3PA in these areas.³¹¹ The other areas of DLSR remain at **LIMITED**

³⁰³ The DE&S Naval Authority Group (NAG) and three Navy Cmd organisations: the Defence Diving Standards Team (DDST), which transferred from DMR to Navy Cmd at the start of the reporting period, Captain Port Operations and the Flag Officer Sea Training (FOST) Operational Sea Training Team.

³⁰⁴ MTSR, FGSR and ATSR.

³⁰⁵ From eight to 20 people, mainly in assurance activity.

³⁰⁶ A similar model to that used for certification of maritime platforms by the DE&S Naval Authority Group (NAG) assured by the DMR.

³⁰⁷ This could require as many as 35 more posts in the LSSR.

³⁰⁸ Defence Movements and Transport Regulations are summarised in DSA02 Defence Land Safety Regulator: Policy and Regulations for Health, Safety and Environmental Protection v1.1 issued in April 2019 and supported by DSA03 Adventurous Training Safety Regulator Defence Codes of Practice and Guidance (DCoP) v2 issued in June 2019 and updated in February 2020.

³⁰⁹ Summarised in DSA02 – DLSR Policy and Regulations and supported by DSA 03 DLSR Fuel and Gas Safety and Environmental Regulations and Defence Codes of Practice (DCoP) issued in August 2017.

³¹⁰ In DSA02 – DLSR Policy and Regulations supported by DSA03: Adventurous Training Safety Regulator Defence Codes of Practice and Guidance (DCoP) v2 issued June 2019.

³¹¹ This initial review is considering 4 high-risk sports in which Service personnel participate on duty: Equestrian (Show Jumping and Eventing), Motor Sports (2-Wheel Enduro/Motocross), Winter Sports (Alpine Skiing) and Rugby Union. The winter sports element has been completed and the review of the summer sports will now conclude in Autumn 2021 due to sporting events in 2020 being cancelled as a result of the COVID-19 pandemic.

Maturity and drive the overall assessment. The Land Safety & Environmental Management (LSEM) team binds the four main DLSR regulatory areas into a single and coherent whole, providing policy and assurance support for the Land domain to Cmds and EOs.³¹² The former role is important as the DLSR does not have regulatory responsibilities across the whole of the Land domain and must monitor and understand its boundaries. The latter role is currently changing as D HS&EP and his team take on greater responsibility for Defence-wide HS&EP policy and this is likely to have an impact on the function of the LSEM team. The DLSR HQ team, including the important Analysis and Planning (A&P) team that enables the DLSR to direct its assurance activity effectively, has continued to develop well and the addition of a support post in the HQ has ensured essential support tasks are covered.³¹³ The A&P team has developed some good working practices and assurance intelligence tools and should reach full capability in 2020. The establishment of new Army brigadier post as Head DLSR has been approved, to be filled in December 2020. This will enhance both the credibility and influence of the DLSR across the Land domain and in dealings with Cmd HQs. It will also put it on a more even footing compared to the other major regulators. These changes should all help to advance the DLSR's maturity further, but as with all of the Regulators there is a challenge to recruit and retain specialist SQEP in the face of competition from local Defence contractors and DE&S, which has additional HR freedoms available resulting in a difference in the remuneration package available between DE&S and core MOD staff. Although there is evidence to suggest that the impact of this has not been as significant as it might have been there is no room for complacency as those same freedoms give DE&S greater ability to react to losing staff and increase the package available if required.

4.10 DFSR

The DFSR is considered to be at **LIMITED Maturity** as a Defence Regulator, based on both internal assessment and the results of an external audit that took place this year. During this reporting period, the DFSR fire safety element was externally peer reviewed by South Wales Fire & Rescue Service (SWFRS). This review took the form of an audit of the DFSR's regulatory processes and enforcement activities including the conduct of its RBAs to confirm that these met the nationally recognised NFCC processes for assessing levels of compliance with the legal obligations placed on APs by fire safety legislation. The SWFRS audit reported positively on the DFSR and its recommendations have been incorporated in the DFSR Business Plan for 2020/21. However, the DFSR assurance capability has been constrained this year as the internal recruitment of four new Fire Safety Inspectors, none of whom are yet competent in their new roles, significantly limits its ability to meet its planned fire safety Risk Based Audit (RBA) schedule.³¹⁴ The limited resource available to the DFSR to audit and assure Fire & Rescue activity also restricts the development of regulatory maturity. Staff retention also remains a challenge, as does the age demographic in DFSR, with many key personnel close to retirement, potentially in the next 12 months, which could reduce the workforce by 30%.³¹⁵ Retention and recruitment of fire SQEP is a Defence-wide issue with a national fire safety SQEP shortage across all FLC/EO areas. DFSR is not immune to these pressures and continues to lose experienced staff to a combination of early retirement and more lucrative employment prospects in the private Fire & Rescue sector. However, despite these difficulties the DFSR was able to sustain an increased D2C workload this year and to update and reissue its Regulatory publications in the DSA02 and DSA03 format. The DFSR has also taken action to improve the tracking and progression of its Enforcement Notices. The production of DFSR Standard Operating Procedures (SOP) and Supporting Documents (SDs) has been completed as has the recruitment of a DFSR Business Manager and this is contributing significantly to a more robust internal management system.

³¹² This service has been particularly in demand since the application of COVID-19-related restrictions in March 2020, with an increased need to understand how operations in the Land domain can be continued safely.

³¹³ Information management, communications, workforce returns, financial returns, risk registers, etc

³¹⁴ Accounting for the drop in RBAs from 170 to 122.

³¹⁵ Historically, DFSR has also lost on average two staff per year and this coupled with a depleting internal resource following transfer of Defence Fire & Rescue Service staff to Capita after DFRP creates an imminent risk. While external recruitment is an option, the Defence salary offer is far less than Local Authority fire safety inspectors and now substantially lower than private sector salaries in the post-Grenfell fire safety environment.

4.11 DOSR

The DOSR remains at **SUBSTANTIAL Maturity** as a Defence Regulator, a level it has maintained since the AAR started to assess maturity in 2017, with further improvements during this year and all posts in the team filled. New Defence OME Regulations were issued in June 2019, having been refined with input from the user community.³¹⁶ Feedback from users has been positive, highlighting the improved clarity and usability of the new documents. Work continues to modernise reformat the supporting Defence Codes of Practice (DCoP) for OME.³¹⁷ DOSR is also working with NATO partners through the Conference for National Armaments Directors (CNAD) Ammunition Safety Group to develop NATO standards and explosives safety methodology to improve interoperability. DOSR is developing a proposal for a robust certification scheme for Defence OME to counter the problems seen this year and last with 2PA of OME acquisition in DE&S. Having established an accurate baseline of Explosives Establishments in the MOD, assurance of those establishments is moving to a more proportionate approach to concentrate on those presenting the greatest risks. This has enabled assurance team members to concentrate on specific high-risk areas regulatory review issues rather than travelling a significant distance to inspect a low-risk explosives facility. The DOSR TL, as CIE MOD, is required to regulate all aspects of OME in Defence and has concerns that explosives disposal as an OME activity has not been subject to independent 3PA by DOSR. Engagement has begun with Defence Explosives Ordnance Disposal and Search (DEODS) elements across Defence³¹⁸ to consider what 3PA regulatory activity is appropriate, taking into account existing 2PA arrangements and evidence. Arrangements for assurance activity on overseas ranges have been improved during the year with visits to 2 high-intensity British Army Training Areas at Suffield in Canada and Archers Post in Kenya. Whilst in Kenya, DOSR inspectors also deployed to the Kenyan / Somali border to assist the Joint Counter Terrorist Training Advisory Team (JCTTAT) by inspecting 4 ranges on which UK specialist troops train local forces. Close links continue to be developed between all of the DSA Regulators with responsibility for the regulation of MACR sites,³¹⁹ building on the formation of the MOD MACR Competent Authority (CA) in 2016.³²⁰ The MACR CA is working to align DSA assurance and enforcement activity on MACR establishments to reduce the regulatory burden on these units and coordinate performance measurement. A three-person team has been set up to manage classification of military explosives,³²¹ maintaining approximately 3200 records for storage and transportation of explosives.³²² The accuracy of these records is critical as urgent operational requests for OME for operations can be delayed at the airhead if the paperwork is incorrect. This team has also supported Project HELIOS,³²³ an extensive task completed by 31 March 2020, and developed an electronic request system to deal with all future applications for explosives classification which was in March 2020.

4.12 DMSR

The DMSR's maturity remains **LIMITED** as it has been since its creation in 2017 from the Surgeon General's Inspectorate. There are several vital roles still undertaken by DMSR that should sit within JMG,³²⁴ but continued turbulence and a lack of internal healthcare governance posts in JMG has limited progress with organisational separation of DMSR from JMG and thus with improving DMSR's

³¹⁶ DSA 02 Defence Ordnance, Munitions and Explosives (OME) Regulations, incorporating Defence Ranges Regulations and Defence Major Accident Control Regulations (MACR), v1.1 issued June 2019.

³¹⁷ DSA 03 OME Defence Code of Practice (DCoP) in six parts: Preliminary Pages, Part 1 OME Acquisition (formerly JSP 520), Part 2 In Service and Operational Safety Management of OME (formerly JSP 482), Part 3 Ranges (formerly JSP 403), Part 4 MACR (formerly JSP 498) and Part 5 Military Laser Safety (formerly JSP 390) all issued 18 June 2019.

³¹⁸ Including the Defence Explosive Ordnance Disposal, Munitions and Search School (DEMSS) at Kineton and Bicester

³¹⁹ DOSR, the DLSR FGSR, DFSR and DMSR.

³²⁰ Defence Instruction Notice 2016DIN06-028, The MOD Major Accident Control Regulations Competent Authority (MACR CA).

³²¹ The Secretary of State for Defence is the Competent Authority for Classification of Military Explosives.

³²² Reduced from over 4,000 during this year by data cleansing to withdraw old or out-of-date records.

³²³ The withdrawal of explosives from Dstl Fort Halstead to Dstl Porton Down.

³²⁴ For example, management of the electronic Common Assurance Framework (eCAF) assurance tool and the Automated Significant Event Reporting (ASER), as well as coordination of a review of healthcare assurance in the Devolved Administrations.

maturity. Work continues on the transition plan, which includes further defining and refining DMSR's scope of responsibility. Nevertheless, since 2017 the DMSR has transformed its working practices, broadening its ability to collate evidence from multiple sources, despite a lack of dedicated analytical capability, and use it to develop a more robust and evidence-based assurance picture. Defence healthcare regulations were published in December 2018.³²⁵ This year the DMSR has worked to ensure that these regulations are fit for purpose and to increase awareness and understanding of them across the regulated community. It also undertook a provenance review to improve the known regulation set.

DMSR's delivery of 3PA has been focused on DPHC through a Service Level Agreement (SLA) with the Care Quality Commission (CQC) while providing advice and guidance to other stakeholders with their governance and assurance activities.³²⁶ This year the DMSR undertook an end-to-end review of the CQC inspection process of DMS units, introducing a number of measures to streamline the process. The way in which the data was accessed and interpreted was also refined and improved, providing a single accurate version of the underlying metrics. DMSR now has a robust dataset of 3PA activity that can be data mined in the future.

The Automated Significant Event Reporting (ASER) system, currently maintained by the DMSR for the JMG, remains the primary method used across the DMS for patient safety event reporting and is an important source of assurance data. During this reporting period, DMSR commissioned NHS Education for Scotland to review the system and make recommendations to improve the ability to exploit and understand the patient safety issues being reported.³²⁷ In parallel with this the DMSR has been exploring new ways of presenting patient safety data contained within the ASER system, to improve the ability of all DMS personnel from the clinician in a Medical Facility to those working in Cmd HQs to better understand their own data. DMSR will continue to lead on ASER development for JMG, as well as managing and operating the system until the JMG has the capability to do so. However, the lack of analytical capability with the DMSR is a significant constraint in DMSR's ability to understand the risk picture holistically,³²⁸ and use it to inform risk-based assurance activity.

This reporting period has seen the introduction of the DMSR Safety Review Panel (SRP) which assesses evidence of healthcare regulatory non-compliance and makes recommendations to improve safety for staff and patients through enforcement and corrective. The SRP continues to mature the enforcement process, improving consistency in the way the DMSR uses enforcement action to introduce change and has generated momentum with the regulated community. The DMSR has also significantly improved its liaison with primary healthcare medical facilities following CQC inspections. This new relationship is bedding in well and has presented early evidence demonstrating that staff and patient safety concerns can be addressed quickly, in many cases without the need for enforcement action. DMSR will continue to develop this direct influence approach over the next 12 months. 2020 will see a full review of the end-to-end DMSR post-inspection and enforcement process alongside continued development of Regulator processes to move the DMSR towards SUBSTANTIAL maturity.

4.13 DNSR

DNSR is a well-established regulator which has a robust Regulatory Management System and a competent Technical Support Organisation on long term contract. During the reporting period

³²⁵ DSA02 - Healthcare Regulatory Policy and Healthcare Regulations.

³²⁶ The end of 19/20 represents the end of the third year of the four-year arrangement with the CQC. DMSR staff have been trained in the CQC's inspection methodology to give them a greater understanding of the complexity of the underpinning methodology that CQC uses. This will enable DMSR to maximally exploit CQC's resources and develop its approach to inspection of non-DPHC MTFs. The future approach to inspections is still being developed within DMSR. The intent remains to complete an initial inspection of all DPHC units, moving then onto a maintenance assurance model using a risk-based approach.

³²⁷ The report on this review was due to be published in May 2020, but this has been delayed due to the COVID-19 pandemic.

³²⁸ A particular concern is the large number (231 reports, 12% of the total number received in Q2 and Q3 of 2019/20) of ASER reports that are assessed as Possible, Likely or Almost Certain to reoccur with a Moderate to Catastrophic impact.

DNSR continued the review of the content and format of its regulations and JSPs.³²⁹ A draft regulatory document was produced to consolidate the nuclear safety regulatory requirements for the DNE.³³⁰ This was circulated for stakeholder consultation in early 2019/20, with feedback incorporated in a final version to be published in Spring 2020 alongside an accompanying guidance document. Following publication of these documents the DNSR will review its regulatory model given the significant changes to the organisational construct and top-level governance of the DNE. This review will also take account of joint work with the ONR to review regulatory vires. Phase one (legal interpretation) of this review, which has now been running for over 18 months, should be complete in 2020. This will bring some welcome clarity to current assumptions in some areas of nuclear regulation.

Given an increase in nuclear activity across the life-cycle phases of the DNE, a greater number of crown servants is required by DNSR in order to deliver to SofS the regulatory outputs required by the DSA Charter. The existing shortfalls have been mitigated by the secondment of two senior individuals from ONR and AWE, as well as making full use of partial retirees, graduate placements and development posts during 2019/20. However, both secondments terminated at short notice in early 2020 and 2 of the partial retirees are to fully retire in the first half of 2020. In addition, one (of seven) Principal Inspectors has resigned from the Civil Service leaving a gap which has yet to be filled. This will leave a significant shortfall of 3 posts in DNSR resources (11% of total DNSR headcount) and steps will be taken to address this in 2020/21.

During the reporting period an independent third-party audit was carried out on the DNSR, based on the internationally established good practice set down by the International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service (IRRS). This was the second such review of the DNSR's regulatory framework, with first undertaken during 2013. The review identified that there had been some areas of significant improvement since the last review. In particular, it found that the DNSR's Regulatory Management System had developed well and that the formation of the DSA had provided opportunity for greater cooperation and coordination between the Defence regulators. The review team assessed the DNSR is a mature organisation built on strong foundations. It noted that DNSR team was regulating several strategically significant programmes, including the design and build of DREADNOUGHT Class submarines, with new designs and approaches to construction introducing new regulatory challenges. It welcomed DNSR's intended review of its Authorisation model as indicative of a mature organisation that is seeking to continue to learn and improve. In view of these findings and internal assessments the DNSR's maturity as a Defence Regulator is assessed as **SUBSTANTIAL**, although the resource challenges outlined above may start to put this at risk if post gaps endure.

Summary – LIMITED Maturity

The DSA and its constituent Regulators and teams continue to mature and to provide effective regulation, assurance and investigation of HS&EP in Defence. The expansion of joint work with D HS&EP and the publication of the DSA's own Strategic Plan have enabled a more structured approach to the further development of the DSA, but have also highlighted areas that require more attention, including greater harmonisation of approaches to regulation, assurance and enforcement, development of multi-modal investigative capabilities and greater attention to regulation and assurance of EP in Defence. Further work is also needed to define the respective roles and relationships of the DSA and D HS&EP and to complete the transfer of HS&EP policy from the DSPA to D HS&EP.

³²⁹ JSP 518 Regulation of the Naval Nuclear Propulsion Programme and JSP 538 JSP 538: Regulation of the Nuclear Weapon Programme.

³³⁰ DSA02 Defence Nuclear Safety Regulations, to replace JSP 518 and JSP 538.

Section 5 – Discussion – Overview and Themes

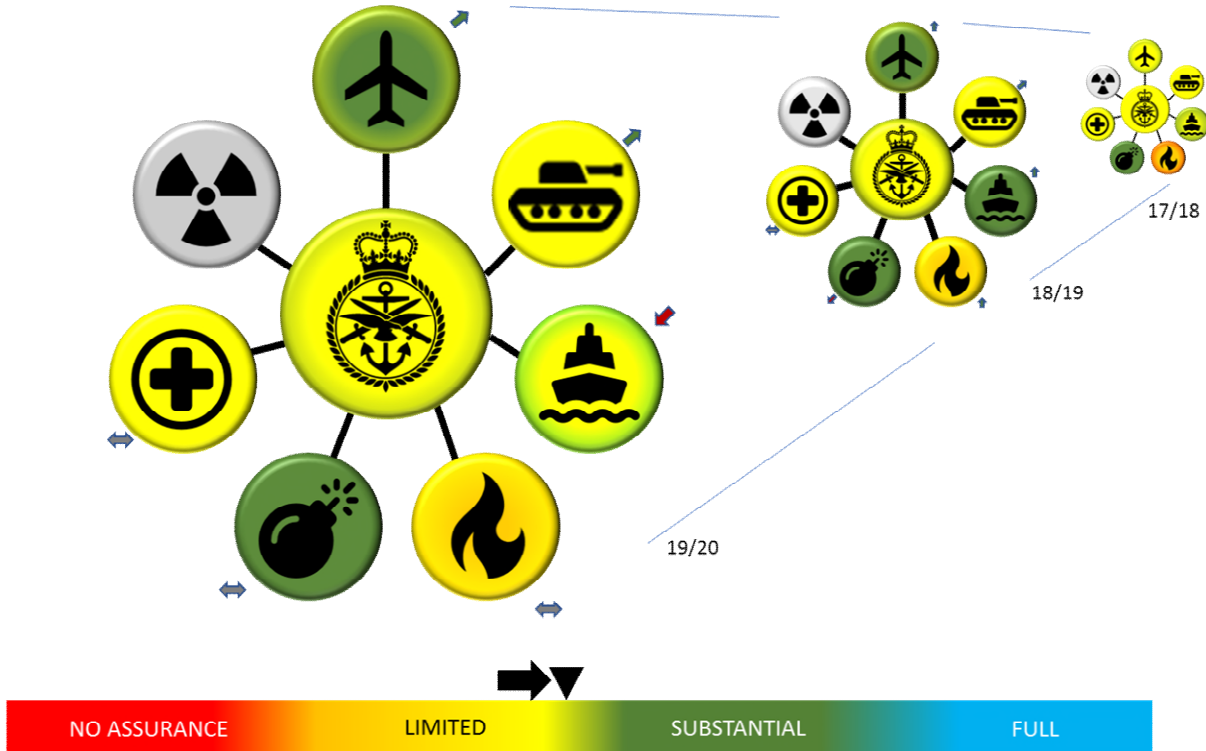


Figure 5-1 – Defence Safety Assurance Assessments 2017/18 to 2019/20.

5.1 Overview

The Defence Regulators' safety assurance assessments of each domain set out in Section 3, supported by submissions from the TLBs and compared with the assessments of the previous two AARs, are summarised in Figure 5-1. The overall assessment for Defence of **LIMITED Safety Assurance** as it was last year and indeed each of the previous years since the formation of the DSA in 2015. However, within these assessments there is evidence of good progress within all of the domains over that period, although this year's assessments illustrate how gains in some areas can be matched by setbacks in others. As the overall maturity and capability of the Defence Safety Regulators assessed in Section 4 has increased, so too can the levels of confidence associated with the 3PA they provide, particularly when considered in conjunction with 2PA self-assessments of the Cmds and EOs as illustrated by the re-baselining of the Maritime domain assessment this year.

Limited Safety Assurance indicates significant weaknesses in control systems, so Defence should understand what these are and consider carefully whether they are acceptable. This should inform the appetite of the SofS and the Defence Board for better safety assurance and,³³¹ in turn, Balance of Investment (BOI) decisions made by Senior Duty Holders (SDHs) and senior risk owners in the Cmds and EOs. In addition to the domain-specific weaknesses highlighted in Section 3 this Section reviews the significant safety threats across Defence and discusses a number of cross-cutting themes that have been raised in a number of domains. In doing so it makes a number of recommendations for consideration by the Defence Board and DSEC and reviews progress made with the recommendations of previous AARs.³³²

5.2 Head Office Governance of Safety

This report has already noted (Section 2.3.1) that the Improvement Notice served by DG DSA on the Permanent Secretary in 2018 for inadequate arrangements for governance and management of HS&EP was lifted in November 2019. In addition to the key points informing the DG's decision to lift

³³¹ Through the governance of the Perm Sec-led DSEC.

³³² MOD, *Defence Safety Authority Annual Assurance Report April 2017 – March 2018*, 26 October 2018, Annex C and MOD, *Defence Safety Authority Annual Assurance Report April 2018 – March 2018*, dated 9 January 2020, Annex C.

the Improvement Notice there is much additional evidence to demonstrate the further good progress being made with improving Head Office governance of HS&EP in Defence. Highlights include:

- The work of the DSEC and D HS&EP have consolidated the governance arrangements established last year. The DSEC met four times during the period covered by this report and is growing in maturity and ability to deal with substantive business, supported by the DSEC Working Group which has now found a better working level as the 3* DSEC Steering Group.
- The appointment of a permanent D HS&EP, who is now building on the foundations laid by his temporary predecessors, growing the HS&EP team and bringing a long-term vision to its work. D HS&EP's initiative, enthusiasm and energy have done much to drive and accelerate the progress being made.
- Progress with the DSEC's 9 workstreams,³³³ supported by the publication of a functional plan endorsed by the DSEC at its out-of-committee meeting in March 2020. The same meeting noted that one of the nine workstreams is complete, two are on track, five have only minor issues which can be resolved internally, and one faces significant issues. The main difficulties lie with the Management Information (MI) workstream, which has identified gaps in Defence's ability to collate timely and accurate MI, with a clear need to develop a Universal Reporting System. The MI workstream and, to a lesser extent, have made limited progress so far, largely due to lack of resource in the HS&EP team.
- The publication of 'How Defence Works', the electronic Defence Operating Model, in January 2020. Although not safety focused itself the Defence Operating Model provides a useful overview of roles, responsibilities and governance of HS&EP in Defence and offers scope to oversee the impact of changes at the higher levels of the Department, as noted in last year's AAR.³³⁴
- The publication of an updated Charter for the DSA and SofS's Policy Statement for HS&EP in Defence on 25 March 2020.³³⁵ These two documents clarify the revised top-level roles and responsibilities (including those of SofS, Perm Sec, DG DSA, and COO) and guide further work on the delineation of policy and assurance responsibilities.
- An increased focus on HS&EP performance and targets the Defence Planning and the Performance and Risk Review (P&RR) processes for Cmds and EOs.
- The establishment of a Joint Health & Safety Committee for interaction with the Trade Unions' safety representatives.³³⁶ TUs (legal employer's responsibility). This has proved particularly useful during the management of COVID-19, with weekly meetings to ensure TU consultation over the measures being applied and agreeing an escalation method for safety concerns during return to work.
- The preparation for publication of a Functional Strategy for the HS&EP function in Defence, complete with Plain English Campaign 'Crystal Mark', to set out how the function will support continuous improvement of HS&EP performance in the MOD, with a focus on safety culture.
- Joint work by D HS&EP and the DSA MTSR, in response to a recommendation in last year's DSA AAR on the need for improved governance and tracking of Land Transport Accidents involving Defence people,³³⁷ to develop a Land Transportation Governance document for Defence based on good practice in the form of the International Oil and Gas Producers Association's (IOGP) globally recognised Road Transport Safety Strategy.

³³³ The nine DSEC workstreams are dealing with: Top-Level Leadership for HS&EP in Defence, Risk, Management Information (MI), Engagement, Delineation of Policy and Assurance Responsibilities, EP Policy Assurance, publication of a Functional Leadership Strategy for HS&EP, Implementation of the Recommendations of the DSA External Audit, Head Office Governance Review and the 2018/19 DSA AAR, and Organisational Design.

³³⁴ MOD, Defence Safety Authority Annual Assurance Report April 2018 – March 2018, dated 9 January 2020, Recommendation 1: Head Office should assure itself that the revised Defence Operating Model and governance arrangements provide sufficient consideration of safety during its oversight of change initiatives.

³³⁵ [Charter for the Defence Safety Authority dated 2 April 2020](#) and [Health, Safety and Environmental Protection In Defence: Policy Statement by the Secretary of State for Defence dated 2 April 2020](#).

³³⁶ As required under both the Health & Safety at Work, etc, Act 1974 and the 1977 Safety Representative Regulations.

³³⁷ MOD, Defence Safety Authority Annual Assurance Report April 2018 – March 2018, dated 9 January 2020, Recommendation 6: The DSEC should elevate the governance and tracking of Land Transport Accidents for all Defence personnel and directly affected third parties to a higher level and consider whether Head Office-led coordination and funding could further reduce fatality rates.

5.3 SEMS Baselineing

The three further reviews of Cmd/EO SEMS that were due to take place in 2019/20³³⁸ were suspended after agreement with D HS&EP that it was more important for the review team to focus on asbestos to assess whether the work being undertaken by DE&S and DIO has helped better understand and manage asbestos risks, sufficient to meet statutory requirements (see Sections 2.1.4 and 4.4). The DSA's SEMS Audit programme will recommence during the 2020/21 reporting year as part of a wider third-party assurance plan to a five-year programme agreed with D HS&EP. This will also specifically include an assessment of the RFCA SEMS, as recommended by the 2019 RFCA Review.³³⁹ Assurance of Cmd/EO SEMS is also provided through the work of the DSEC and as part of quarterly Performance and Risk Reviews managed by Head Office Corporate Effectiveness.

5.4 Leaving the European Union

Last year's AAR outlined the DSA's continued assessment of the potential HS&EP implications of the UK leaving the EU and concluded that for the areas that Defence regulates there was no current need to materially change³⁴⁰ defence safety regulation.³⁴¹ It noted that for safety-related matters regulated by statutory regulators³⁴², Defence would need to amend its processes in the same way as the general public or UK Industry in order to accommodate changes to safety-related UK law which arise from the EU (Withdrawal) Act 2018.³⁴³ Continued monitoring of developments since then has not changed that assessment and Cmds and EOs have taken mitigating action to minimise the potential impact. However, it has identified that the implications of leaving the EU on the safe delivery of healthcare are still to be fully understood. The primary risks include the MOD and Team Leidos for the medical supply chain not being recognised as a sub-set of the NHS for the implementation of contingency plans, risks related to the supply and import/export of pharmaceuticals, the uncertain future of the management and delivery of reciprocal state-provided healthcare arrangements, and cost inflation for services commissioned from Host Nation (HN) public healthcare services. These risks have yet to materialise, but the potential for them to do as the post-transition period plan matures remains and will require vigilance to ensure they are safely addressed.

5.5 Significant Safety Threats

5.5.1 Safety Implications of Change

There is continuing evidence that the potential safety implications of widespread change across Defence are not being well assessed and managed. The domain assessments in Section 3 provide many specific examples, with large scale transformation programmes in all the Cmds adding to the complexity of change created by smaller scale programmes and projects. It is clear that the need for OSAs to enable sound management of safety risks through change is better understood, but examples of the effective use of the tools are rare and the role of the DSA in the process is not well understood. Discussions between the DSA and D HS&EP on the management of safety through change have identified the need for changes to policy on the management of change. D HS&EP is developing proposals for a two-stage process, based on HSE best practice, by which Cmds and

³³⁸ MOD, Defence Safety Authority Annual Assurance Report April 2018 – March 2019, dated 9 January 2020, para 5.5.1.

³³⁹ [MOD, Review of the Reserve Forces' and Cadets' Associations 2019, published 24 March 2020](#), Recommendation 5.5c: complete an independent review of RFCA NDPB SEMS to provide assurance of the suitability and effectiveness of the health and safety management system and procedures in place.

³⁴⁰ There may be administrative changes necessary to refer to the EU (Withdrawal) Act 2018 in lieu of EU Regulation.

³⁴¹ MOD, Defence Safety Authority Annual Assurance Report April 2018 – March 2019, dated 9 January 2020, para 5.2.2.

³⁴² Where Defence does not have a DED, it is required to comply with the applicable UK law and is regulated by the respective statutory regulator (eg Health & Safety Executive, Vehicle & Operator Services Agency, Environment Agency, etc).

³⁴³ And any subsequent secondary legislation. The areas identified for potential change included driving in non-NATO EU countries, changes in reporting from EU-regulated statutory bodies to UK equivalents, contracting of transport services involving EU crew, vessels or vehicles and the delivery of medical services to Defence people and families based in the EU.

EOs would be required to submit OSAs to the DSEC ahead of any major organisational changes,³⁴⁴ with specialist assessment by DSA Regulators where needed. At decision points during these major changes further updates to the DSEC would be required, with the impact of options considered being measured against the original OSA risk assessment, together with a final closing report outlining the impact and the way in which safety has been managed. More minor and domain-specific change programmes would be monitored by DSA Regulators as part of their normal assurance activities.

Recommendation 1 – The DSEC should consider the need for changes to the policy on the use of OSAs and give due attention to D HS&EP’s proposal for a new process to improve management of the impact on safety of change in Defence. (Proposed Lead: D HS&EP)

5.5.2 Insufficient SQEP

Shortages of SQEP and the consequent implications for HS&EP in Defence are also an enduring problem with many complexities, domain and location-specific complications and no easy solutions. There is evidence of improvements in some areas, but in many other highly skilled areas, such as Aviation, Fire, OME and Nuclear, there is little sign of progress and a recognition that Defence’s problems are a reflection of a national shortfall in SQEP in these areas. Last year’s AAR noted increasing evidence that the experience element of SQEP was more difficult to resolve than the qualification aspect and highlighted the retention measures that the Chief of Defence People has made available for Cmds and EOs to use.³⁴⁵ It also proposed that wider use might be made of the workforce freedoms now being used by some Defence EOs³⁴⁶ to tackle SQEP recruiting and retention.³⁴⁷ Evidence this year suggests that these freedoms may not be having as positive an impact as they were designed to and reinforces the difficulty of retaining experience compared to improving qualifications (Section 3.3 Maritime SQEP). It also highlights the importance, in cases where SQEP shortfalls existing, of not only tackling the problem itself but also understanding and managing the consequences of the shortfall in terms of activities not being done, (Sections 3.2 Aviation SQEP and 3.6 OME SQEP) the need for additional supervision, (Sections 3.4 Land SQEP and 3.7 Medical Services SQEP) and the difference between shortage of SQEP and shortage of people (Section 3.4 Land SQEP).

5.5.3 Inadequate Internal Assurance

Poor internal assurance, whether through poor assurance capabilities or failure to make effective use of them, remains an enduring theme through this AAR as it has been in previous years. There is much evidence across many domains of poor internal assurance. In some cases this one of the main driving factors behind the LIMITED assurance assessments and is viewed as among the top threats to safety in the domain. The issues seen lie mainly with 2PA (Cmd/EO level) in some cases there are also problems with 1PA (unit level) and the two are closely linked with any shortfalls in one placing additional burden on the other and undermining overall assurance assessments. Common themes include gapping of internal assurance posts, the limited experience of those in them (see Section 5.5.2 above on SQEP shortages), diversion of assurance teams to other activities and failure to act on their findings. This last theme of failure to make proper use of information available to support safety management is also linked to a related theme of poor management of safety data and limited analytical capabilities discussed further in Section 5.6.1 below. Specific points on internal assurance arrangements highlighted in the domains include:

- In the Aviation domain internal assurance arrangements were found to be good in the smaller (in aviation terms) Cmds, but less so in the larger Cmds and supporting EOs, with

³⁴⁴ Any such proposal would need to ensure that the OSA requirement was aligned with other changes management and planning processes in use across Defence such as P3M, Agile, AJP-5, etc.

³⁴⁵ Recruitment initiatives such as ‘golden handshakes’ and recruitment bounties, financial retention incentives and financial rewards linked to attaining professional qualifications or registration through membership of professional bodies.

³⁴⁶ Largely DE&S, but also Dstl and the UK Hydrographic Office.

³⁴⁷ MOD, Defence Safety Authority Annual Assurance Report April 2018 – March 2019, dated 9 January 2020, Recommendation 2. The Defence Board, through the DSEC, should consider whether some of the remuneration and grading freedoms exercised by the MOD’s external agencies could be used to address the Department’s more difficult SQEP recruitment and retention challenges.

evidence indicating lack of understanding of the span of responsibilities for assurance and poor interaction between the assurance layers. See Section 3.2.3 ADH Internal Assurance.

- There was good evidence of 2PA activity in the Maritime domain, but a failure to use results in a coherent way to support safety management. See Section 3.3.3 Collectively Assessed 2PA.
- Lack of resource for internal assurance activities was a common finding in the Land domain, made worse where one organisation was reliant on another for its assurance arrangements. This is seen to be a particular challenge for UK Strat Cmd, as discussed in Section 5.6.2 below. See Section 3.4.3 2PA.
- In the Fire domain there are signs of improvement in the Cmd HQs of 2PA for Fire Safety, but no evidence of effective 2PA for Fire & Rescue. See Section 3.5.3 Fire Safety Governance and Assurance.
- The LIMITED Assurance assessment for OME acquisition is as a result of the inadequate assurance of the process provided through OSRPs. See Section 3.6.3 2PA.
- There is some evidence of improvements in assurance in the Medical Services domain, albeit from a very low starting level in many cases. Where seen these improvements are leading to a greater awareness of problems, although not yet to concerted action to resolve them. See Section 3.7.3 2PA.

Cmds and EOs need to give serious attention to improving internal assurance, as without it SUBSTANTIAL assurance assessments are very hard to sustain.

Recommendation 2 – The DSEC should consider the need for its members to commit to improving the effectiveness of internal HS&EP assurance activity in their Cmds and EOs and to the coherent use of its outputs to enable better risk management, identification of trends and application of lessons identified. (Proposed Lead: D HS&EP)

5.5.4 Defence Infrastructure and Environmental Protection

The condition of Defence's infrastructure remains a safety concern, as reflected in previous AARs, with most of the Regulators reporting issues with infrastructure and many of the Cmds and EOs also highlighting infrastructure problems among their concerns.³⁴⁸ While Fire Safety, particularly in accommodation areas, has received much attention this year, it is not the only reason for concern over the state and maintenance of infrastructure. Compliance with Fuel and Gas regulations and licensed explosives facilities requirements also require that mandatory building and electrical tests are carried out at the correct periodicity. While there are signs in these areas of improvements compared to last year there is still evidence in some cases that, where sub-contractors have been used to carry out this work, it is not being completed to the required standard with some safety-critical outcomes being incorrectly reported. DIO continues to address the issue with its contractors with the full involvement of all stakeholders. Defence regulators continue to use enforcement action where infrastructure non-compliances are found and, in the case of explosive storage, the appropriate MOD Licensing Authorities have been instructed to withdraw explosives licenses where there is any concern. Issues with the RFCA infrastructure, including questions of ownership and responsibility, have also emerged this year.³⁴⁹ Last year's AAR highlighted the progress being made with the 'huge challenge'³⁵⁰ of Defence Infrastructure through investment in a ten-year programme of work and the ability of Cmds and EOs to prioritise their funding requirements as a result of the Defence Infrastructure Model Review (DIMR), although these initiatives will take time to deliver lasting effect. The Infrastructure Safety Risk and Assurance Review launched in July 2020 by FMC Infra should provide additional assurance of their effectiveness.³⁵¹ In the meantime, the

³⁴⁸ Not only the DIO, but Navy Cmd and Air Cmd, with DE&S reporting Infrastructure as their third highest safety risk.

³⁴⁹ These were also noted in the Health and Safety Section of the 2019 Reserve Forces & Cadets Associations Review. [MOD, Review of the Reserve Forces' and Cadets' Associations 2019, published 24 March 2020](#), Recommendation 5.5a: Clarify roles and responsibilities and legal ownership for 'Head of Establishment' role, identifying who the HoEs are and whether they are actually in a position to discharge their responsibilities.

³⁵⁰ NAO, *Delivering the Defence Estate*, HC782 2016-17, 15 November 2016.

³⁵¹ Commissioned by DCDS(Mil Cap), DG DSA and D HS&EP the purpose of the Infrastructure Safety Risk and Assurance Review is to provide confidence in the effectiveness of the current assurance regime discharged by the DIO, TLB's and independent regulators

development of a Defence JCA (see Sections 3.5.2 and 3.5.3) to mirror the establishment of a Building Safety Regulator within the HSE should help to ensure that all aspects of infrastructure regulatory compliance are considered properly. However, given the attention this is now being given by the HSE thought may need to be given to the need for a Defence Building Safety Regulator which could provide further assurance that Defence has taken the steps necessary to mitigate the fire safety risks of external wall systems (cladding) as required by forthcoming Building Safety legislation. Similarly, the increasing focus on EP, climate change and sustainability in Defence (Section 4.3) suggests that the need for a Defence EP Regulator should also be considered.

Recommendation 3 – The DSEC should review the options for and benefits of formally establishing a Defence Building Safety Regulator and make recommendations to the Defence Board accordingly. (Proposed Lead: FMC Infra)

Recommendation 4 – The DSEC should review the options for and benefits of formally establishing a Defence EP Regulator and make recommendations to the Defence Board accordingly. (Proposed Lead: D HS&EP).

5.6 New Significant Safety Threats

5.6.1 Safety Data Management

Evidence gathered by many of the DSA Regulators indicates that inadequate management and retention of safety information is an emerging significant threat.³⁵² The frequency and spread of examples being seen indicate that the scale of the threat posed to safety management by poor use of information is significant. Examples include:

- The audit of the DG Ships area of DE&S by the DMR identified inadequate management of documentation and highlighted evidence of a Defence-wide challenge in record keeping as a result of the fragility of electronic records in MODNET and SharePoint. An Improvement Notice was raised.
- DMR also reported that one of the exacerbating factors of SQEP shortages in both the Ships area of DE&S and the SDA was the way in poor documentary control and poor reliability of MOD IT systems made it more difficult for inexperienced staff to develop familiarity with the information, such as safety cases and supporting technical documentation, they needed to discharge their safety related responsibilities.
- The MAA's High-Level Audit of DE&S highlighted similar problems, noting widespread difficulties with hard and soft copy data and Air Safety-critical documentation recording, recovery and retention for the regulated timeframe.³⁵³ It concluded that this undermined both the Air System Safety Cases which were underpinned by that data and the risk management decisions which were made based on it.
- The DLSR noted the slow progress of corrective action to remedy failures in provision of safety critical data for some transport systems,³⁵⁴ and cited evidence that many equipment Safety and Environmental Panels (SEPs) were using incomplete and inaccurate data, or that the data they required to support their Safety and Environmental Case was simply not available.
- The DOSR noted similar issues with the provision of information to OSRPs, while the DFSR's concerns about the quality and availability of Fire Risk Assessments indicate that poor management of critical safety data is not limited to the equipment world.

through a baseline review of the processes, roles and responsibilities for infrastructure safety risk management and define the interfaces with environmental protection impacting defence organisations and various levels. DCDS(Mil Cap) to Perm Sec, Infrastructure Safety Risk and Assurance, DCDS(MilCap)20/02/07 dated 27 February 2020.

³⁵² Safety information includes simple data, such as failure rates and occurrence reports, and more complex safety artefacts such as safety cases and supporting evidence including design certificates and reports.

³⁵³ For example, MAA Regulatory Article 5301 Control of Designs requires that Design Records and manufacturing data are maintained throughout the life of a project and for a minimum of 5 years beyond equipment's Out of Service date.

³⁵⁴ Such as dangerous goods Safety Data Sheets (SDS) and equipment Tie-Down Schemes (TDS).

- Emerging findings from the DSPA's audit of DE&S management of Asbestos Containing Material (ACM) highlight the considerable difficulty experienced in establishing baseline information on the presence of ACM, both from DE&S records or those believed to be held by contracted design authorities and original equipment manufacturers (OEMs).

Both analysis of risk and the decisions based on it throughout the life cycles of equipment or activity are called into question if the data and safety artefacts they are based on are incomplete or incorrect as a result of poor management and retention of date. This is reflected in the coverage given to information management in the Cmds' and EOs' own submissions, with those from the EOs in particular highlighting the challenges of information management for safety and citing the need to improve it among their top risks and priorities,³⁵⁵ while the Cmds noted poor information management as an issue affecting the safety and risk decisions being made by their Duty Holders and Risk Owners.³⁵⁶ While this awareness and attention is welcome, this problem is likely to lie beyond the capacity of individual Cmds/EOs to resolve and may require pan-Defence effort in the same way that the DSEC has focused on Management Information in support of safety.³⁵⁷

Recommendation 5 – The DSEC should consider the need for a review of how safety data and associated safety artefacts are retained, managed, safeguarded and used. (Proposed Lead: D HS&EP)

5.6.2 HSE&EP Challenges for UK Strat Cmd

This year's assessments by the Defence Regulators highlight the scale of the HS&EP challenges facing UK Strat Cmd, particularly in their overseas locations. All the common themes discussed here – change, SQEP, assurance and infrastructure – bear particularly hard on Strat Cmd, but in many areas they are reliant on the other Cmds to help them solve their problems, a key factor in the LIMITED Assurance assessments made of them in most domains.³⁵⁸ The legal frameworks they must comply with are complex, with a mixture of Host Nation requirements and Defence regulations in the absence of UK HS&EP legislation,³⁵⁹ and they are often operating a mixture of forces in hostile environments with risks they have inherited from others (see Section 3.6.4 for a discussion of CJO's concerns about transfer of OME risks). The DMSR has highlighted the lack of assurance capabilities in the DMS and the inability to adequately assure Host Nation healthcare and FGen/FPRep carried out by the Cmds supplying deploying forces (Sections 3.7.3 and 3.7.4), but evidence from across the regulators highlights the fragile HS&EP 2PA assurance capabilities of Strat Cmd, especially where they depend on other organisations to provide them with assurance.³⁶⁰ Common factors identified during analysis of the issues raised at PJOBS and other locations include high staff turnover,³⁶¹ many staff in posts holding acting rank,³⁶² as well as the more obvious context of the greater logistic and contractual challenges in locations that are remote and not easily

³⁵⁵ The DE&S Input to the 2019/20 DSA AAR noted that Information Management was a challenge for acquisition safety and identified it as the top risk for DE&S. The DIO 2019/20 HS&EP Report also listed Information Management among the main risks facing the organisation and identified it as one of the three top priorities for attention.

³⁵⁶ Submissions from Air, Army and Navy Cmds all cited information management, including the need for safety reporting systems and data storage and retrieval, as one of the key weakness leading LIMITED assessments of safety assurance.

³⁵⁷ D HS&EP is working to establish a system of consistent, timely, and accurate MOD-wide safety Management Information (MI), with regular presentations to the DSEC and safety MI provided to the MOD's Executive Committee. Activity is already underway to scope a new Defence level Unified Reporting System, although this will require additional funding of up to £40m from FY 2021/22 to make this system long term sustainable and fit for purpose.

³⁵⁸ With the exception of Aviation and OME, where UK Strat Cmd was assessed as SUBSTANTIAL Assurance.

³⁵⁹ The Health and Safety at Work, etc, Act 1974 does not apply beyond UK territorial waters and the HSE has no remit overseas. This leads to an increased role for Defence HS&EP regulation in overseas locations to ensure the necessary 'at least as good as' outcomes are achieved as required by the SofS's HS&EP Policy Statement.

³⁶⁰ UK Strat Cmd are reliant on arrangements with the single-Service IEs for OME assurance. Assurance of UK Strat Cmd maritime operations, and especially the operation of harbour facilities in Cyprus, are an area of focus for the DMR, who are working with CESO Strat Cmd and Captain Port Ops to understand the safety and assurance arrangements required and verify a list of facilities to ensure due diligence and assurance is in place. DOSR and DLSR (FGSR and ATSR) have raised concerns about the explosives, fuel and gas and adventurous training facilities in the Falkland Islands (British Forces South Atlantic Islands (BFSAI)).

³⁶¹ For example, in BFSAI most staff are on 4-6-month tours, with a small cadre in 2-year continuity tours. This can prompt a short-term approach where many of this safety issues require a longer-term action plan.

³⁶² While they may hold the required qualifications, they often lack the level of experience associated with holding substantive higher rank.

accessible. Although there is evidence of improvement in some areas of UK Strat Cmd's understanding of its HS&EP challenges, including recent fruitful discussions between all four Cmds about the differences between operating and operational risks, together with evidence of a growing safety awareness and culture in specialist units, there are still issues with the safety risks posed by ageing infrastructure at the PJOBs, Host Nations facilities, operating conditions and locations and the Cmd's ability to provide adequate assurance of these.

Recommendation 6 – The DSEC should review the safety governance framework and resources available to UK Strat Cmd to ensure that its HS&EP focus and assurance capabilities are appropriately balanced with the operational challenges it faces. (Proposed Lead: D HS&EP)

5.6.3 Certification of Equipment

This and previous AARs have highlighted deficiencies in equipment safety assurance, particularly in the Land and OME domains, and there are differences in the approach to certification across domains.³⁶³ A review is being conducted jointly by the DE&S and the DSA to understand the approaches taken across the regulated domains (particularly Air, Land, Maritime and Weapons). Links between Defence Regulation, key UK statute and international agreements have been mapped and this has highlighted the different approaches to equipment certification by domain outside of the MOD. To maintain alignment with UK and international approaches, a single model for equipment certification within the MOD is unlikely to be appropriate, however there is potential for some rationalisation against a pan-domain set of agreed principles and a reduction in the number of different models. The merits of introducing a certification approach for both Ordnance Munitions and Explosives (OME) and land vehicles is now being further explored through the DSEC.

³⁶³ For example, while the MAA conducts certification of Air Systems itself, the DMR has outsourced this function to the Naval Authority Group in DE&S. There is currently no certification of Land Systems in Defence, although Defence has a disapplication from statutory land vehicle certification through the Vehicle Certification Agency (VCA) under the Road Traffic Act 1988, sections 54/55 as enabled by section 183.

Section 6 – Summary

6.1 Key Findings and Assessments

- There were three safety-related fatalities³⁶⁴ of Defence personnel and three non-MOD civilians died as a result of Defence activity³⁶⁵ between 1 April 2019 and 31 March 2020. (Section 2.1.1)
- Rates of safety related fatalities and the number of training related fatalities have decreased over the last five years. (Section 2.1.1)
- There were 13,896 reported injuries,³⁶⁶ a broadly similar number to last year.³⁶⁷ (Section 2.1.2)
- Minor improvements in safety assurance have been made in the Aviation (Section 3.2.3) and Land (Section 3.4.3) domains, while Fire (Section 3.5.3), Ordnance, Munitions & Explosives (OME) (Section 3.6.3) and Medical Services (Section 3.7.3) have shown no change. The Maritime (Section 3.2.3) domain has shown a reduction in assurance as a result of re-baselining to **LIMITED** agreed between the Regulator and key domain stakeholders.
- Overall safety assurance for Defence has marginally but measurably improved since last year but remains at **LIMITED**.³⁶⁸ (Section 5.1)
- The Aviation and OME domains are assessed by their Regulators as **SUBSTANTIAL** safety assurance overall although some TLBs operating in the domains remain **LIMITED** (Section 6.1).
- Further progress has been made by Head Office with improving the governance and management of HS&EP in Defence through the work of the Defence Safety & Environmental Committee supported by Director HS&EP. As a result, the Improvement Notice served on the Permanent Secretary in 2018 has been lifted. (Section 2.3.1)
- There is evidence of some general improvements in the delivery of 2nd Party Assurance (2PA) and the management of risks posed by a lack of sufficient competent personnel (Section 5.5.2).
- Concerns over the material state of Defence Infrastructure (Section 5.5.4) and the management of change (Section 5.5.3) remain consistent safety themes reported by Regulators.
- Further significant threats to safety assurance in Defence identified in this report include Safety Data Management, the challenges faced by UK Strat Cmd and inconsistencies in the approaches to equipment certification. (Section 5.6)

6.2 TLB Safety Assurance

2019/20

TLB	Aviation	Maritime	Land	Fire	OME	Med Services
Navy Cmd	Substantial	Limited	Limited	Nearing Substantial	Substantial	Substantial
Army	Substantial	Nearing Substantial	Nearing Substantial	Limited	Nearing Full	Substantial
Air Cmd	Nearing Substantial	NA	Nearing Substantial	Substantial	Substantial	Substantial
UK Strat Cmd	Nearing Substantial	Limited	Limited	Limited	Substantial	Limited
DE&S	Substantial	Limited	Nearing Substantial	Limited	Limited	NA
DIO	NA	Substantial	Nearing Substantial	Limited	Nearing Full	NA
SDA	NA	Limited	NA	Limited	Full	NA

³⁶⁴ A soldier killed by an elephant in Malawi during anti-poaching operations, the death of a Royal Fleet Auxiliary seaman during a basic sea survival course off Horsea Island and the drowning of a trainee Royal Marine during amphibious training in Cornwall.

³⁶⁵ Two potential Army recruits died during selection assessments in November 2019. A vehicle maintenance contractor was crushed to death by a vehicle in January 2020.

³⁶⁶ Defence injury and ill-health statistics are published annually in September meaning, for the purposes of the AAR, they lag all other reporting by ~6 months.

³⁶⁷ Against 13,683 reported injuries at this stage in FY17/18. Data quality issues and late reporting may alter the final figure.

³⁶⁸ Using DIA criteria safety is assessed as Full, Substantial (minor weaknesses), Limited (major weaknesses) or No Assurance.

2018/19

TLB	Aviation	Maritime	Land	Fire	OME	Med Services
Navy Cmd	Substantial	Substantial	Limited	Limited	Substantial	Substantial
Army	Substantial	Limited	Limited	Limited	Substantial	Limited
Air Cmd	Nearing Substantial	NA	Nearing Substantial	Nearing Substantial	Substantial	Substantial
JFC	Nearing Substantial	Limited	Limited	Limited	Substantial	Limited
DE&S	Limited	Substantial	Limited	Limited	Limited	NA
DIO	NA	Barely Limited	Limited	Limited	Substantial	NA

2017/18

TLB	Aviation	Maritime	Land	Fire	OME	Med Services
Navy Cmd	Limited	Substantial	Limited	Limited	Substantial	Substantial
Army	Limited	Barely Limited	Limited	Barely Limited	Substantial	Limited
Air Cmd	Limited	NA	Limited	Limited	Nearing Full	Substantial
JFC	Limited	Barely Limited	Barely Limited	Limited	Substantial	Limited
DE&S	Limited	Substantial	Limited	Limited	Substantial	NA
DIO	NA	Barely Limited	Limited	Barely Limited	Full	NA

Key	Full	Nearing Full	Substantial	Nearing Substantial	Limited	Barely Limited	NA
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Figure 6-1 – Defence Safety Assurance Assessments by Organisation 2017/18 to 2019/20.

While this AAR is based on assessments by each regulated domain rather than by TLB, Figure 6.1 presents a synthesis of the assurance levels in each domain as assessed for each of the major Cmds and EOs, showing the change in assessments in this AAR compared to the previous two. I have deliberately not attempted to give an overall assessment for each organisation, as I recognise that this synthesis covers only the domains and activities regulated by the DSA and does not cover the totality of activity managed by organisations SEMS. Each of the Cmds/EOs concerned were invited to contribute to the drafting of this report, and their self-assessments are broadly consistent with the themes raised in this report. In particular Cmds and EOs are consistently focusing on the potential impact on safety of change in their transformation programmes, on the condition of infrastructure and on SQEP shortages, including the associated topics of training and supervision. In addition to the operating risks that have received so much attention in recent years Cmds/EOs are also recognising wider concerns relating to areas such as asbestos, EP, mental health, information management and the importance of SEMS, good Safety Culture and internal assurance in managing all aspects of HS&EP. Several Cmds and EOs have explicitly placed safety targets on themselves in their Command Plans for this year – this is most welcome.

I acknowledge that this is a subjective assessment and is not sensitive enough to accurately reflect the range and nature of movements around the limited to substantial assurance boundary. For next year’s AAR we will explore different ways to express these, for both domain and TLB assurance levels and for Regulator maturity levels. The will include ways to measure the impact of the DSA and its outputs (regulate, assure, investigate) on HS&EP outcomes in Defence, including helping to prevent loss of life and avoidable harm, helping to prevent damage to the environment, supporting a Just HS&EP Culture and enhancing Defence’s capability and reputation.

6.3 Conclusion and Recommendations

In addition to the detailed assessments and themes highlighted in this year's AAR and discussed in earlier Sections, my overall assessment is one of increasing visibility and awareness of the breadth of HS&EP issues and responsibilities across Defence. While progress towards **SUBSTANTIAL Assurance** assessments may seem slow, and is a more distant goal for some areas than others, there is clear evidence that even where performance may appear to be declining or stagnating the problems involved are now better understood and the responsibilities for tackling them are clearer. This is evident at all levels of organisation, right from the top, as last year's focus on the governance of HS&EP in Defence has clearly borne fruit. The DSEC's first full year of operation has provided enough evidence of better governance and active management of issues to enable lifting of the Improvement Notice raised in 2018. The HS&EP Directorate is also starting to find its feet with an ambitious programme of improvement, with notable focus on improving HS&EP management information and performance reporting as routine business for governance. This is important, because although there are signs of improvement in most domains there are still deep-rooted problems that will require collective effort, so the collegiate approach of the DSEC will be key.

Successive DSA AARs have highlighted enduring themes that the DSEC must address to improve on the current **LIMITED Safety Assurance** assessments. Shortage of SQEP is a national problem, exacerbated in Defence by the existence of small cadres of niche skills and hard-won experience. Retention of, and succession planning for, these groups is a particularly tough problem. Both this year's report and last have noted clear but slow progress with improvements to the safety of Defence infrastructure, but maintaining these will require concentrated and enduring focus by both DIO and Cmds/EOs together with consistent funding. Effective internal assurance is vital to attaining **SUBSTANTIAL Safety Assurance** and remains a key and widespread weakness. Effective assurance requires more than just resources: the people and skills need to be used in the right areas with a clear commitment from leadership to take the results of assurance activity seriously and act on them where necessary.

While there is clear evidence that shortfalls in Fire Safety assurance are being tackled, particularly in the management of Fire Safety in SLA and with clear focus from leadership at all levels, new issues are emerging that will require similar attention. Management and use of safety-related information is a particular concern, with clear links to limitations in internal assurance. If we cannot access and make use of all of the information we have about hazards and risks then we can never be sure that we are managing those risks effectively. In the same way inconsistencies in the ways we certify our equipment limits our understanding of how it will behave and potentially exposes those using it to risks they do not understand or are even aware of. UK Strat Cmd faces particular challenges as it tries to manage HS&EP in far-flung locations and unusual operations with limited resources and heavy reliance on other Cmds for key assets and aspects of its assurance capabilities. However, there are also highlights in a number of areas which show what can be done. Of particular note this year are the mature reassessment of assurance levels in the Maritime domain, the attention being given in Air Cmd to integrate Air Safety and 'other' safety through Total Safety management and the renewed focus on, and senior leadership commitment to HS&EP by the Army through the ECAB and the newly-formed Army Safety Centre. Recent work with UK Strat Cmd and others to understand better the nature of operating risks, operational risks and risk of other natures³⁶⁹ that need to be managed on deployed operations provide a further example of how we can work together better to support each other. The DSA remains engaged with this and a number of other cross-domain issues.³⁷⁰

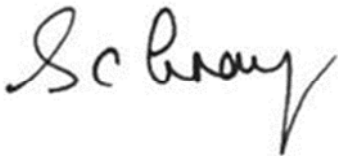
Management of the effects of organisational change on HS&EP remains a concern, although there are encouraging signs of a greater awareness of the need to pay close attention to it during the widespread and far-reaching changes that all Cmds and EOs are undergoing. Defence has responded well to the COVID-19 pandemic, drawing on safety systems and controls developed over

³⁶⁹ Including, but not limited to, risks associated with the deployed locations, the state of infrastructure and the provision of medical cover.

³⁷⁰ Coordinated through the DSA Cross-Boundary Working Group.

time to assess and manage new risks. As a result, the DSA has been able to operate at near-full capacity during this period and to provide the necessary assurance that safety across Defence has not been adversely impacted by either the pandemic or the responses to it. Returning safely to our core Defence Task business and routine training will require more of the same but there is strong evidence emerging of widespread good practice. The reinvigorated Integrated Review and the likely switch in focus to cyber and space capabilities will also bring new safety challenges and it is possible, though less likely, that the end of the EU transition period may present unforeseen difficulties. In addition to these strategic changes of direction Cmds and EOs continue to generate internal changes and novel challenges to good management of HS&EP. We have the tools to manage these challenges, but we need to use them better and the DSA and D HSE&P will look to improve their utility balancing detailed assessment of limited scope changes through Organisational Safety Assessments with more senior focus, through the DSEC where necessary, on major and cross-cutting changes.

Sitting above all of this is a stronger focus on HS&EP at the top of Defence providing the glue to bind our efforts together with the recently published Functional Strategy for the HS&EP function leading the way. With this in mind, my recommendations (discussed in Section 5 and listed at Annex C) are less about tackling immediate problems and more about considering how we can better approach those we are already managing. Now that the DSEC, supported by its Steering Group and the HS&EP Directorate, has found its feet we must make increased use of it to coordinate our collective action on the themes identified in this report, whether enduring or emerging. I closed last year's AAR by reinforcing the need to foster a good Safety Culture across Defence and to encourage just, reporting, learning and questioning as well as flexible behaviours at every level in HS&EP management. Those messages are equally relevant this year and I am increasingly confident they are being heeded.



Air Marshal Sue Gray CB OBE FREng
Director General, Defence Safety Authority

Annex A to DG DSA AAR 2019/20

Safety-Related Inquiries and Investigations April 2019 – March 2020

New and ongoing Defence Safety Service Inquiries: April 2019 – March 2020

21 January 2020	Fatality during an Amphibious Training Exercise, Cornwall. A SI was convened in February 2020 into the circumstances surrounding the death of a Royal Marine recruit during an amphibious training exercise in Cornwall. The SI continues.
17 and 27 November 2019	Two Fatalities at Assessment Centre, Lichfield. A 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 continues.
5 May 2019	Fatality in Malawi. A SI was convened in May 2019 into the circumstances surrounding the death of a soldier who had been injured by an elephant during an anti-poaching patrol in the Liwonde National Park, Malawi. The casualty was evacuated by vehicle but died of his injuries before reaching hospital. The SI continues.
31 January 2019	Jackal Vehicle Accident, Catterick Driver Training Area. A SI had been convened in February 2019 into the circumstances surrounding the death of a soldier following the roll-over of a Jackal High Mobility Tactical Vehicle. The SI continues.
14 November 2018	Diving Fatality, Portland Harbour. A SI had been convened in November 2018 into the circumstances surrounding a death during combat swimmer diving training in Portland Harbour.
26 March 2018	Diving Fatality at the National Diving and Activity Centre (NDAC). A Navy Command led SI had been convened on 26 April 2018 into the circumstances surrounding the death of a soldier during Army Diver training at the NDAC, Chepstow. The SI report was published on 31 July 2019. ³⁷¹
20 March 2018	Hawk T1. A SI had been convened in March 2018 to investigate the crash of a Hawk T1 aircraft (Tail No XX204) from the Royal Air Force Aerobatic Team at RAF Valley that resulted in the death of the rear seat occupant and injury to the flying pilot. The aircraft was damaged beyond economic repair. The SI report was published on 10 October 2019. ³⁷²
31 January 2018	Al Asad Airbase, Iraq. A SI had been convened in February 2018 to investigate the circumstances surrounding the death of an Army Officer who died after being struck by a vehicle in Al Asad Airbase, Al Anbar Province, Iraq. The SI report was published on 4 November 2019. ³⁷³
2 January 2017	Camp Taji. A soldier from 2 LANCS suffered a fatal gunshot wound whilst inside his room in the accommodation block at Camp Taji, Iraq. A SI had been convened in January 2017 but was paused to allow an associated Court Martial to be conducted. The SI report was published on 5 November 2019. ³⁷⁴

³⁷¹ <https://www.gov.uk/government/publications/service-inquiry-into-the-fatal-diving-incident-at-the-national-diving-and-activity-centre>

³⁷² <https://www.gov.uk/government/publications/service-inquiry-into-the-accident-involving-hawk-t-mk1a-xx204-on-20-march-2018>

³⁷³ <https://www.gov.uk/government/publications/service-inquiry-into-the-death-of-a-soldier-in-a-road-traffic-accident-at-al-asad-air-base-iraq-on-31st-january-2018>

³⁷⁴ <https://www.gov.uk/government/publications/service-inquiry-into-the-death-of-a-soldier-from-a-gunshot-wound-at-camp-taji-iraq-on-2-january-2017>

New and ongoing Non-Statutory Inquiries: April 2019 – March 2020

Left-Hand Drive Vehicles. Following a number of road traffic accidents involving Left-Hand Drive vehicles in the preceding 15 months, the DG DSA directed that a Non-Statutory Inquiry (NSI) be conducted into the risks associated with using such vehicles on UK public roads. The NSI continues.

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 and the NSI continues.

Asbestos in Defence equipment. On 5 Feb 2020, as part of work directed by the Secretary of State for Defence to examine the management of asbestos in Defence, the DG DSA directed that a NSI be initiated into why any failings in the management of asbestos in Defence equipment have occurred and to advise on any further steps need to be taken to ensure statutory compliance is maintained hereafter. The NSI continues.

Civilian fatalities involving Defence activity: April 2019 – March 2020

RFA employee at 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 Non-Statutory Inquiry (NSI) be conducted into the incident and the NSI continues as listed above.

**Annex B
to DG DSA AAR 2019/20**

Defence Nuclear Domain Safety Assurance (Limited Distribution)

Issued under separate cover.

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Annex C to DG DSA AAR 2019/20

Report Recommendations

Recommendation 1:	The DSEC should consider the need for changes to the policy on the use of Organisational Safety Assessments (OSA) and give due attention to the Health, Safety & Environmental Protection Director's (D HS&EP) proposal for a new process to improvement management of the impact on safety of change in Defence.	Proposed Lead: D HS&EP
Recommendation 2:	The DSEC should consider the need for its members to commit to improving the effectiveness of internal HS&EP assurance activity in their Cmds and EOs and to coherent use of its outputs to enable better risk management, identification of trends and application of lessons identified.	Proposed Lead: D HS&EP
Recommendation 3:	The DSEC should review the options for and benefits of formally establishing a Defence Building Safety Regulator and make recommendations to the Defence Board accordingly.	Proposed Lead: FMC Infra
Recommendation 4:	The DSEC should review the options for and benefits of formally establishing a Defence Environmental Protection (EP) Regulator and make recommendations to the Defence Board accordingly.	Proposed Lead: D HS&EP
Recommendation 5:	The DSEC should consider the need for a review of how safety data and associated safety artefacts are retained, managed, safeguarded and used.	Proposed Lead: D HS&EP
Recommendation 6:	The DSEC should review the safety governance framework and resources available to UK Strat Cmd to ensure that its HS&EP focus and assurance capabilities are appropriately balanced with the operational challenges it faces. (Proposed Lead: D HS&EP)	Proposed Lead: D HS&EP

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