



Ministry
of Defence



Defence Safety Authority:
Annual Assurance Report
April 2017 – March 2018

Contents

1. **Introduction**
2. **Context**
3. **Domain Assurance**
4. **Regulator Maturity**
5. **Analysis and Recommendations**
 - **Limited Assurance – So What?**
 - **Brexit**
 - **The National Security and Capability Review and the Modernising Defence Programme**
 - **Significant Safety Risks**
 - **Emergent Risks**
 - **What do we have to do?**
 - **As Head Office**
 - **As Top-Level Budget Holders**
 - **As the Defence Safety Authority**
6. **Summary**

Annexes

- A. **Safety-Related Inquiries and Investigations April 2017 – March 2018.**
- B. **Defence Nuclear Domain Assurance - NOTAL.**
- C. **Report Recommendations.**

1. Introduction

The role of the Defence Safety Authority (DSA) and the purpose of this Annual Assurance Report (AAR) is to provide independent assurance to the Secretary of State (SofS) for Defence that his safety policy is being implemented.¹ To achieve this, the DSA undertakes proportional and risk-based safety assurance (RBA), regulation, enforcement and investigation to enhance Defence capability and reputation. Its aim is to help risk owners reduce and ideally prevent loss of life, injury and damage to equipment, operational capability and the environment. This is the fourth Director General (DG) DSA's Annual Assurance Report (AAR) since the formation of the DSA in April 2015 and is the product of ~1500 DSA audits and inspections. It covers in detail the period April 2017 to March 2018, with additional findings to August 2018, to ensure it provides the most up-to-date information when presented to the SofS and taken by the Defence Board.



This is my second AAR since being appointed DG DSA in April 2017. In last year's AAR I baselined safety assurance across Defence's 6 regulated domains (Aviation, Land, Maritime, Ordnance Munitions & Explosives, Fire and Nuclear) so that subsequent reports would be able better to measure the safety performance of the Ministry of Defence (MOD) as a strategic Military Headquarters and Department of State and of its Top-Level Budget Holders (TLBHs). I also submitted a paper to the Defence Safety Committee (DSC) outlining what Limited Assurance meant to the safety of day-to-day activities and risks for which TLBHs were personally accountable, through to the Permanent Secretary (Perm Sec).²

This AAR assesses progress against that baseline, considers the changing environment Defence operates within now and in the future, considers the potential impact of Brexit, the National Security and Capability Review (NSCR) and the Modernising Defence Programme (MDP). It reflects upon the safety events that have occurred; the accidents, fatalities, injuries, incidents, investigations and enforcement action taken. It looks in detail at each of the regulated domains, noting the addition of the Defence Medical Services Regulator at the end of last year, and analyses the systemic and significant factors affecting Defence in delivering its missions safely. It then recommends how and where Defence may choose to focus its efforts and prioritise investment to ensure continuous improvement.

Whilst the DSA can assure the activities it regulates, we still cannot assure compliance against the full scope of the SofS's Health, Safety & Environmental Protection (HS&EP) policy, particularly compliance with legislation governed by non-MOD regulators such as the Health and Safety Executive (HSE). Last year we identified the extent of this shortfall and what we would do to resolve it. Subsequently, as part of DSA restructuring, the DSA Safety Policy and Assurance Team was established to begin providing that missing assurance through the audit of TLBs' Safety and Environmental Management Systems (SEMS), with audits commencing in July this year. This is a promising start, but additional resource will be needed if these audits are to be more than just superficial.

Evidence from the Service Inquiries I have convened and from the 35 incidents the Defence Accident Investigation Branch deployed to during the reporting period, has highlighted a number of themes that I now regard as prevalent accident factors. These are: a failure to follow procedures, a lack of appropriate supervision, the taking of inappropriate levels of risk and a lack of or inadequate leadership. The latter theme on leadership I regard as particularly important as appropriate leadership is essential in

¹ Charter for the Defence Safety Authority, dated 24 March 2015, para 2.

² DSA, *Limited Safety Assurance – So What?*, DSA/DG/DSC/17/15 dated 23 January 2018.

developing and sustaining Safety Culture.³ It is the responsibility of TLBHs to attend to Safety Culture within their respective areas of responsibility. The DSA's role is more advisory however, although not measured formally, I have found the priority afforded by respective TLBHs in seeking to develop appropriate levels of Safety Culture varies across Defence. The message from the evidence is simple – good Safety Culture reduces the risk of accidents and saves lives.

Based on the evidence gathered by my Regulators and submissions made by TLBHs, I assess there to be **LIMITED Safety Assurance**⁴ across Defence, which is unchanged from my assessment last year.⁵ This means that Defence continues to have some significant weaknesses in its safety processes and governance which in turn present a Risk to Life (RtL), risk to operational capability, risk to the environment and risk to the reputation of the Department. Of the 6 significant safety risks I reported and baselined last year, discernible progress has been made in 3 (the impact of organisational change, the provision of sufficient Suitably Qualified and Experienced Personnel (SQEP) and safety assurance in the Maritime and Land⁶ domains) and limited overall progress to the risk of Mid-Air Collision. However, my Regulators have reported little or no evidence of improvement in the material state of the Defence Fuel and Gas Infrastructure and, disappointingly, they report that the management of Fire Safety and associated infrastructure maintenance has worsened. Each of these risks continue to present a significant threat to Defence, with improvements having been individually driven by TLBHs, rather than through any coordination or direction by Head Office.

The lack of coordinated action or direction from Head Office underscores my key finding this year that, whilst TLBs have introduced SEMS⁷ to varying degrees, the MOD as a Military Headquarters and Department of State is not yet able to demonstrate how safety is governed at the very highest levels. This inability to consider and treat some of our most significant safety risks hinders the Department from setting its risk appetite, directing the level of safety assurance TLBs and domains should meet, and from tackling those pan-domain, perennial issues such as SQEP and Defence Infrastructure.⁸ Without an effective method of accountability, there is no incentive for senior risk owners to act, or ambition to strive towards achieving **SUBSTANTIAL Safety Assurance**, the minimum level the DSA believes Defence should accept. It was therefore necessary that I issued the Perm Sec with an Improvement Notice to document this lack of safety governance for the Department.⁹ Subsequently, the inclusion of SEMS as a new Defence Task within Defence Plan 18¹⁰ has been an important first step towards redressing this shortfall. Since then there has also been a notable focus in ensuring Safety is integrated into work being undertaken by the Chief Operating Officer (COO)¹¹ as he develops new governance arrangements as part of the new Defence Operating Model and associated Performance and Risk Review process.

³ I regard Safety Culture as the attitudes, beliefs, perceptions and values that employees share in relation to Safety in their workplace. A Safety Culture combines Just, Reporting, Flexible, Learning and Questioning cultures.

⁴ Defence Internal Audit Classifications: **Full Assurance**: Systems of internal control established and operating effectively, **Substantial Assurance**: system of internal control established and operating effectively with some minor weaknesses; **Limited Assurance**: 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.

⁵ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, dated 31 October 2017, <https://www.gov.uk/government/publications/dsa-annual-assurance-report-april-2016-to-march-2017>.

⁶ Assurance of land-based training and exercise activities conducted by all TLBs and not just the Army.

⁷ A SEMS should describe how an organisation continuously improves its arrangements for managing HS&EP, how it maintains safe work equipment and practices and employs safe systems of work for all personnel, how it identifies and provides safety training, and how performance is measured.

⁸ Although there has been discernible progress in areas, SQEP and Infrastructure issues have featured as a significant risk in every annual MOD safety report since 2005.

⁹ DSA/IN/DSA/HQ/18/1-Perm Sec dated 24 April 2018.

¹⁰ Defence Plan 2018, Defence Task 8.12.3: TLBs, under the lead of the Perm Sec and supported by DG DSA and COO, to *Implement a Safety and Environmental Management System (SEMS) iaw Defence Safety Regulation (DSA01.2, Chapter 2)*.

¹¹ The Perm Sec tasked COO with establishing the top level of safety governance for Defence and has set Terms of Reference of a Review of the Head Office Governance of HS&EP.

As I said in my introduction last year '*there is still much to do*' and my measure of success for the coming year will be the action taken on the recommendations in this report. I appreciate better now the scale and complexity involved in delivering safety to our personnel, through the entire lifecycle of our equipment, through the sustainment of our Defence Estate, through the realism of our training and the employment of our operational capability. Despite the enormity of this challenge it is one Defence must face squarely and overcome as we redefine how Defence operates and modernise our Armed Forces for the threats and conflicts of the 21st century.

A handwritten signature in black ink, appearing to read 'R Felton', with a long horizontal stroke extending to the right.

Lieutenant General Richard Felton CBE
Director General
Defence Safety Authority

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Context

2.1 Operating Environment

The environment within which Defence is required to operate has become considerably more complex over the last 12 months. As the UK prepares to withdraw from the EU, the Government conducted a National Security and Capability Review (NSCR) and the MOD initiated a programme of modernisation.¹² This has added a further layer of uncertainty and change to an existing portfolio of extensive business transformation¹³ and major capability programmes¹⁴, all attempting to deliver within the fiscal challenges of the preceding Annual Budget Cycle (ABC) and the resultant impact these have had on Defence activity levels.¹⁵ When coupled with challenges to our NATO commitments and the prioritisation of finance across Other Government Departments (OGDs), safety across Defence comes under further pressure from the compound effects of change and the risk of planning blight. The impact of these external pressures in the context of Defence safety is discussed in Section 5 (Analysis).

2.2 Safety Performance

2.2.1 Safety Risks to Defence Personnel.

The unique specialist roles, activities and demands at the very heart of Defence expose Defence personnel to a unique mix of risk and rigour. Therefore, when compared to the general public, the risk of injury, ill health and death is elevated in some cases¹⁶ and reduced in others.¹⁷ The causes of these injuries and fatalities are broad and accountability in the MOD ultimately lies with SofS, with the Perm Sec as the Principal Accounting Officer and

¹² Hansard, House of Commons Debate, Volume 635, *Modernising Defence Programme*, 25 January 2018.

¹³ Including the Army Command Review, the Defence Fire and Rescue Project (DFRP) and DE&S Transformation.

¹⁴ Including the Queen Elizabeth Class carrier, Type 26 Global Combat Ship, Astute and Dreadnought submarines, AJAX mechanised infantry vehicle, Sea and Land Ceptor missiles, Lightning II, P8A Poseidon, Wildcat and 5 new aircraft for the Military Flying Training System (MFTS).

¹⁵ As example, JHC cancelled participation in six exercises and the Weapons Tactics Instructors Course in order to remain within assigned budgets.

¹⁶ Realistic training, operational flying, handling and use of firearms and explosives and exposure to enemy action.

¹⁷ The UK Regular Armed Forces are at a statistically significant lower risk of dying compared to the UK general population due in part to the 'healthy worker effect', MOD, *Deaths in the UK Regular*

Departmental lead for Safety¹⁸, supported by the single Service Chiefs and other TLBHs as Senior Duty Holders (SDH).

2.2.2 Safety-Related Fatalities & Injuries.

- **Fatalities.** There have been 5 safety-related fatalities¹⁹ during the period of this report²⁰ which are all subject to Service Inquiries (SI):

Safety-Related Fatalities
14 June 2017 Live Firing Exercise, Castlemartin, Wales Corporals Matthew Hatfield and Darren Neilson RTR
31 January 2018 Overseas Deployment Al Asad Air Base, Iraq Captain Dean Sprouting AGC
20 March 2018 Aircraft accident, Hawk T1, RAF Valley Corporal Jonathan Bayliss RAF
26 March 2018 Diving fatality, National Diving and Activity Centre (NDAC), Chepstow Lance Corporal George Partridge 29 Regt RE

Figure 2-1

- **Injuries.** Defence Statistics provide an annual report on injuries, ill health and deaths involving Defence Personnel and conduct periodic analysis of trends.²¹ In addition to investigating specific incidents, the DSA works with Defence Statistics to understand the underlying issues and trends which drive the safety-related²² aspects of their statistical

Armed Forces: Annual Summary and Trends over Time 1 January 2007 to 31 December 2016, 27 March 2017.

¹⁸ The Perm Sec is nominated as the Departmental lead for safety in the Charter for the Defence Safety Authority, dated 24 March 2015, para 6 and Defence Plan 2018 Defence Task 8.12 to *Ensure the safety of personnel and equipment (including controlling risk to life, health, operational capability and the environment) through the Defence Regulatory Framework, in accordance with the Secretary of State's Health, Safety and Environmental (HSEP) policy (including statutory requirements).*

¹⁹ As determined by a Defence Accident Investigation Branch triage or where a Service Inquiry and/or a coroner/procurator fiscal (Scotland) has subsequently confirmed as safety related.

²⁰ 1 April 2017 to 31 March 2018.

²¹ MOD, *Deaths in the UK Regular Armed Forces: Annual Summary and Trends over Time 1 January 2007 to 31 December 2016*, 27 March 2017.

²² DSA focuses on safety-related deaths, injuries and near-misses.

analysis. The number of injuries reported in 2016/17²³ are at Figure 2-2.

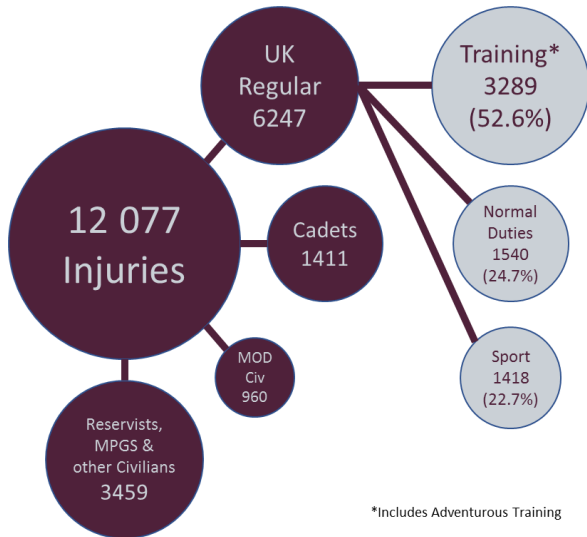


Figure 2-2²⁴

2.2.3 Analysis. The DSA undertook a review of the data sources available²⁵, including analysis conducted by Defence Statistics²⁶ to report on any identifiable relationships or significant trends in safety performance across Defence, focussing on those areas that affect personnel the most.²⁷ The main conclusions drawn from this data were:

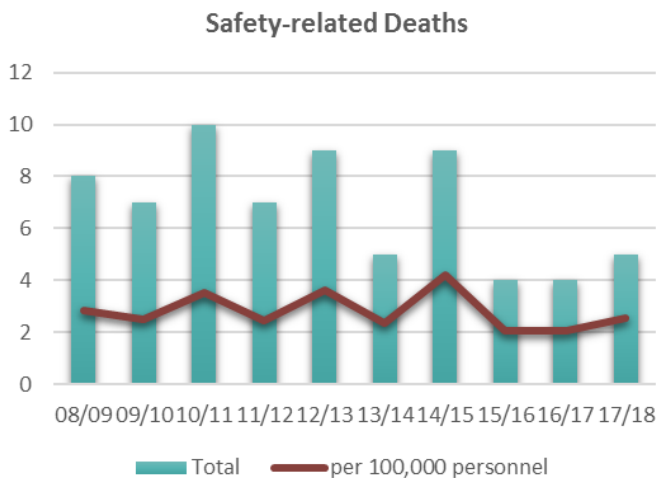


Figure 2-3

²³ The MOD Health and Safety statistics report for 2017/18 by Defence Statistics is scheduled to be published after this report has been finalised.

²⁴ MOD, *MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2012/13 – 2016/17*, 15 February 2018.

²⁵ In conducting this analysis, the DSA has consulted the following data sources: Service Inquiry Reports and Recommendations, MoD and Statutory Regulator Enforcement Action, Air Safety and Navy Safety Information Management Systems, Defence Statistics, RIDDOR, TLB Risk Registers, DSA Annual Assurance Reports and the Armed Forces Compensation Scheme.

- **Safety-related Deaths.** The level of safety-related deaths²⁸ has shown little change (Figure 2-3), although it was recognised that aircraft accidents resulting in multiple deaths add volatility to this rate and when compared to other UK sectors was not significantly better or worse in terms of the associated risk of death (Figure 2-4).

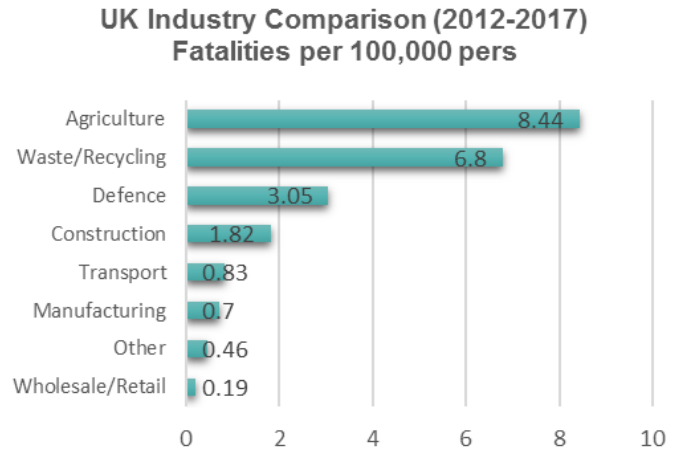


Figure 2-4²⁹

- **Land Transport Accidents.** In 4 of the last 10 years, the UK Regular Armed Forces had been at a significantly increased risk of dying as a result of Land Transport Accidents compared to the UK general population.³⁰ Since 2015, Defence Statistics concluded that *'there was no statistically significant different risk to the UK population'*.³¹ However, Land Transport Accident deaths accounted for 20% of all safety-related deaths in 2017. It emphasises the need for the continued focus of commanders, line managers and the Department as a whole to ensure the risk of such accidents is reduced to as low as reasonably practicable.
- **Injuries.** Defence Statistics reported that the rate of injury and ill-health for UK Armed Forces personnel had *'significantly*

²⁶ MOD, *MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2012/13 – 2016/17*, 15 February 2018.

²⁷ In 2017 the three leading causes of death of Regular Service personnel were Other Accidents (30%), Cancers (22%) and Land Transport Accidents (21%). Source: Defence Statistics.

²⁸ Per 100,000 personnel.

²⁹ Source: HSE, *Fatal injuries arising from accidents at work in Great Britain 2017*, version 1, July 2017.

³⁰ 2009, 2010, 2011 and 2014.

³¹ MOD, *Deaths in the UK Regular Armed Forces: Annual Summary and Trends over Time, 1 January 2008 to 31 December 2017*, 27 March 2018.

increased³² over the last 5 years (Figure 2-5) suggesting this had been driven in part by factors unique to Defence, such as the conclusion of Op HERRICK³³ and transition of Defence activity to more smaller scale operations across a broader range of skills.

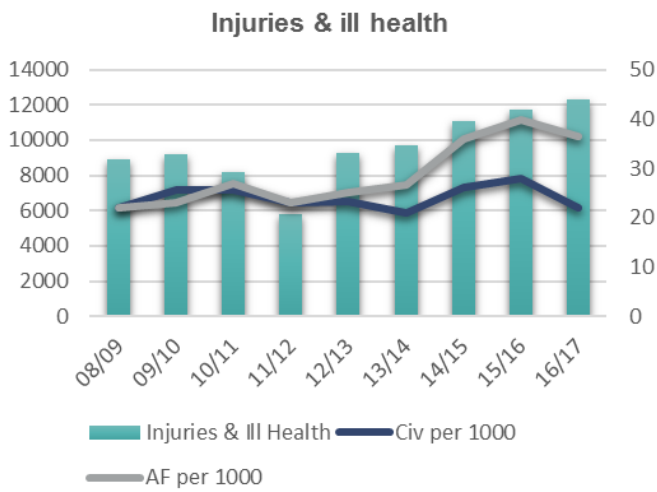


Figure 2-5

The DSA highlighted in last year’s AAR the safety risks associated with Change. The shift in effort, increased breadth of activity and pace after over a decade of focused Counter-Insurgency style operations and dedicated training all adds up to what in effect is major change for Defence. Further analysis would be necessary to verify the causes behind the increased rates of injury, particularly in training and exercise activity. However, based on the nature of change the increase could be attributed to a number of causes such as a shift to less familiar activities where currency, competence and recency have waned, where supervision may be inadequate, where complacency and a ‘failure to follow procedures’ may have crept in and where incident recording may be more rigorous.³⁴ The need for further analysis will be proposed to the Defence Safety

Committee (DSC) following release of the 2017/18 statistics later this year.³⁵

2.3 Defence Service Inquiries and Non-Statutory Service Inquiries.

There are 13 Service Inquiries (SI)³⁶ and 4 Non-Statutory Service Inquiries (NSI) that have reported or are on-going from this reporting period (see Annex A). The Defence Accident Investigation Branch (DAIB) was deployed on 35 occasions to conduct the initial triage of these incidents and has provided specialist support to SIs, NSIs and MOD organisations conducting their own investigations. Whilst this has been a reduction compared to the previous year³⁷ it is recognised that there will always be fluctuations due to the nature of incidents. In terms of location, incidents on Training Areas or Weapons Ranges accounted for ~45% of all incidents attended and reflects where Defence’s more hazardous activities take place.

Further analysis of the incident data shows that in 2017/18, of the 35 incidents attended by the DAIB, the Triage reports³⁸ highlighted that supervision may³⁹ have played a role in the incident in ~55% of occurrences whilst organisational factors⁴⁰ were identified as potential incident factors in ~50% of the time. This is significant as both areas are pertinent across most Defence activity and become critical when managing high-RtL activities. The evidence emphasises the importance of leadership and the role played by Duty Holders and commanders in personally influencing how safely activity is conducted and learning to prevent recurrence.

2.4 Enforcement Action.

The majority of findings during DSA audits or inspections are minor in nature and are dealt with locally through Corrective Action Requirements (CARs) or observations documented in post-audit debriefs and reports. Enforcement action is utilised by statutory⁴¹ and Defence Regulators

³² MOD, *MOD Health and Safety Statistics: Annual Summary & Trends Over Time 2012/13 – 2016/17*, 15 February 2018.

³³ UK combat operations in Afghanistan which concluded on 31 December 2014.

³⁴ It is assumed that injury reporting, particularly for minor injuries, may have been less prevalent from austere operating locations and Forward Operating Bases (FOBs) when compared to Firm Base and well-founded Main Operating Bases (MOBs).

³⁵ Subsequently published on 20 September 2018.

³⁶ 12 DSA-convened SIs and 1 RN-convened SI.

³⁷ 35 DAIB deployments in 2017/18 compared to 48 in 2016/17: Land Domain -10, Air Domain -5, Maritime Domain +2.

³⁸ An initial information gathering report, designed to furnish DG DSA with sufficient information to enable him to determine follow-on investigation requirements.

³⁹ Incident causes can only be confirmed following an investigation and triage reports can only determine likely causes. Of 35 DAIB deployments, 13 resulted in subsequent inquiries.

⁴⁰ This includes the contribution of the Command level on an incident as they allocate resource, set the organisation’s working atmosphere (including Safety Culture) and generate the policy that subordinate units work to.

⁴¹ External regulatory bodies that have the authority to enforce compliance with applicable law and regulation. The MOD as a

only where they find a significant non-compliance or hazard which, if left unaddressed, could impact safety, cause environmental damage or place personnel and operational capability at risk. In the reporting period there was one statutory enforcement notice which was a Crown Censure served on the MOD for a fatal accident aboard HMS BULWARK in June 2014.⁴²

2.4.1 Enforcement by Statutory Regulators.

Whilst there has been a noticeable reduction in Crown enforcement notices over the last 4 years (Figure 2-6), such enforcement is normally reactive in nature and a consequence of an incident, rather than the finding of a routine audit. Therefore, any trend relates more to consequences than the actual level of safety assurance of an organisation. In addition, the necessary duration of statutory investigations generates a natural lag between when incidents occur and when enforcement action is taken. This is particularly the case for the latest Crown Censure, where it was served over 3 years after the incident. On this basis, no statistical parallel can be drawn between Crown Enforcement activity and rates of injury, except for the direct relationship between Crown Censures served on the MOD and the volume of fatalities.

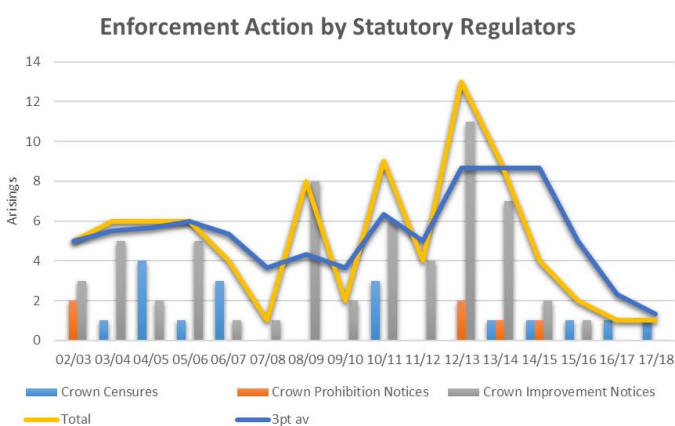


Figure 2-6

2.4.2 Defence Regulatory Enforcement.

Conversely, working with a relatively smaller regulated community to that of its statutory peers, Defence Safety Regulators can take a more

Crown body cannot be prosecuted (except for charges of corporate manslaughter), it can, however, be served improvement notices or be censured.

⁴² A Crown Censure was served on the MOD on 9 February 2018 following the death of Leading Engineering Technician Neal Edmonds who sustained crush injuries inside lift shaft onboard HMS Bulwark on 11 June 2014.

⁴³ Served on 1 Medical Treatment Facility, 2 buildings with deficient fire protection, 2 land and 6 ranges and ordnance storage facilities.

proactive and involved stance. This results in an increased level of enforcement action and contributes to a greater level of assurance. During the period of this report Defence Safety Regulators raised 12 Prohibition Notices⁴³ and 63 Improvement Notices. As at 31 July 2018 there were 72 open enforcement notices⁴⁴ of which 33% had been in place for over 12 months. The majority (41 notices, 57%) covered the Land domain, of which 32 (78%) of those concerned Fuel and Gas Infrastructure.

2.5 DSA Activity

2.5.1 Analysis. The findings of the 2016/17 AAR⁴⁵ and DG DSA's subsequent Intent for 2017/18⁴⁶ were analysed and converted into a 'Single Recognised Safety Picture' of discrete safety-related commitments. This identified 112 unique tasks⁴⁷ grouped into 6 key themes (see Figure 2-6). As expected, few heralded new activity with >95% of these specific tasks already in progress with Regulators and TLBs and now managed as routine business within existing governance meetings.

Single Recognised Safety Picture Themes
Improve the management and governance of safety.
Provide TLBs and the Defence Board ⁴⁸ with better evidence.
Provide TLBs and the Defence Board with better measures for them to determine risk.
Promote safety and environmental awareness, a safety culture and the DSA brand.
Restructure the DSA.
Closer engagement through the DSC.

Figure 2-7

2.5.2 Outputs. Since the previous AAR 20% of the commitments made by the DSA have been delivered and now contribute towards improved safety across Defence; 64% are on track to deliver confidently to schedule; 14% are behind schedule but are expected to deliver; 2% are of significant concern either through a perceived

⁴⁴ 5 Prohibition Notices, 4 Urgent Improvement Notices and 63 Improvement Notices. Source: DSA.

⁴⁵ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017.

⁴⁶ DSA/DG/SofS/1/17 dated 27 September 2017.

⁴⁷ 88 of the tasks were DSA led, 24 tasks were TLB led and DSA supported.

⁴⁸ Or subsidiary boards assigned to manage Departmental safety performance.

lack of progress or commitment by risk owners.⁴⁹ Of specific note, highlights DSA outputs include:

- Conducted 1451 audits and inspections⁵⁰ of Defence activity across all TLBs.
- Rolled out clear and modernised policy and guidance to replace numerous JSPs.⁵¹
- Published policy on the implementation of SEMS for Defence.⁵²
- Facilitated SEMS workshops to provide TLBs with a better understanding of the policy, its assurance and enable dialogue with the regulated communities.⁵³
- Supported SROs in generating effective Organisational Safety Assessments (OSAs).⁵⁴
- Conducted work to determine the potential effect of Brexit on Defence Safety Regulation.
- Held a successful DSA Conference focussing on Leadership in Safety.⁵⁵
- Formed the Defence Medical Services Regulator⁵⁶ at an Initial Operating Capability.
- Written to VCDS with the DSA's view of the state of Defence's FGI.
- Submitted think-pieces to the DSC outlining the implications of **Limited Safety Assurance** across Defence and various Measures of Effect (MoE) which TLBs could utilise to better quantify their performance.
- Conducted a joint audit of the Carrier Enabled Power Projection (CEPP) programme.
- Conducted a review of fire safety of Defence Single Living (SLA) Accommodation.⁵⁷

⁴⁹ These include arresting the decline in fire safety assurance, improving compliance across our Fuel & Gas Infrastructure (FGI) and assuring statutory compliance across non-MOD regulated areas.

⁵⁰ Comprising 191 Aviation, 287 Land, 90 Maritime, 557 OME, 107 Fire, 219 Medical Services audits and inspections.

⁵¹ DSA01 series of policy and guidance intend to replace JSPs 375, 392, 418 & 815 with improved regulation and guidance.

⁵² Policy was promulgated at DSA01.2 Chapter 2, *Organisation and Arrangements; the Defence Safety and Environmental Management System*, December 2017. In addition, a new Defence sub-task was generated within Defence Plan 18 to explicitly track the implementation of effective policy-compliant SEMS by each TLB.

⁵³ The workshop, held at DE&S Abbey Wood on 27 February 2018, was attended by TLB and Defence Executive Agency safety centres and CESOs.

⁵⁴ The Defence Safety Policy and Assurance Team (DSPA) have been providing a consultation service to a number of MOD organisations who are either considering or are undertaking an Organisational Safety Assessment (OSA). To date DSPA have been engaged with over 20 Programmes (including the Defence Infrastructure Model Review and the Defence Fire & Rescue

- Commissioned a focused review into the suicides of Regular Armed Forces personnel.⁵⁸
- Developed the framework policy on the Duty of Care of deployed forces.
- Continued to refine governance for Parachuting and Diving across TLBs through the DSC.
- Continued to deliver the recommendations of PRISM⁵⁹. Of the 140 recommendations 88 (63%) have been implemented⁶⁰, leaving 52 (37%) recommendations which are either in planning or are being reconsidered.⁶¹ PRISM effort is now focussed on completing the transition to BaU and ensuring that the benefits are realised and that new working practices have been embedded.
- Primed an International Defence Safety Conference with SMI Group Ltd for October 2018.

2.5.3 Shortfalls. Of the commitments made, the DSA failed to:

- Commence a programme of assurance assessments of TLB SEMS and compliance with SofS HS&EP policy statements. This had been delayed due to recruitment challenges.
- Generate a strategic oversight of Environmental Protection (EP) issues to outline the scale of the problem, identify potential safety and environmental risks, generate impact assessments and determine possible courses of action. This will be addressed during 2018/19.

Project) assisting them with their OSAs and in the last six months have facilitated 7 OSA workshops.

⁵⁵ Attended by over 200 personnel, the external DSA Safety Conference was held on 16 November 2017 at RMA Sandhurst.

⁵⁶ From the Defence Medical Service Inspector General's Team.

⁵⁷ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFSR/18/001/Report dated 14 August 2018.

⁵⁸ Supported by the Chief of Defence Personnel (CDP) and the Surgeon General (SG). MOD, *Defence Safety Authority Focused Review of Suicides among Armed Forces Personnel – Final Report*, DSA/DMSR_04/Suicide Review dated 14 August 2018.

⁵⁹ PRISM (Programme for Regulation and Investigation of Safety in the MOD) is the Defence Safety Authority's (DSA) change programme initiated to deliver the recommendations from the Defence Safety Regulatory Review (DSRR) comprising 10 reports and 140 recommendations.

⁶⁰ These recommendations have either been met in full or delivered following amendments to align with DSA transition and subsequent regulatory changes.

⁶¹ This includes recommendations that have been proposed to the PRISM Programme Board as no longer relevant.

Safety Assurance

3.1 Scope

Defence is bound by UK 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 Secretary of State's (SofS) Policy Statement for Health, Safety & Environmental Protection (HS&EP).⁶² 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.⁶³ 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.⁶⁴ The DSA is also required to provide independent assurance to the SofS that



Defence is complying with his HS&EP Policy Statement,⁶⁵ and to investigate accidents.

Regulation of Defence Safety is divided into 7 domains and functional areas, each overseen by a Defence Safety Regulator:

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

Each Regulator assures, regulates and enforces against applicable DEDs and for high risk activities where there is no appropriate statutory regulation in their domain or functional area, while the role of assuring compliance with the SofS's HS&EP policy is led by the (nascent) Defence Safety Policy & Assurance Team within DSA HQ.

⁶² MOD, *Health, Safety and Environmental Protection in Defence: Policy Statement by the Secretary of State for Defence*, dated 20 June 2018.

⁶³ 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.

⁶⁴ To produce outcomes that are, so far as reasonably practicable, at least as good as those required by UK legislation. MOD, *HS&EP in Defence*, para 2d.

⁶⁵ Defence Safety Authority Charter, para 2.

3.1.1 Assurance Model. Defence Safety uses a 3 Level Assurance Model:⁶⁶

- **1st Party Assurance (1PA):** Self-assurance (formation/unit/section level)
- **2nd Party Assurance (2PA):** Management oversight (higher command (TLB)/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 TLBs to make an evidence-led assessment of HS&EP performance. This is done by assuring the 2PA and, where necessary, 1PA conducted by TLBs in addition to conducting independent audits and, in certain conditions, by inspection. The DSA does not act on specific HS&EP risks owned and managed by TLBs,⁶⁷ but assures SofS of compliance with his policy. The DSA also assists TLBs by drawing parallels or trends where risks 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 areas⁶⁸ is based on the Regulators’ assurance assessments of each respective Regulated Community, based on evidence collected throughout the reporting year and inputs from TLBs.⁶⁹ Levels of assurance are categorised as: Full, Substantial, Limited or No Assurance.⁷⁰

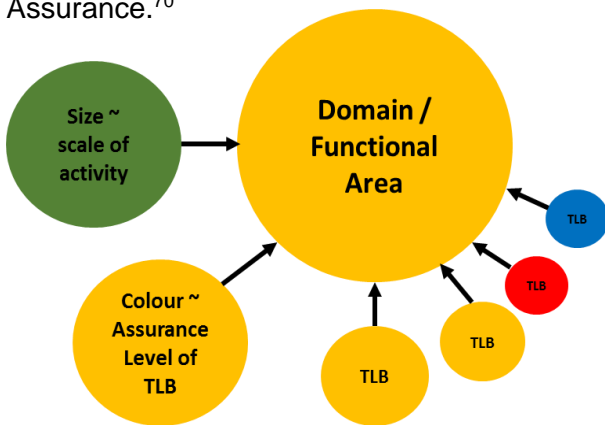


Figure 3-1

⁶⁶ DSA01.1, *Defence Policy for HS&EP, Chapter 5 – Checking and Performance Reporting*, para 3.

⁶⁷ That is the role of the respective TLB and Defence risk board.

⁶⁸ For ease throughout this report the term ‘domain’ equates to ‘domain and functional area’.

⁶⁹ 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.

⁷⁰ Defence Internal Audit definitions of assurance levels, <http://defenceintranet.diif.r.mil.uk/Organisations/Orgs/HOCS/Organisations/Orgs/DFMC/DIA/Pages/Methodology.aspx> which originate from the Chartered Institute of Internal Auditors (<https://www.iaa.org.uk/resources/delivering-internal-audit/delivering-internal-audit-findings>).

Assurance Levels

Full:	System of internal 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 3-2

For each domain this report provides a clear statement of regulatory assurance for the domain as a whole and the regulatory assurance of each TLB operating in the domain,⁷¹ the report for the Nuclear domain is at Annex B.⁷² This is graphically represented in the format of Figure 3-1, showing relative levels of activity by those TLBs active in the domain, and an assessment of assurance is given for each.

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 including, where appropriate, examples of Acceptable Means of Compliance (AMC).⁷³ 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.

⁷¹ Each TLB operates across many regulated domains and functional areas.

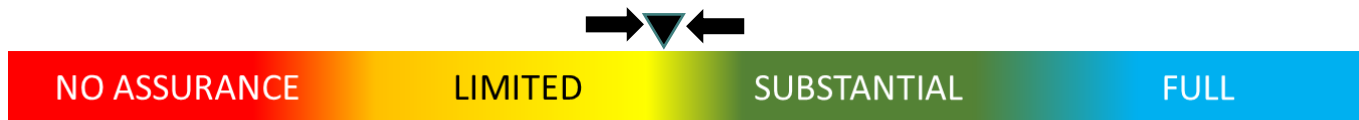
⁷² Protectively marked SECRET.

⁷³ It is the role of the DSA to suggest the ‘ends’, allowing TLBs the freedoms to exploit the ‘ways’ and ‘means’.

Aviation

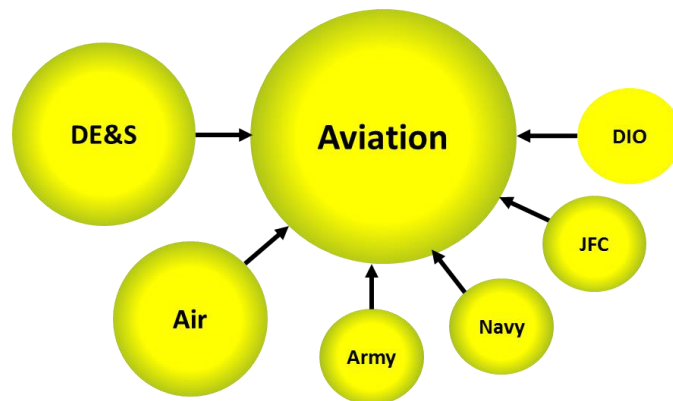
3.2 Assurance Level

Limited Assurance - little material change.



3.2.1 Scope. Defence has an almost total exemption from the United Kingdom's Air Navigation Order⁷⁴ requiring it to regulate all Defence aviation activity. This is conducted by the Military Aviation Authority (MAA).⁷⁵ All 3 Services and JFC operate in the Aviation Domain with significant support from DIO⁷⁶, DE&S⁷⁷ and, through them, Industry which is also subject to regulation and assurance by the MAA.

3.2.2 Regulator Activity. During the reporting period the MAA conducted 191 audits, reviewed/issued 133 organisation approvals⁷⁸ and provided assurance to 9 flying displays. This activity covered Industry approved organisations, the 4 Front Line Commands and Defence Equipment & Support (DE&S). Industry approved schemes had by far the greater number of audits (130) followed by the RAF (44), Army (6), Navy (5) and DE&S (6). Applying a risk-based approach, Industry was subject to high levels of audit because they have comparatively less Duty Holder (DH) assurance when compared to military-led aviation. Air Comd had the next level of focus as they operate the majority of air platforms, operating locations and comprise 4 of Defence's 6 Aviation Operating Duty Holders (ODHs).



3.2.3 Findings. There has been little material change in the overall level of safety assurance of Defence aviation over the previous 12 months.

- **2PA.** ODHs across all TLBs have made progress in establishing formal 2PA frameworks. However, it is evident from our audits that these are fragile and only partially effective in providing this (most) essential layer of assurance.⁷⁹ A possible manifestation of ineffective 1PA and 2PA is where personnel Fail to Follow Procedures (F2FP),⁸⁰ which has now become the largest single causal factor for accidents and incidents identified during subsequent investigations.⁸¹

⁷⁴ Civil Aviation Authority Publication 393 (CAP 393), 'The Air Navigation Order 2016 (ANO) and Regulations', Article 22, 25 August 2016.

⁷⁵ The safety regulator for military aviation within the DSA.

⁷⁶ Defence Infrastructure Organisation.

⁷⁷ Defence Equipment & Support, a bespoke trading entity and arm's length body of the MOD.

⁷⁸ Under its Regulatory Articles, the MAA operates approvals schemes for companies who wish to undertake the design, maintenance, test or operation of UK military air vehicles.

⁷⁹ The Regulator identified during the audit of a number of units examples including: a lack of an effective and integrated Quality Management System, ineffective continuing airworthiness, ineffective 1PA, 2PA and 3PA, and a loss of positive safety culture.

⁸⁰ Failure to Follow Procedures (F2FP). Instances where users fail to follow or comply with published procedures or SOPs either through ignorance, intent (for personal or organisational gain) or procedures being unachievable. Further analysis of the causal factors of F2FP is being undertaken by the MAA.

⁸¹ Service Inquiry and Occurrence Safety Investigation reports.

- **Infrastructure.** The deteriorating fabric of our infrastructure continues to threaten the preservation of air safety, with poor working conditions and unreliable building services putting stress on our people and in some cases requiring them to operate differently or deviate from the norm.⁸²
- **SQEP.** The recruitment and retention of sufficient SQEP continues to cause manning fragility across the Aviation domain and exacerbates the ineffective delivery of 2PA.⁸³ Mitigation from converting key roles to Full Time Reserve Service (FTRS)⁸⁴ has seen limited success, as in many cases the FTRS 'offer' is not attractive enough.⁸⁵ However, there has been encouraging progress in a number of initiatives through the Defence Engineering Champion Team (DECT).⁸⁶ These work-strands commence with STEM⁸⁷ engagement in schools, so will take time to deliver to the front-line.⁸⁸ There has also been a notable reduction in overall flying activity⁸⁹ which has the potential to reduce levels of currency, competency and recency.
- **Change.** Military aviation is in the midst of a period of major change with the introduction of at least 8 new platforms⁹⁰ and further changes within the Military Flying Training System (MFTS).⁹¹ Aviation DHs have demonstrated an improved understanding of the safety risks of Change through the increased usage and appreciation of the added value of effective mandated Organisational Safety Assessments (OSAs). However, the rate of improvement is not universal across TLBs, with a trend of OSAs

commencing late in the change programme and being under-resourced.⁹²

- **Mid Air Collision (MAC).** Overall this strategic risk appears unchanged, with an overall reducing rate of AIRPROX and the progress of the Typhoon Enhanced Collision Avoidance System balanced by reports of increasing fatigue among Air Traffic and Air Battlespace Management personnel and increasing instances of AIRPROX with drones in predominantly built-up areas. The RAF-led strategy regarding Drone MAC Safety has made some promising inroads, but acknowledges that further work is needed in determining where the risk of MAC with Drones is more likely. With increasing awareness by DHs of these risks, the MAA has been able to assure the effectiveness of DHs' safety processes in action, observing risks being identified and managed at the correct level.

Summary - LIMITED

Safety culture established and functioning. There are many positive examples of safety systems being owned and managed effectively, with DHs instinctively trading output to maintain safety. However, 2PA weaknesses appear more prevalent than previous years, with evidence growing that across all TLBs resource for assurance is not being afforded an appropriate level of manning priority. Considering the lack of material change in the previous 12 months and the major weaknesses in 2PA and SQEP, Aviation in Defence continues to have LIMITED ASSURANCE.

⁸² At RNAS Culdrose there were periods of no heating or hot water in the accommodation site during winter, at Culdrose and Yeovilton there were leaking hangars, inadequate bird protection, a lack of preventative maintenance in respray and wash facilities resulting in frequent and unnecessary down periods. At RAF Lossiemouth the ATC Tower failed its fire inspection due to a lack of fire doors or external escape route. TLBs have reported to the MOD through their Quarterly Performance Review the corrosive effect this has on morale and may threaten the maintenance of safe engineering standards.

⁸³ Recognised shortages in Air Safety staff across all TLBs, RAF and REME aircraft engineers, Qualified Helicopter Instructors, Air Traffic Controllers and Air Battlespace Managers.

⁸⁴ Retention of SQEP through the use of FTRS: ex-regular personnel on fixed term appointments (circa 5 years) with limited or no operational deployment liability.

⁸⁵ The MAA reported that uptake was poor, with demand now likely outstripping supply.

⁸⁶ Initiatives span the phases of **Attract, Recruit, Train, Develop, Retain and Transition.**

⁸⁷ Science, Technology, Engineering and Mathematics.

⁸⁸ The introduction of an engineering skill champion for Defence was seen as a positive measure and an example of good practice. NAO, *Ensuring sufficient skilled military personnel*, 13 April 2018 Appendix 3.

⁸⁹ The Regulator has written out to Operational Duty Holders highlighting risks associated with reductions in activity levels and incident (DASOR) reporting.

⁹⁰ Lightning II, P8A Poseidon, Wildcat, and 5 new aircraft for the Military Flying Training System (Prefect T1, Phenom 100, T-6 Texan II, Juno HT1 and Jupiter HT1). Chinook and Apache Capability Sustainment Programmes (CSP) will also see changes.

⁹¹ The transfer of the former Defence Helicopter Flying School to the new Rotary Wing Aircraft Service Provision.

⁹² DSA01.1, *Defence Policy for Health, Safety and Environmental Protection*, v1.0, August 2016 sets the requirement to conduct an OSA 'at the proposal stage and, prior to any implementation of change in an organisation, the person requiring the proposed organisational change is to conduct an Organisational Safety Assessment of the impact on existing safety baseline, HS&EP risks and performance'.

Land

3.3 Assurance Level

Limited Assurance - little observable change.

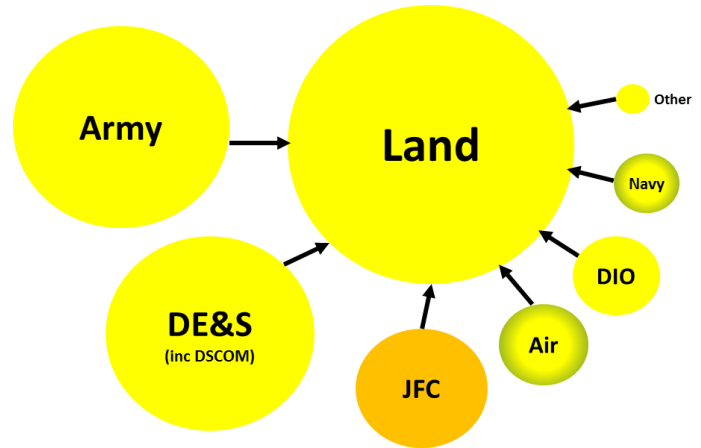


3.3.1 Scope. The Land domain has the broadest span of statutory regulation of all the domains or functional areas.⁹³ The majority of activity is therefore regulated by the UK's statutory regulators and not Defence,⁹⁴ Consequently, a high proportion of safety-related incidents and injuries occur outside of Defence regulated areas (see Annex A). The Defence Land Safety Regulator (DLSR) regulates against DEDs and high-risk activities in 4 areas:

- Fixed Fuel and Liquid Petroleum Gas (LPG) Infrastructure.
- Land Systems Acquisition, Maintenance/Inspection and Disposal.
- Movement and Transport activity across all modes, including the carriage of dangerous goods.
- Adventurous Training Centres.

Almost all TLBs operate in some aspect of the Land Domain with significant acquisition and support from DE&S and infrastructure maintenance and management by the DIO.

3.3.2 Regulator Activity. During the reporting period the DLSR conducted 287 audits and inspections consisting of 163 Fuel & Gas Infrastructure (FGI), 85 Movement & Transport, 24 Land Systems and 15 Adventurous Training Centres. Whilst this represents a slight reduction in activity from the previous year (~10%),



generated by a brief operational pause during restructuring of the Movement & Transport Safety Regulator; the breadth of inspection and audit of TLBs was unchanged.

3.3.3 Findings. Evidence shows little observable change to the overall level of **Limited Safety Assurance** in the Land Domain.⁹⁵ However, the Army and DE&S have demonstrated an improved understanding of safety risks and progress towards establishing an effective Duty Holding framework.⁹⁶ With evidence of clear senior leader commitment to safety, the DSA has seen a growing positive safety culture at the core of land operations⁹⁷, with the Army leading these improvements.⁹⁸ However, a mature state where risk owners instinctively trade output for safety is still some way off.⁹⁹ While the DIO has made initial progress in better understanding and improving FGI compliance, there is concern over sustaining this momentum as responsibility and funding of infrastructure reverts to the 'operating'

⁹³ Examples such as the Health & Safety at Work Act 1974, Road Traffic Act 1988, the Carriage of Dangerous Goods by Road Regulations 1996, et al.

⁹⁴ 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).

⁹⁵ Land Systems (LIMITED), Movement & Transport (LIMITED), Fuel & Gas (LIMITED), Adventurous Training (SUBSTANTIAL).

⁹⁶ Observations from the Army Safety Committee and the CESO(Army)'s Annual Assurance Report to the Chief of the General Staff.

⁹⁷ DG DSA and wider DSA visit observations.

⁹⁸ Other TLBs operating in the Land domain have yet to match the progress shown by the Army.

⁹⁹ DLSR issued 13 Enforcement Notices against FGI installations which were being operated by staff with inadequate training.

TLBs.¹⁰⁰ Assurance inspections and licensing of Defence's Adventurous Training Centres was successfully conducted, with evidence to support a **Substantial Safety Assurance** assessment.

- **SQEP.** SQEP remains a general concern in the Land domain. This year, FGSR¹⁰¹ assurance activity has continued to identify occasions of a lack of competent staff managing and operating fuel installations.¹⁰² Similarly, the inspections of AT Centres and Movement & Transport activities highlighted weaknesses in training and supervision. It was therefore evident that some key activities which depend on SQEP have, in the main been deficient, but have continued through best endeavours. The outcome has been an increase in DLSR intervention¹⁰³ which, having not been detected by higher formations, illustrates inherent weaknesses in 1PA and 2PA and a concomitant impact on supervision, currency and competence.
- **2PA and Risk Management.** With 2PA across the Land domain being a significant concern raised in last year's AAR, all TLBs have subsequently reviewed their Duty Holding policies to focus on a smaller number of high risk activities. The better targeted appointing and training of responsible personnel has been key to instilling the required 'risk aware, not risk averse' safety culture.¹⁰⁴ This has put the foundations in place to build better 1PA and 2PA in the future.¹⁰⁵ However, at present 2PA across the Land Domain is still inconsistent in its application and lacks quality and effectiveness across all of its regulated community.¹⁰⁶
- **Change.** Recognition of the need and benefits of Organisational Safety Assessments (OSAs) to consider safety

during change programmes has improved considerably in the Land Domain. Whilst the practice is not yet intuitive, the Regulator has seen evidence of progress across all TLBs.¹⁰⁷ The overall pace of change across the Land Domain has continued this year, albeit there has been a slight lull as focus turned towards establishing and informing the MDP.

- **Land Systems Safety Case Management.** For the past 2 years, there has been good progress as the Army (as Lead Command for most Land systems) began taking greater ownership of Safety Cases (SCs). In terms of SC signatures, the proportion that are co-signed by both DE&S and the Capability Sponsor¹⁰⁸ within review date was promising at >90%. This momentum had however stalled over the past 18 months as SC owners looked to gain a better understanding of the critical role played by SCs and the need for quality and accuracy in their production.¹⁰⁹ This has now been



previously been formalised through inter-Command Plan dependencies. In JFC Command Plan 18 dependencies have been established for single Service assurance in some, but not all areas.

¹⁰⁷ Examples included agreement for the Defence Fuels Enterprise programme to include a safety baseline within their Concept Phase (an important first step of an OSA) and DCGS has tasked the Army Inspector to action some of the key safety issues identified during the Army Command Review OSA.

¹⁰⁸ In the Army safety model (LFSO 3216), the Capability Sponsor signs the SC on behalf of the User/Duty Holder.

¹⁰⁹ The recent MAN SV Crashworthiness Report and follow up discussions highlighted areas where the SC management, including the competence of the staff undertaking the function, required improvement.

¹⁰⁰ The Defence Infrastructure Model Review (DIMR) disaggregated infrastructure funding to TLBs from 1 April 2018.

¹⁰¹ Fuel and Gas Safety Regulator, part of the DLSR.

¹⁰² 13 Enforcement Notices issued for installations being operated by staff with inadequate training.

¹⁰³ 26% of Movement & Transport audit interventions were for inadequate supervision and control and 30% of AT audit interventions were related to staff competence and training.

¹⁰⁴ Army Command Standing Order (ACSO) No 3216 (Organization and Arrangements for the Management of S&EP), 1st edn.

¹⁰⁵ Army Insp's report noted that these changes have yet to be fully embedded, with the cultural change among units and functional proponents required still to be fully embedded.

¹⁰⁶ Of note, JFC's reliance upon single Service assurance to provide 2PA, particularly for high risk and niche units had not

resolved, with the ownership and direction of SCs having now been established for Land Systems (Director Capability) and promulgated within the Army Command Plan.¹¹⁰

- **FGI.** The state of Defence FGI remains a significant strategic safety risk for Defence. The condition of infrastructure observed by the Regulator has not shown any significant improvement during the reporting period. Although Enforcement Action (EA) has slightly reduced since last year,¹¹¹ it still commands significantly more EA than any other activity in the Land Domain. A significant amount of work has been conducted this year by DIO and the TLBs to generate a costed plan within ABC18 to move UK fuel infrastructure from a position of managed decline to one which is more proactive, sustainable and legally compliant. The scale of this task aligned with available capacity suggests a timeline of some 5-10 years to achieve.¹¹²



- **Arduous Training.** The HSE Intervention into Initial (Phase 1) Training¹¹³ has concluded its inspection phase, with support from DLSR. The scope of the intervention was widened to include Phase 2 & 3 Training at the Infantry Battle School, Brecon, to give the HSE an opportunity to view some more arduous training elements that are not included in Phase 1. While no formal report has yet been produced, the HSE has presented to stakeholders from all

3 Services, stating their view that both Phase 1 and Phase 2 training activities are considered to be managed well and safely. Concerns have been raised over the practicality of the more recent changes to heat injury prevention policy¹¹⁴ in certain operational areas as they have the potential to constrain certain activities¹¹⁵. These points have been raised with HQ SG (the owner of JSP 539) and are under review.

Summary – LIMITED

Progress continues towards a progressive and self-sustaining safety culture. Work to establish sustainable levels of SQEP and robust internal assurance is still required across the Land domain for all regulated activity, as available evidence in these areas remains weak. However, the DSA has observed examples of best/good practice within each TLB which could be exploited by others. The challenge now lies in achieving consistency within and across TLBs in the Land domain.

For Land to progress beyond LIMITED safety assurance it will require the concerted effort of all who operate in the domain, particularly in the regulated areas demonstrating major weaknesses. This would include improvements in supervision and the provision of SQEP across movements and transportation and, now that the ownership in the Army TLB of the management has been resolved, the generation and maintenance of Land Systems Safety Cases to demonstrate Land equipment is safe to operate. More notably, FGI will remain as one of the greater strategic safety and environmental risks held by the Department until there is a sustained reduction in non-compliances. The successful implementation of the funded plan and its equivalent for overseas infrastructure will be a critical enabler towards this. Considering that some major weaknesses remain, activities in the Land domain have LIMITED ASSURANCE.

¹¹⁰ Director Capability (D Cap) is the nominated lead for Army land system Safety Cases in ACSO 3216, 1st edn, Chap 4, para 21.

¹¹¹ Failure rates (% of inspections resulting in a formal enforcement notice) reduced from 11.2% to 10.2% for fuel infrastructure; however, overseas sites reported a 22% failure rate and took 40% longer to resolve than for UK sites.

¹¹² A similar ABC19 Option is being proposed for the overseas fuel infrastructure.

¹¹³ The HSE intervention was initiated following publication of HCDC, *Beyond Endurance? Military exercises and the duty of*

care, dated 5 July 2016 to provide the HSE with assurance that recommendations on the MOD from previous interventions had been adequately addressed.

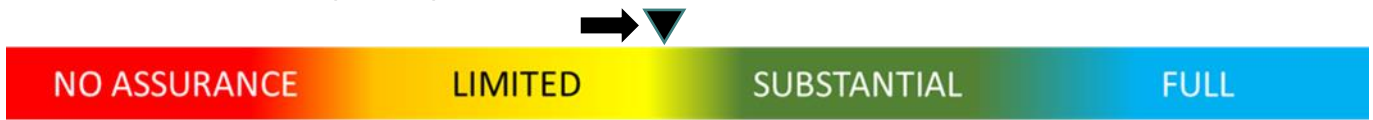
¹¹⁴ JSP 539, *Heat Illness and Cold Injury: Prevention and Management*, v3.0 dated May 17.

¹¹⁵ In some hot/humid locations (eg Brunei), it is not possible to conduct a 2-hour MATT 2 Annual Fitness Test (AFT) in daylight without the Wet Globe Bulb Temperature (WGBT) limit of 25°C being breached.

Maritime

3.4 Assurance Level

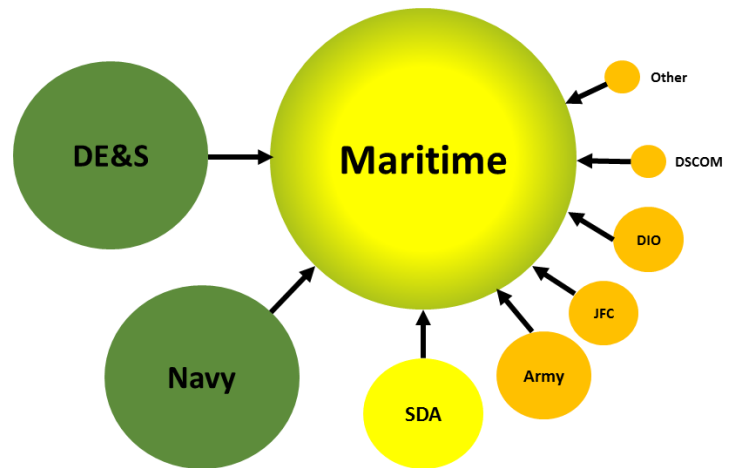
Limited Assurance – improved position.



3.4.1 Scope. Defence has over 250 DEDs from the numerous Acts, Charters and international treaties which govern 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,¹¹⁶ MOD Ports at home and overseas¹¹⁷ and MOD Diving,¹¹⁸ regulating Military and Defence Diving against some disapplications from the Diving at Work Regulations. 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).

3.4.2 Regulator Activity. During the reporting period the DMR conducted 90 audits comprising:

- 1 TLB/SDH¹¹⁹ level audit of Navy Comd.
- 3 ODH¹²⁰ (or equivalent) audits with Navy Comd, DE&S and the Submarine Delivery Agency (SDA).¹²¹
- 86 Diving audits across Navy Comd, Army, DE&S and DIO.



In addition, the DMR engaged with Director General Nuclear (DG Nuc) on the formation of the SDA alongside the new Defence Nuclear Organisation (DNO).¹²²

3.4.3 Findings. Our evidence shows an improved position across the Maritime domain which has been driven by considerable progress by Navy Comd¹²³ and DE&S.¹²⁴ However, this has not been matched by other TLBs operating in the Maritime domain, particularly in the poor generation and quality of their 2PA.¹²⁵ Overall assurance is **Limited**, though it is **Substantial** in some areas.

- **SQEP.** There is evidence of a significantly improving position as initiatives to generate

¹¹⁶ Royal Navy, Royal Fleet Auxiliary, MOD Chartered, Army and Adventurous Training.

¹¹⁷ Ports and harbours protected under the Dockyard Ports Regulation Act 1865.

¹¹⁸ Military, MOD Commercial and AT Diving of which military diving has some disapplications within the Diving at Work Regulations 1997.

¹¹⁹ The Senior Duty Holder in Navy Command is the First Sea Lord (1SL)

¹²⁰ Operational Duty Holders are normally OF7/SCS2 appointees, reporting to their Senior Duty Holder.

¹²¹ The newly formed Submarine Delivery Agency is an Executive Agency of the MOD responsible for the procurement, in-service support and disposal of the UK’s submarines.

¹²² The DNO supports DG Nuc’s role as the single point of accountability for the Defence Nuclear Enterprise, managing the

Defence Nuclear portfolio, advising on UK nuclear policy and planning, and on international cooperation on nuclear matters. It engages in scientific research, delivery of nuclear warheads, procurement of submarines, provision of specialised infrastructure, and disposal, as well as sustaining specialist skills, conducting assurance and emergency response arrangements.

¹²³ Clear senior leadership engagement through pursuit of the Maritime Safety Strategy which was developed from the Royal Navy’s Independent Maritime Safety Reviews and their underpinning SEMS (BRd9147).

¹²⁴ Improved documentation and hazard analysis by DE&S through Project SALUS, whose aim is to improve safety information underpinning ‘as designed’ Rtl safety arguments to achieve full assurance of the DE&S safety management regime.

¹²⁵ As an example, the Army was unable to provide the Regulator with evidence of 2PA of Army small boats.

and sustain SQEP begin to deliver.¹²⁶ This trend is expected to continue in the main, but with critical deficiencies remaining in niche areas.¹²⁷ Proactive management by TLBs and the establishment of internal reviews to identify safety critical posts has allowed Accountable Persons, Duty Holders and Platform Authorities to capture clearly their issues. Manpower rebalancing across ODH and DH¹²⁸ structures have enabled TLBs to exert more positive control in maintaining adequate SQEP and focus of their efforts more effectively.

- **2PA.** The Maritime community has recognised that the breadth and quality of 2PA had previously been lacking within their respective AORs. With growing evidence of routine 2PA taking place across Navy Comd and DE&S, Platform ODHs are now better able to understand the health of their platforms, through combining their 2PA with the Operating Safety Statement Report (OSSR) process. Whilst 2PA activity has been building, there remains evidence of a lack of subsequent analysis of the findings of these audits. This constrains the overall effectiveness of the assurance model by not allowing these important findings to contribute to an overall risk picture, which then drives subsequent assurance activity.¹²⁹
- **Change.** The levels of organisational, equipment and capability changes remain high. The Regulator has observed throughout the maritime domain an increased recognition of the benefits of properly developed OSAs. The OSA underpinning the establishment of the Submarine Delivery Agency and concerning Diving governance have grown into mature and effective examples of good practice.
- **Regulatory Compliance.** There has been notable difficulty in Delivery Teams being able to demonstrate regulatory compliance for new Maritime projects.¹³⁰ This stems from an apparent misunderstanding across DE&S and Industry regarding applicable

regulations for new ships, which vary depending on their status and where they sit on the CADMID cycle.¹³¹ In particular, during development of a vessel there may be a stage where it is operated under civilian maritime regulations (Red Ensign), in public service (Blue Ensign) or as a Royal Navy vessel (White Ensign). The range of applicable regulation and required evidence varies depending on this status. However, corporate knowledge has weakened, exposing projects to a complex compliance challenge and risk to certification and illustrates the impact of reduction in SQEP in niche environments.

- **Emergent Environmental Legislation.** An emerging compliance risk is the steadily increasing volume of environmental legislation that will impact MOD Shipping in the future. For example, from 1 January 2020 there will be legislation to decrease SO₂ emissions by setting limits for sulphur in fuel oil.¹³² Whilst disapplications are already in place, MOD Shipping must consider the possibility that the fuels used today may no longer be widely available and that requirements within Emission Control Areas may become more stringent.¹³³

Summary - LIMITED

The Maritime domain is in an improved position driven by considerable activity by Navy Comd and DE&S through implementation of the Maritime Safety Strategy and Project SALUS. However, there is evidence of a growing divergence between the pace of improvement of these principal TLBs and the other TLBs which operate in this domain, particularly over the provision of evidence through 2PA. Once the consistency and fragility of 2PA across the whole domain are improved and audit findings are analysed and applied effectively, the Regulated Community as a whole should be able to progress beyond their present LIMITED ASSURANCE.

¹²⁶ As example, DE&S aspires to convert engineers from other disciplines into naval architects and marine engineers.

¹²⁷ DE&S has provided evidence that the recruitment and retention of marine engineers and naval architects remains an issue, particularly impacting formation of the SDA.

¹²⁸ Delivery Duty Holder.

¹²⁹ The core principle of risk-based assurance (RBA).

¹³⁰ Queen Elizabeth-class aircraft carriers, River-class offshore patrol vessels, Tide-class tankers.

¹³¹ Concept, Assessment, Manufacture, In Service and Disposal acquisition lifecycle.

¹³² Reduced to limits set by the International Maritime Organisation of 0.50% m/m (mass by mass).

¹³³ Requirements are specified in the IMO's International Air Pollution Prevention (IAPP) Certificate.

Ordnance, Munitions & Explosives

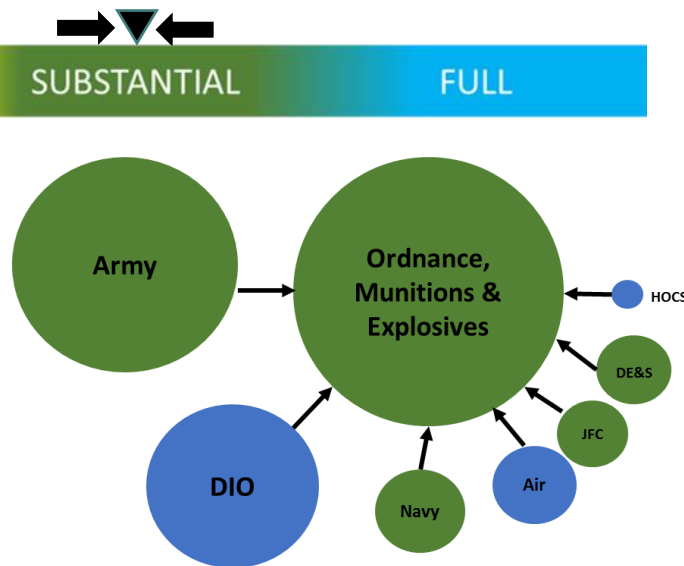
3.5 Assurance Level

Substantial Assurance - no change.



3.5.1 Scope. Defence has a range of DEDs from statute¹³⁴ requiring regulation of all Defence Ordnance, Munitions & Explosives (OME) activity from acquisition to disposal. This also includes regulating all MOD ranges used for live firing, Laser safety and Major Accident Control.¹³⁵ This is conducted by the Defence OME Safety Regulator (DOSR). Most of the TLBs have some activity or involvement in the OME area.

3.5.2 Regulator Activity. During the reporting period the DOSR conducted 557 audits and inspections across Defence: 521 ranges, 23 explosives establishments and 13 MACR sites, spanning the 6 major TLBs.¹³⁶ In addition, the DOSR provided advice and assistance to TLBs on the following operations: Op SHADER,¹³⁷ the Joint Counter Terrorist Training Advisory Team (JCTTAT)¹³⁸ and Op BILOXI.¹³⁹ To advance coalition interoperability, both the Regulator and Regulated Community have been working towards a common NATO standard and methodology to Explosive Safety Cases (ESCs) and integrating this into UK regulation.



3.5.3 Findings. With significant evidence of robust safety systems and processes working effectively across the entire functional area and a well inculcated safety culture, only minor weaknesses have been observed. This has led to an overall assessment of **Substantial Safety Assurance**. DIO and Air are assessed as having **Full Assurance** as no enforcement notices were issued as a result of inspections during 2017/18.¹⁴⁰ It was recognised that this highly prescriptive and technically complex field can appear to non-specialists as inflexible or unnecessarily risk averse.¹⁴¹ There is a clear challenge here for OME practitioners to communicate better the underlying risk factors and to work closer with risk owners to inform their judgements and the balance taken

¹³⁴ Principally the Explosives Regulations 2014, the Health and Safety at Work Act 1974 and the Dangerous Goods in Harbour Areas Regulations 2016.

¹³⁵ 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.

¹³⁶ Army (382 audits), Navy Comd (35 audits), Air Comd (30 audits), JFC (31 audits), DE&S (13 audits) and DIO (66 audits).

¹³⁷ Advice on explosive licensing at RAF Akrotiri.

¹³⁸ Overseas range safety inspections including Operations.

¹³⁹ Advice on explosives licensing at Mihail Kogalniceanu Air Base in Romania.

¹⁴⁰ All inspection observations were considered minor and recorded are Corrective Action Requirements only.

¹⁴¹ As example, the UK methodology of recommending finite air/sea carriage or land transportation lives to munitions is determined by modelling, physical testing and analysis. The scientific nature of this process can at times be implied as definitive by OME practitioners rather than a recommendation, with risk owners having no additional or independent technical details to inform their risk assessment.

between risks and the delivery of operational capability.

- **2PA.** Being a mature regulatory environment comprising a small cadre of specialists, regulatory awareness and assurance practices are well established. The quality and consistency of 2PA is collectively good. There is an understandable but considerable reliance on DE&S for assurance, particularly for OME acquisition. This dependency is being further explored under the Organisational Separation work-strand of PRISM and the role of the DOSR in the formal certification of OME (currently a DE&S function (DOSG)).
- **Infrastructure.** Despite the general declining condition of the Defence Estate,¹⁴² Defence’s licensed explosive facilities are, in the main, fit-for-purpose and compliant.¹⁴³ Where necessary, enforcement action has been taken and any emergent trends have been reported.¹⁴⁴ This has demonstrated how TLBs have successfully prioritised activity where resource and capacity is limited.
- **SQEP.** Despite being a small and niche cadre, TLB measures to maintain OME SQEP appear effective albeit the position is fragile with an ageing SQEP population. This improved position continues to be monitored at the DOSR-chaired functional safety committee. Shortfalls in OME SQEP



impacted DE&S during the reporting period, with a number of Safety and Environment Case Reports (SECRs) exceeding their



review periods. Following the issue of an Improvement Notice, a recovery programme was initiated and the matter successfully resolved.

- **Change.** The Regulator has observed increasing examples of operations being hindered or limited due to explosive licensing constraints. In each case this has not been the result of a change in regulation, but by external factors or the late identification of requirements. Whilst Defence is generally responsive to external influences, many are outside its control or have highlighted weaknesses in TLB planning, resulting in the application of temporary operating limitations where necessary.

Summary - SUBSTANTIAL

As a mature and historically prescriptive regulatory domain, there are numerous examples of safety taking an appropriate priority and, where no other mitigation is available, ultimately protecting our people and operational capability by moderating or halting activities which are unsafe or where the risk is unjustified. Having observed only minor weaknesses across a robust and established safety culture, which has shown the capacity of the Regulator and Regulated Community to engage in CI initiatives, the OME domain has demonstrated SUBSTANTIAL ASSURANCE.

¹⁴² House of Commons Library, Briefing Paper Number 07862, *Defence Estate strategy*, 12 January 2017.

¹⁴³ Explosive facilities are subject to a range of mandatory building and electrical tests.

¹⁴⁴ Evidence was found of some sub-contractors not conducting inspections to the required standard. This was reported to DIO who have reacted and progress is being made towards resolution.

Fire

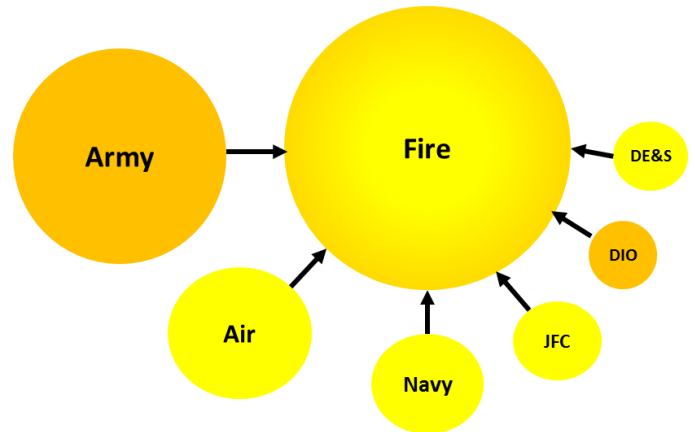
3.6 Assurance Level

Limited Assurance – declining since 2016/17.



3.6.1 Scope. As a statutory regulator,¹⁴⁵ the Defence Fire Safety Regulator’s (DFSR) role is to provide assurance that Defence is compliant with the law¹⁴⁶ and Defence Fire Safety regulations and to issue enforcement notices where regulatory breaches have been found. This encompasses the legal requirement for Responsible (Accountable) Persons¹⁴⁷ to take adequate fire precautions to ensure the safety of all relevant persons in their AOR or establishment. It is discharged through risk based audits and an agreed formal consultation process.¹⁴⁸ Post-fire audits may also be undertaken¹⁴⁹ 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).

3.6.2 Regulator Activity. During the reporting period there were 373 reported fires (down 18% since last year¹⁵⁰) and 3423 recorded false alarms.¹⁵¹ The DFSR conducted 107 risk based audits across all the TLBs¹⁵² and under the Duty to Consult (D2C) process it provided a further 761 consultations on building works for TLBs and appointed Fire Safety Inspectors on 454 occasions to advise on the more technical and complex projects.¹⁵³



Following 2 notable fires in Single Living Accommodation (SLA)¹⁵⁴, DG DSA commissioned a targeted review, led by the DFSR, into fire safety in Defence SLA.¹⁵⁵

3.6.3 Findings. While the outcome of the DFSR’s audit activities this year was that the majority of premises¹⁵⁶ were assessed as ‘broadly compliant’¹⁵⁷, it identified that the management of Fire Safety throughout Defence was in a declining position for its second year. Whilst the number of reported fires and false alarms had reduced, the number of overall regulatory non-compliances saw only a marginal change (see Figure 3-2).¹⁵⁸ However, within those overall non-compliances, the number of major regulatory non-compliances in

¹⁴⁵ This differs from the other Defence safety regulators who regulate where Defence has a disapplication, exemption or derogation from law.

¹⁴⁶ The Regulatory Reform (Fire Safety) Order 2005 and the Fire Scotland (Regulations) 2006.

¹⁴⁷ A legal duty of appointed Heads of Establishment (HoE) or project leads for proposed building works.

¹⁴⁸ 2017DIN06-23, *Duty to consult with the Defence Fire Safety Regular*.

¹⁴⁹ In concert with the Defence Accident Investigation Branch for major incidents.

¹⁵⁰ A 30% reduction over the last 2 years.

¹⁵¹ This represents a 26% reduction for last year; however, it is recognised that there is a lack of consistent false alarm reporting, particularly on Defence sites where there is DFRMO presence.

¹⁵² 107 risk based audits comprising: 64 Army, 21 Air Comd, 11 Navy Comd, 8 JFC, 2 DIO and 1 DE&S.

¹⁵³ These included HMNB Clyde refurbishment, Poseidon P8 infrastructure (Project TRIENUS), New Build Merlin Helicopter Simulator Trainer at RNAS Yeovilton and further Defence infrastructure builds across the UK and overseas.

¹⁵⁴ Fires in SLA at Aliwal Barracks and Theipval Barracks.

¹⁵⁵ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFSR/18/001/Report dated 14 August 2018.

¹⁵⁶ 71.4% (+0.4% compared to 2016/17).

¹⁵⁷ NFCC term for used for premises where very few deficiencies are found during audit and any found are minor in nature. Compliance is categorised as: broadly compliant, non-compliant, non-compliant minor deficiency and non-compliant major deficiency.

¹⁵⁸ Overall non-compliance rate from inspection was 28.6% (down 5.6% from last year).

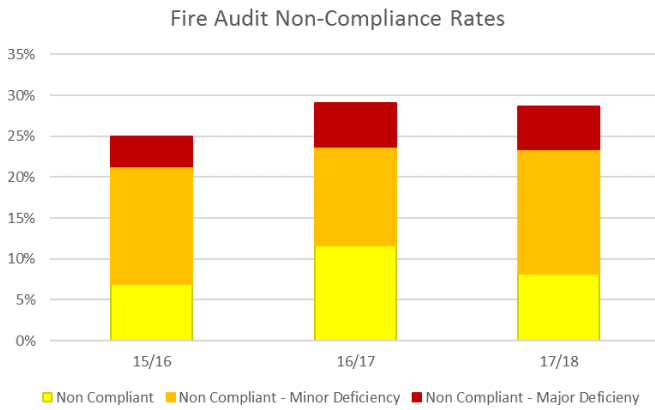


Figure 3-3

certain areas had increased significantly (see Figures 3-3 and 3.4).¹⁵⁹ Moreover, the fundamental weaknesses previously reported relating to risk ownership and poor levels of regulatory compliance had not been addressed.¹⁶⁰ Without these underpinning principles it is difficult to explain or qualify why there have been fewer incidents. We are therefore unable to attribute this reduction to a change to the risk of fire causing loss of life.

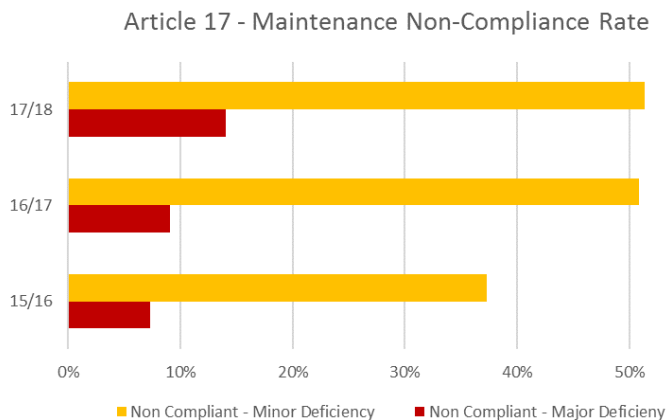


Figure 3-4

- Risk Ownership.** A recurring theme of the DFSR audits and SLA Review¹⁶¹ has been a broad lack of awareness by HoEs¹⁶² of their

statutory responsibilities, leading to situations where they have been unsighted to significant fire risks within their AOR¹⁶³ or have delegated management to staff whilst retaining minimal oversight. This has been further exacerbated by an evident lack of coordination between those managing risk and those who control maintenance and repairs.¹⁶⁴

- SQEP.** The training and guidance given to personnel appointed to 'accountable' roles may be inconsistent¹⁶⁵ or inadequate, resulting in a lack of SQEP. This includes those in supporting roles required to identify properly emerging risks, provide HoE with essential 1PA and advise and assist HoE in developing potential mitigation strategies. The outcome of training initiatives proposed in last year's assurance report¹⁶⁶ to focus training on 'non-fire professional' Army staff, has yet to be seen.¹⁶⁷ Until training has improved, the current trend of non-compliance identified during 3PA audits and following fire incidents is unlikely to improve.
- Assurance of Fire Safety.** Whilst the delivery of effective 1PA has been hindered by insufficient SQEP to support HoEs, there is also evidence of a significant weakness in the effectiveness of 2PA. This appears to stem from a common and pervasive misunderstanding of the role of the Defence Fire Risk Management Organisation (DFRMO) as witnessed during DFRS audits. The *perception*, observed at both unit and formation levels, is that the management of fire safety risks had been 'out-sourced' or transferred to DFRMO (an understandable misconception¹⁶⁸ based on the title of the organisation) and the further contracting of this service through the Defence Fire and Rescue Project (DFRP) could exacerbate this.¹⁶⁹ Whilst the quality and depth of 2PA

¹⁵⁹ An increase in major non-compliances in the Maintenance of Provision (+50%) and general Fire Precautions (+20%) compared to 2016/17.

¹⁶⁰ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, paras 52-59.

¹⁶¹ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFRS/18/001/Report dated 14 August 2018.

¹⁶² As the Responsible (Accountable) Person under law.

¹⁶³ Real-time risks arising from unserviceable fire safety systems, deteriorating infrastructure or changes of infrastructure use.

¹⁶⁴ Facilities Management staff.

¹⁶⁵ The safety content of pre-command/HoE courses across the TLBs varies from short briefings to recognised civilian qualifications.

¹⁶⁶ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 59a.

¹⁶⁷ The Defence Fire Training Centre was considering extending training to Army unit fire staff, as the Army differs from the RAF and Royal Navy who have professional fire trades/specialisations to fulfil this role.

¹⁶⁸ The formation of DFMRO resulted in a loss of embedded SQEP in TLB safety teams. However, these misconceptions were less prevalent on units and commands with indigenous RAF and RN fire safety specialists.

¹⁶⁹ The purpose of the DFRP is to deliver improvements in the safety of military and civilian firefighter personnel, and improvements in the equipment and training available to them. It aims to deliver savings that will be reinvested into the Defence

conducted by DFRMO on behalf of TLBs is not in question, the enduring assumption by risk owners that DFRMO¹⁷⁰ were then responsible for the subsequent analysis, management and remediation may explain why levels of non-compliance have increased and risk awareness has been lacking in those personnel the law considers accountable HoEs. If these concomitant issues of risk ownership and insufficient SQEP continue to go unchecked, the observed degradation in fire safety assurance is expected to continue.

- **Change.** The major change soon to affect fire safety management in the Department (from Head Office to unit level) is the DFRP. Capita Business Services Ltd was announced as the successful bidder on 18 June 2018¹⁷¹ for this 12-year contract valued at around £550M.¹⁷² As a major change with significant safety implications, the DSA and Regulators have had close involvement with the DFRP SRO¹⁷³ in developing their Organisational Safety Assessment (OSA). This OSA, following a promising start, lost momentum yet was subsequently accepted as attending to fire safety adequately by TLB representatives at 1* level. This is despite the DFRP contract neither set to resolve the issues of risk ownership and SQEP, nor will it clarify the future role of DFMRO and how that will impact fire safety assurance. The TLBHs should reassure themselves that the DFRP will deliver the levels of fire safety they consider appropriate.
- **Infrastructure.** The considerable challenge facing Defence in sustaining its infrastructure to safe standards¹⁷⁴ continues to compound fire safety risks. Last year the DSA reported deficiencies in how we contract and assure the maintenance of passive and active fire

safety systems,¹⁷⁵ the worrying loss of confidence by building occupants in their fire alarm systems from unnecessarily high rates of false alarms,¹⁷⁶ and a growing reliance of units on regulatory intervention to enable any meaningful action to be taken. These findings were subsequently confirmed in a 'deep dive'¹⁷⁷ initiated by Comd (HC).¹⁷⁸ Whilst the number of recorded false alarms may have reduced, the DFSR audit evidence highlights examples of enduring infrastructure issues¹⁷⁹ which occupants have come to accept as the norm.

Summary – LIMITED

A fundamental lack of clarity and understanding of the roles and responsibilities of *all* parties in the management of fire safety across Defence continues to undermine the effectiveness at all levels of assurance. Without improvements in the coordination between risk owners (HoE and TLBs) and those who provide them with their 1PA and 2PA, Defence will be unable to ensure risks are being appropriately captured and mitigated. The apparent disinvestment or lack of priority afforded to fire safety across our infrastructure is being mirrored in the ambivalence of the very people it is there to protect. This has been reinforced by the findings of the SLA Review. Until these major weaknesses, including those captured within the SLA Review, are addressed the likelihood of a fire resulting in significant loss of life, loss of capability and damage to Defence's reputation will remain high. This declining position can and should be checked as a matter of priority, allowing recovery to be achieved in a managed and risk-led manner. Fire Safety, in its current condition, can therefore only be afforded LIMITED ASSURANCE.

budget while sustaining our ability to support operations around the world and to support local authority fire services, should that be required at times of heightened national need. In doing so, it will ensure that our personnel, airfields and strategic assets worldwide continue to be protected from the risk of fire. Hansard, House of Commons Debate, Volume 643, *Defence Fire and Rescue Project: Capita*, 21 June 2018.

¹⁷⁰ And as part of that, the role of the Defence Chief Fire and Rescue Advisor.

¹⁷¹ Hansard, House of Commons Written Statement, Volume 643, *Contingent Liability*, 18 June 2018. This decision is subject to a legal challenge and whilst going to print the contract had yet to be awarded.

¹⁷² Hansard, House of Lords Debate, Volume 643, *Defence Fire and Rescue Project: Capita*, 21 June 2018, c467, [corrected Volume 643, 25 June 2018].

¹⁷³ Director Children and Young People, Army HQ.

¹⁷⁴ NAO, *Delivering the Defence Estate*, HC782 2016-17, 15 November 2016.

¹⁷⁵ Delays in repairing fire detection and alarm systems, a lack of inspection regime for fire doors and fire escapes, breaches of fire barriers and compartments by uninformed contractors.

¹⁷⁶ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 54.

¹⁷⁷ DFRMO conducted a 'deep dive' into Infrastructure Fire Safety within Defence in 2017.

¹⁷⁸ DFRMO is a sub-unit of Comd (Home Command), a 3* command within Army HQ.

¹⁷⁹ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFSR/18/001/Report dated 14 August 2018.

Medical Services

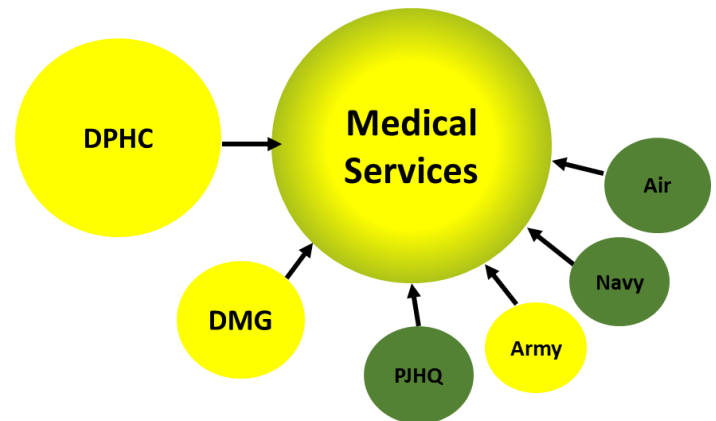
3.7 Assurance Level

Limited Assurance – first assessment.¹⁸⁰



3.7.1 Scope. Defence Medical Services (DMS) are exempt 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.¹⁸¹ Healthcare delivery was formerly assured by the Surgeon General's Inspector General team, who transferred on 1 December 2017 to the DSA to form the Defence Medical Services Regulator (DMSR) at an Initial Operating Capability.¹⁸² This provided organisational separation between healthcare delivery and assurance functions, aligned the DMS approach to safety with that of the rest of Defence, and strengthened the DSA's ability to provide assurance across the full scope of HS&EP policies. The arrangement also improved assurance through close working and the sharing of best practice with existing safety Regulators, along with a single point of contact for advice on investigations and coordination of the medical aspects of Service Inquiries.

The DMSR is empowered to undertake proportional and risk-based safety assurance, regulation, investigation and enforcement of Defence Medical Services in order to enhance Defence capabilities. It works closely with the Care Quality Commission (CQC) and the other UK statutory healthcare regulators when required. The DMSR does not assure delivery of the care or treatment of Service Personnel in NHS funded facilities.¹⁸³



3.7.2 Regulator Activity. Individual Medical Treatment Facilities (MTF) and regions undertake 1PA; the Commands,¹⁸⁴ HQ SG¹⁸⁵ and PJHQ undertake 2PA and the DMSR undertakes 3PA. During the period of this report there were 219 Healthcare Governance Assurance assessments utilising the Common Assurance Framework.¹⁸⁶ These included 3PA visits to the Army, Navy Comd, Air Comd and PJHQ.

In addition, the CQC undertook a funded programme of 3PA of Defence MTFs. The CQC completed and published 63 comprehensive inspection reports during the first year of the programme.¹⁸⁷ 35 Medical Centres were inspected.¹⁸⁸ Outcomes were variable with approximately 50% graded as 'Requires Improvement' or 'Inadequate'.¹⁸⁹ A range of actions were taken to address concerns raised by the CQC. Recent re-inspections of 6 Medical Centres have led, in every case, to the improvement of the awarded grade to 'Good'.

¹⁸⁰ This is the first assessment of the Medical Services domain by the DSA.

¹⁸¹ Service personnel in the UK, abroad, those at sea, and in some circumstances family dependents of service personnel and entitled civilians.

¹⁸² Delivering a comparable level of assurance as previously, but independent of the service delivery organisation.

¹⁸³ This is assured by the CQC which is the statutory regulator in England.

¹⁸⁴ Navy Command, Army HQ and Air Command.

¹⁸⁵ Defence Primary Healthcare and the Defence Medical Group.

¹⁸⁶ Covering 1PA, 2PA and 3PA, DMSR conducted 23 3PA visits.

¹⁸⁷ Commenced April 2017.

¹⁸⁸ In addition to 24 Dental Centres, 2 Regional Rehabilitation Units (RRU) and 2 Departments of Community Mental Health (DCMH).

¹⁸⁹ The gradings are: Outstanding, Good, Requires Improvement or Inadequate.



3.7.3 Findings. The DMSR draws on evidence from a wide range of sources. These include:

- Common Assurance Framework.¹⁹⁰
- Healthcare Governance & Assurance Visit Reports.
- CQC Assurance Reports.¹⁹¹
- Automated Significant Event Reporting (ASER).¹⁹²
- Bi-Annual TLB Reporting.¹⁹³
- DPHC Performance Reporting.
- Defence Internal Audit (DIA).¹⁹⁴
- Risk management.

In a synthesis of this evidence, the Regulator has identified the following key issues:

- **Lack of SQEP.** The availability of sufficient SQEP is key to the safe delivery of healthcare. However, Defence Primary Healthcare (DPHC), the largest organisation in the DMS, suffers from significant shortfalls in manning. The latest military manning figures for the percentage of DPHC liability filled by each service reveal military hard gaps of 10% (RN 9%; Army 14%; RAF 7%) and soft gaps of 6% (RN 6%; Army 6%; RAF 6%). Under current inter-TLB agreements,¹⁹⁵ the under-manning of Army Medical Centres has been exacerbated by Regimental Medical Officers (RMO) spending less than the agreed target of 50%

of their time working in DPHC. There is also insufficient civilian manning of DPHC¹⁹⁶ with only 81% of civilian posts filled, despite strenuous efforts to improve civilian recruitment through the establishment of a Manpower Support Cell, advertising on NHS Jobs, bulk recruitment campaigns, and HQ SG funding a Defence Business Services Enhanced service. This suboptimal situation is compounded by the temporary absence of staff due to high levels of sickness, as well as frequent operational deployments, exercises and Defence Engagement activities. Good leadership, management and governance are prerequisites for high quality care. These factors were evident in those NHS practices rated as Good or Outstanding by the CQC.¹⁹⁷ Unfortunately, the significant shortfalls in SQEP within the DMS have resulted in gaps in the leadership and governance structures of medical centres that have impacted on the delivery of healthcare, on governance and assurance, and on the mentoring of staff.

- **Infrastructure.** The condition of the medical estate is a concern that has been highlighted in multiple CQC reports.¹⁹⁸ The CQC has noted that many Medical Centres are not purpose built to deliver primary care. Other common issues include insufficient space, the presence of damp, poor ergonomics, lack of sound-proofing and a history of vermin infestation.¹⁹⁹ These failings have been managed by the DMS through urgent work services or by making alternative medical facilities available. Liaison between the DMS, DIO and HQ JFC has improved and the rodent infestation that necessitated DMSR enforcement action has now been resolved.²⁰⁰ Nonetheless there is recognition that the closure of an MTF has the potential to delay patient presentation at a medical centre. Furthermore, poor

¹⁹⁰ A common tool used for 1PA, 2PA & 3PA across DMS.

¹⁹¹ Published at www.cqc.org.uk

¹⁹² A DMS-wide system for reporting and analysing significant events.

¹⁹³ Each of the 8 areas across Defence that deliver medical services (Navy Comd, Air Comd, Army HQ, PJHQ, JFC, DPHC, DMG, MAB).

¹⁹⁴ DIA supports the SG in conducting audits against an agreed risk-based annual programme.

¹⁹⁵ DPHC has bi-annual joint agreements between JFC and the RN, Army and RAF for the delivery of Primary, Occupational, Dental and Intermediate healthcare.

¹⁹⁶ DPHC already adopts a Whole Force Approach with nearly 60% of all posts being a civilian manning liability.

¹⁹⁷ CQC, *The State of Care in General Practice 2014 to 2017*, published September 2017.

¹⁹⁸ For example, facilities at military sites in Kinloss, Leuchars and Faslane.

¹⁹⁹ CQC, *Defence Medical Services CQC Inspection Programme Annual Report Year 1 (2017/2018)*, dated 30 July 2018

²⁰⁰ Urgent Improvement Notice issued to Wimbish due to severe rodent infestation.

infrastructure can impact on the morale of DMS staff.²⁰¹

- **Medical Information Systems.** Defence is currently unable to provide unified connectivity between firm base Medical Information Systems (Med IS), deployed systems and NHS IT systems. This could be detrimental to patient safety in a range of ways, including increasing the risk of misdiagnosis, delaying treatment, hampering effective transfer of patients between MTFs, and impacting on the prescribing of medication.²⁰² Such matters are due to be addressed by Programme CORTISONE. However, this work is behind schedule following cancellation of the procurement process in 2017. The programme has now reset, with a revised delivery approach having been agreed, and a planned IOC date of 2022. This should lead to incremental benefits from the delivery of an integrated platform, a new digital archive and enhanced connectivity to the NHS. It is vital that Programme CORTISONE is delivered to ensure the continuity of Med IS into the future.

Review of Suicides by Service Personnel. In response to concerns raised by the Service Chiefs, DG DSA commissioned a focussed review of suicides by Service Personnel (SP). The aim of the review was to identify additional measures to prevent suicide in Service Personnel through an examination of Service Inquiries and Learning Accounts, and the application of best practice. It examined ways to improve the effectiveness of Mental Health provision to SP and to increase SP wellbeing. In recognition of this being a cross-cutting issue, the review team included representation from the DSA, the DMS and the Chief of Defence Personnel. Led by the DMSR, review findings were published internally in August 2018.²⁰³

Summary - LIMITED

A strong governance and assurance framework is well established throughout the DMS. This has been supplemented by third party external assurance from the CQC since April 2017. The assurance programmes are driving quality improvement across the DMS. However, there are several significant matters of concern that are having a negative impact on the delivery of healthcare. Until the lack of SQEP, poor infrastructure and Med IS issues are addressed, the DMS is unlikely to be able to progress beyond its current **LIMITED ASSURANCE**.



²⁰¹ In comparison the NHS has committed to improving the NHS primary care infrastructure. [NHS England General Practice Forward View, https://www.england.nhs.uk/wp-content/uploads/2016/04/gpiv.pdf](https://www.england.nhs.uk/wp-content/uploads/2016/04/gpiv.pdf).

²⁰² To date the Regulator has seen no evidence of patient harm.
²⁰³ DSA, *Defence Safety Authority Focused Review of Suicides among Armed Forces Personnel – Final Report*, DSA/DMSR_04/Suicide Review dated 14 August 2018.

Regulator Maturity

4.1 Context

An essential function of the DSA is to form one common focus for safety in Defence by bringing together the Defence Regulators for 7 distinct domains and functions, along with their stakeholders. These are regulated environments that have evolved independently alongside their statutory peers for many years and have developed different approaches and cultures. The DSA is able to identify cross-cutting issues, adopt best practice, improve and simplify regulation, strive for parity across domains and highlight their relative importance to the Department. To assess the maturity of the DSA and its regulators, since its formation in 2015, this report uses the same Defence Internal Audit-derived assessment grades. The definition of regulator maturity associated with each grade is shown in Figure 4-1.

This self-assessment by Regulators considers their contribution towards their Regulated Community through the quality and effectiveness of the 3PA they provide. It also includes the maturity of their regulations, their relationship with their statutory peers, whether they have sufficient SQEP to deliver their full range of roles, their ability to discharge those roles effectively and their capacity to innovate. The assessed maturity level of each of the Regulators and the DSA as a whole is summarised in Figure 4-2 and described in the rest of this section.

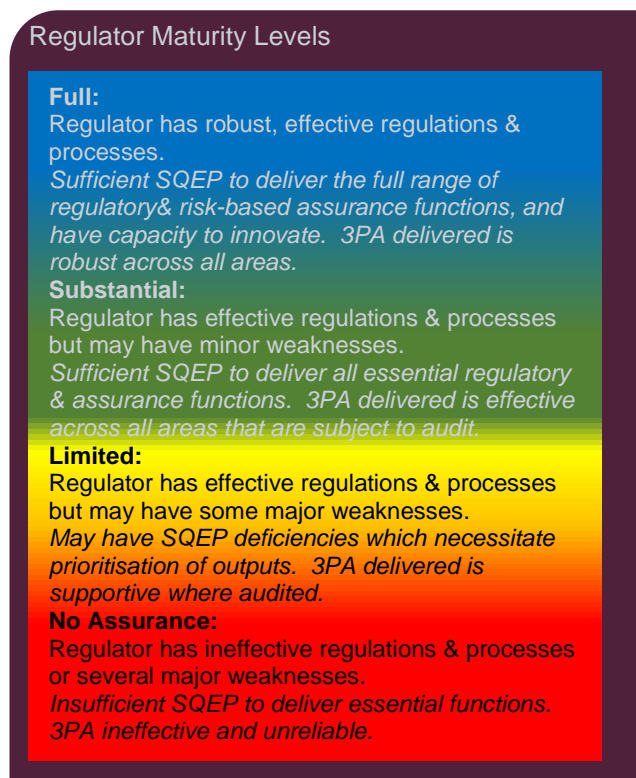


Figure 4-1

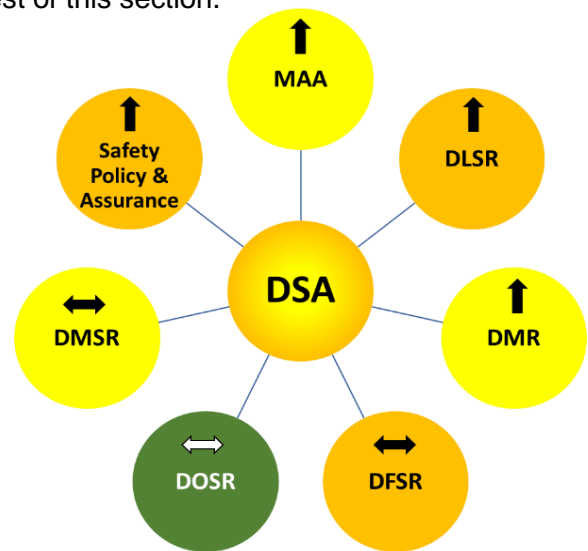


Figure 4-2

4.2 Military Aviation Authority

The MAA has seen a small improvement in its maturity since last year,²⁰⁴ but consider it insufficient to warrant a rating of substantial. It remains at **Limited Maturity**. Defence aviation regulations are mature and proven in their effectiveness, having been inculcated into all aspects of aviation activity.²⁰⁵ The MAA has worked hard to establish and maintain strong collegiate relationships with the CAA,²⁰⁶ EASA²⁰⁷ and allies, fostering formal recognition of targeted organisations' competence as

²⁰⁴ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 22, reported that the MAA was unable to deliver their full range of functions as a lack of sufficient SQEP resulted in some activities being suspended to ensure other critical functions could continue.

²⁰⁵ MAA Regulatory Publications (MRP), comprising Regulatory Articles.

²⁰⁶ Civil Aviation Authority.

²⁰⁷ European Aviation Safety Agency.

professional regulatory bodies. Having demonstrated its ability to re-orientate its activity on a risk-basis when faced with limited resource, the positive findings of its recent external audit²⁰⁸ have underpinned its progress towards becoming a world-class Air Safety regulatory and assurance organisation.²⁰⁹

However, the MAA reports that it has insufficient SQEP to discharge roles to the scale required.²¹⁰ The principal causes of this are the recruitment and retention challenges of a specialist and experienced workforce,²¹¹ the churn of military staff and the financial constraints on DSA manpower numbers.

4.3 Defence Land Safety Regulator

The DLSR has improved its capabilities across all of its AOR as resource uplifts enacted over the last 2 years are now taking effect. The overall self-assessment of the DLSR is of **Limited Maturity**.

Of the 4 regulatory sections within the DLSR²¹² only the FGSR has been assessed as of Substantial maturity, with the remaining sections remaining Limited. The DLSR Analysis & Plans function has reached IOC,²¹³ improving its understanding of the Land domain risk picture²¹⁴ and assisting in the delivery of Risk Based Assurance (RBA). The FGSR reports having sufficient resource to carry out its regulatory role, with the ATSR²¹⁵ and MTSR expected to follow suit during the next reporting period. The newly formed Land Safety and Environmental Management (LSEM) section has been established to develop Land specific policy alongside the DSA HQ Policy Team, a role which will develop over the coming year.

However, while the LSSR has been able to understand better the scale and breadth of its scope,²¹⁶ it is still considered too reliant on information provided by the TLBs and of

insufficient scale to provide independent assurance, including Certification and Safety Case reviews. Work to estimate the uplift and restructuring necessary to improve independence in its role has commenced, and will inform subsequent planning. Until this key issue is resolved, the capability of the DLSR will be unable to progress beyond **Limited Maturity**.

4.4 Defence Maritime Regulator

The overall assessment of the DMR is **Limited Maturity**, bordering on substantial. An improved manning position coupled with the in-house development of better regulatory tools²¹⁷ has seen the DMR's regulatory capability make considerable progress over the reporting period.

With all the key enablers in place, including SQEP, the DMR requires time to exercise its new regulatory tools and complete the comprehensive DEDs review to ensure the regulation set remains relevant and fit-for-purpose. This will further enable the DMR to progress its approach to RBA and focus it on the other maritime TLBs (ARMY, JFC, DIO) in the coming year.



²⁰⁸ MAA External Audit Panel 2017 (MEAP17) comprising independent auditors external to MOD reported that the MAA 'continues to exercise a very positive impact on Air Safety', <https://www.gov.uk/government/publications/military-aviation-authority-maa-external-audit-panel-meap-report-2017>.

²⁰⁹ MAA 5 year Strategy. *MAA Vision*, July 2016, <https://www.gov.uk/government/publications/military-aviation-authority-maa-strategy>.

²¹⁰ The scale of companies seeking approval under the Design Organisation Approval Scheme (DAOS), Maintenance Organisation Approval Scheme (MAOS), Contractor Flying Organisations (CFAOS) and Air Traffic Management Equipment Organisations (RA1005) exceeds the current capability of the MAA.

²¹¹ Although affecting all of the MAA skill sets to some degree, software certification is a particularly challenging SQEP shortfall it is attempting to fill.

²¹² Land Systems Safety Regulator (LSSR), Fuel & Gas Safety Regulator (FGSR), Movement & Transport Safety Regulator (MTSR) and Adventurous Training Safety Regulator (ATSR).

²¹³ Established following an ABC17 resource uplift.

²¹⁴ Of those risks associated with Defence Land Safety regulations.

²¹⁵ At present the remit of the ATSR is limited to AT Centres only. This scope is under review.

²¹⁶ There are 494 'highest risk' land systems safety cases priority managed by the Army.

²¹⁷ e-Register to assist analysis of 1PA and 2PA evidence, Maritime Legislation Database (MLD) containing statute and Defence Regulation.

4.5 Defence Fire Safety Regulator

The DFSR remains at **Limited Maturity**.

Despite having the SQEP to deliver its functions and having a regulatory framework based on statutory legislation, the understanding across the Defence Fire & Rescue Services profession over roles and responsibilities appears as ambiguous for the Regulator as it is for the Regulated Community.²¹⁸

In addition to the TLBs' misconceptions around the function of DFMRO, there are 2 key issues that affect the DFSR's ability to discharge its functions. First, the Head of DFRMO, as Defence Chief Fire & Rescue Advisor (DCFRA), acts as the legally Appointed Person²¹⁹ accountable for all fire safety management across Defence on behalf of the Perm Sec, and not the TLB Holders. The DFSR considers this to be a misinterpretation or misapplication of the law,²²⁰ as this role should fall to the TLBHs and their HoE. This mismatch exacerbates the deficiencies in fire safety risk ownership and management Defence continues to endure. Furthermore, the DCFRA, using the DIO as its delegated Technical Authority, has set Defence Infrastructure Fire Standards (DIFS)²²¹ which compromise the independence of the DFSR in its assurance role.²²²

Recommendations to address these key questions will be made in the SLA Fire Safety Review report. Once they are finally clarified and embraced by the Defence Fire & Rescue profession, the DFSR will be able to assign its resources more effectively and increase its contribution to fire safety assurance in Defence.

4.6 Defence Ordnance, Munitions and Explosives Safety Regulator

The DOSR continues to deliver well established support to its Regulated Community and is assessed at **Substantial Maturity**. The regulatory environment it maintains is mature,



considered fit-for-purpose and is firmly inculcated in its stakeholders' daily operations. With sufficient SQEP to deliver all of its regulatory and assurance functions, DOSR has had the ability to exploit its strong relationships with its statutory peers and military allies to press forward improvements in commonality and interoperability.²²³

While having the scope and capacity to pursue Continual Improvement (CI) opportunities signifies an effective regulatory capability, it also highlights an organisation that understands both its strengths and weaknesses. DOSR's remaining weakness lies in organisational separation in its functional area. Further independence could be achieved by establishing robust 3rd Party certification²²⁴ and ranges and explosives licensing activities²²⁵ with TLBs. These changes have the potential to enhance the existing OME assurance model for a small uplift in resource and are therefore currently under investigation.

4.7 Defence Medical Services Regulator

The DMSR was formed at IOC on 1 December 2017. While working towards its Full Operating Capability, the DMSR is currently assessed as at **Limited Maturity** and assurance capability. Significant completed milestones include the publication of Regulated Community endorsed

²¹⁸ See section 3.6.

²¹⁹ A legal duty under Article 18 of the Regulatory Reform (Fire Safety) Order 2005 Part 2.

²²⁰ Fire and Rescue Services Act 2004.

²²¹ Replacing former Crown Fire Standards.

²²² This places the DFSR fire safety inspectors in direct conflict with CDM Regulations (2015) – Regulation 73: Local authority or government officials may give advice and instruction on designs meeting statutory requirements (eg the Building Regulations), but this does not make them designers. A designer may have no choice but to comply with these requirements, which are a 'design constraint'. However, if statutory bodies ask for particular features to be included or excluded which go beyond what the law requires

they may become designers under CDM 2015 and must comply with its requirements.

²²³ The DOSR Policy, Regulations & Guidance Team (PRG) is working closely with the NATO Munitions Safety & Information Analysis Centre to align better NATO standards and methodology with UK practices.

²²⁴ Currently DOSR does not provide 3rd Party certification of weapon systems (including lasers) and relies heavily on the evidence from the current 2nd Party processes in place within DE&S for assurance.

²²⁵ TLBs currently self-authorise their own ranges and license their own explosive facilities.

governance, assurance and enforcement policies. The main outstanding area for development is understanding the Regulatory scope, in terms of disapplications, exemptions and derogations from law, and the drafting of necessary Regulations.

Nonetheless, the DMS has a strong assurance framework of 1PA, 2PA and 3PA anchored, in part, by the importance placed on healthcare governance by the wider healthcare community.²²⁶ Although the smallest Regulatory team within the DSA by some margin,²²⁷ the practice of using external 3PA²²⁸ to augment the DMSR and deliver a broad and truly independent audit programme is highly commendable.

Over the coming year the DMSR intends to follow 7 main lines of development to achieve FOC: functional separation, regulatory scope, assurance programmes, enforcement policies, documented internal procedures, sufficient resources and an independent external audit as a Regulator.

4.8 Defence Nuclear Safety Regulator

The DNSR's maturity is assessed in Annex B.

4.9 Defence Safety Policy & Assurance Team

As a result of the shortfall in the DSA's assurance capabilities identified in last year's AAR,²²⁹ the DSA HQ has been restructured to establish a (limited) capability to assure the Department's compliance against the full scope of the SofS's HS&EP policies, particularly compliance with legislation governed by statutory regulators.²³⁰ However, the challenge of recruiting SQEP to fill these new roles in the Defence Safety Policy & Assurance (DSPA) team has been greater than envisaged. As a result, DSA's assurance of policy compliance has been limited this year to the observations made by the Defence Safety Regulators during their existing visits. However, with more DSPA assurance positions recently filled, their assurance capability is expected to improve

²²⁶ Assessed as **Substantial** by the Surgeon General in his Defence Authority Annual Assurance Report dated 28 February 2018.

²²⁷ Eight personnel in the DMSR.

²²⁸ The Care Quality Commission is the statutory regulator and conducts 3PA of DPHC alongside the DMSR.

²²⁹ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 13.

significantly over the coming year. However, at present the capability to assure compliance with statutory regulations is assessed as **Limited Maturity**.

4.10 Defence Accident Investigation Branch (DAIB)

The DAIB delivers a core independent investigative function for Defence and is a key enabler to informing TLBs and Regulators of the root causes of significant safety incidents involving Defence personnel and equipment.

Several UK civilian sectors have, or are considering, a significant degree of statutory protection not to disclose the evidence of safety investigations. This is to encourage open and honest reporting with the sole purpose of improving safety.²³¹ Currently these protections do not extend to Defence and increasingly the DSA has been subject to requests and directions to release evidence in circumstances which would otherwise have significant protections in the case of a civil organisation.

Releasing evidence in this way may hinder the future cooperation of witnesses. It is in the best interests of the MOD that the single objective of safety investigations should be the prevention of future accidents and incidents without explicitly apportioning blame or liability. Defence personnel and civilians should be afforded the same protection of their witness testimony as they would have during a civil investigation. Proposals to correct this disparity, based on legal advice, will be set out in a position paper to be submitted to Ministers for consideration.



²³⁰ eg Health and Safety Executive, Maritime and Coastguard Agency, Food Standards Agency.

²³¹ The Civil Aviation sector through Regulation (EU) 996/2010 / Civil Aviation (IAAI) Regulations 2018 for the investigation of civil aviation incidents, and the Health sector through the draft Health Service Safety Investigations Bill currently being considered by Parliament. There are similar provisions applied in the USA.

4.11 Regulator Maturity – Common Themes

Restructuring across the DSA, delivered by PRISM,²³² has enabled the Defence Safety Regulators to mature their organisations and improve the service they deliver to their Regulated Communities. Regulators have used this opportunity to commence the periodic reviews of regulations so that they remain relevant and effective, to establish their Analysis & Plans capability to direct better RBA and to strengthen their understanding and engagement on emerging legislation.²³³ There are 4 common themes affecting the maturity and effectiveness of Regulators:

- **SQEP – Expertise.** Regulators face similar SQEP challenges to the TLBs, but are even more reliant upon staff with niche skills and appropriate experience. Not all Regulators are affected to the same degree, with some domains showing innovation, particularly with the proactive management of military churn, succession planning and developing career-length routes to SQEP. The DSA has therefore started to share and exploit good practice across all the Regulators,²³⁴ and will continue to progress opportunities through our various governance forums.
- **SQEP – Capacity.** The scale of demand upon Regulators is a function of: Regulation, RBA (assessing the depth & frequency of audit) and the performance of the Regulated Community. Once policy has been set,²³⁵ the Regulator assures that policy based on the severity and likelihood of the outcomes if 3PA were not conducted. The performance of the Regulated Community then determines how intrusive that assurance must be. As the purpose of the DSA is to deliver independent 3PA, its involvement in compliance auditing or replicating 1PA should be proportionate to the risk²³⁶ and the minimum necessary to deliver assurance. However, it is recognised that where 2PA is weak there is an increasing draw on 3PA to fill that void, drawing extensively on unplanned resource. The effectiveness of Regulators is therefore driven by the

performance of the Regulated Communities. As TLBs strengthen the effectiveness and quality of their 2PA, Regulators will be able to further exploit RBA and focus their SQEP appropriately.

- **Role & Responsibilities.** There is a pressing need to further clarify the roles and responsibilities of Regulators, Regulated Communities and supporting units and organisations. Whilst these were initially defined as part of the DSR and enacted through PRISM (Project 1), it is apparent that some further work is required to improve the effectiveness of both the Regulator and the regulatory environment. The DSA will facilitate discussions with the Army (Comd HC), the DCFRA and DFRS to resolve misunderstandings in the Fire domain of the roles of DFRMO and the DCFRA.²³⁷ It will also support the DLSR to consider with stakeholders ways to improve certification and safety assurance of Land Systems.
- **Time.** For most Regulators the changes in structure now need time to deliver the intended improvements in maturity. This will allow them to bed-in revised regulation, train and induct new staff, grow teams, collect data and conduct effective analysis to drive planning and direct activity.

Summary – LIMITED

Decisions taken previously to restructure the DSA, improve the capability of Regulators and enhance the service delivered to TLBs have all begun to deliver effect. The gains in terms of improved regulation and consistent sustainable RBA are going in the right direction, with the majority of outstanding issues being within the gift of the DSA to resolve. However, the effectiveness and value added by Regulators is rightly reliant upon the delivery of robust self-assurance by TLBs and the consistent approach to safety-risk management underpinned by a common Defence Operating Model. The DSA will continue to oversee this through the DSC.

²³² PRISM Project 1 'Organisational Separation' and Project 8 'Workforce'.

²³³ Of particular importance as the UK prepares to leave the EU.

²³⁴ Career progression, succession planning and recruitment & retention were topics at the DSA Internal Conference on 17 May 2018.

²³⁵ eg DSA01.2 *Implementation of Defence Policy for Health, Safety and Environmental Protection*, MAA Regulatory Publications, etc.

²³⁶ Department for Business Innovation and Skills, *Regulators' Code*, April 2014.

²³⁷ See sections 3.6 and 4.5.

Analysis and Recommendations



Figure 5-1

5.1 Limited Assurance – So What?

The safety assurance assessment of the Regulators for each domain set out in Section 3, supported by submissions from the TLBs, are summarised in Figure 5-1. The overall assessment for Defence of **LIMITED Safety Assurance** is unchanged from last year.²³⁸ However, it comes with a greater level of confidence as the overall maturity and capability of the Defence Safety Regulators has increased, as described in Section 4, improving the value and confidence of the 3PA they provide.

Since the definition of **Limited Safety Assurance** implies *significant weaknesses* in control systems, it is important Defence understands what these are and considers carefully whether they are acceptable. This understanding should inform Balance of Investment (BOI) decisions by Senior Duty Holders (SDHs) and senior risk owners and, in turn, should be informed by the appetite of the SofS and the Defence Board for better safety assurance. DG DSA circulated a paper on this question to DSC members after publication of last year's AAR.²³⁹

Last year's AAR did not suggest priorities for the resourcing of safety in Defence as these must be guided by the Department's appetite for safety risk in its various forms, whether Risk to Life (RtL), Risk to Capability, Risk to Environment or Risk to Reputation. Prioritisation and BOI decisions must therefore be decided by TLBHs, following direction and/or guidance from the SofS

or the Defence Board. However, the lack of coordinated progress in the last 12 months against pan-domain significant safety risks,²⁴⁰ as set out in this section, suggests that without central direction on this key question of safety assurance levels, real improvement will not be made. The current Defence Plan does not set a target for safety assurance for Defence, individual TLBs or for overall domains and a recent ExCo paper by DARA noted that safety was one of only 3 areas where there was no plan to achieve substantial assurance.

This section considers other factors affecting the central management of safety in the MOD and the associated senior governance arrangements. It considers some of the wider factors affecting the MOD to assess its safety implications. It reviews progress to address significant safety risks in Defence and identifies emerging risks. It makes recommendations, summarised in Annex C, to improve safety assurance levels and safety management in the MOD.

5.2 Brexit

5.2.1 Assessing the Safety Risk. The DSA has conducted an assessment of the potential Safety and Environmental challenges to Defence as a result of the UK's withdrawal from the EU. The aim of this was to assure our understanding of the implications of Brexit for Defence Safety and determine whether there is more that the Department should be doing. Working with each

²³⁸ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017.

²³⁹ DSA, *'Limited Assurance – So What?'*, DSA/DG/DSC/17/15 dated 23 January 2018'

²⁴⁰ The pan-domain root cause risks were the underlying effect of CHANGE and the lack of SQEP. The remaining significant safety risks were TLB specific, although each were influenced by Head Office decisions (eg ABC outcomes, activity levels, policy).

DSA Regulator, the MOD EU Exit Team²⁴¹ and statutory regulators in Other Government Departments (OGDs) this assessment gauged levels of engagement across regulated domains, identified any specific risks and considered if there was any need for change to Defence Safety policy or regulations.

5.2.2 Conclusion – (Currently) No need for change. The assessment concluded that there was currently no need for any Defence Safety policy or regulatory change and no material changes were expected. Engagement by the MOD on safety matters internally, across government and with civilian regulators and public bodies was good, with close integration in a number of key areas.²⁴² Whilst details on the potential outcomes of Brexit were limited, the MOD’s understanding, and that of our civilian regulatory peers, was expected to improve as negotiations mature. As speculation has reduced, actual risks have been fewer and more specific in some areas, with each being worked by the respective Defence Regulator. None of the specific risks are insurmountable,²⁴³ but Brexit invariably contributes to the overall threat from Change, particularly when coupled with the broad range of major change initiatives highlighted last year and the further variable of the MDP announced on 25 January 2018²⁴⁴ and updated by a Written Statement on 19 July 2018.²⁴⁵ These risks will continue to be managed as we progress through transition next year. However, the recent emphasis on ‘no deal’ planning, led by DG Strategy and International and the forthcoming publication of a range of Technical Notes across Government indicates the need for a further reassessment.

Recommendation 1: *The DSA should conduct a further assessment of the safety implications of Brexit to inform Perm Sec through the European Bilateral Relations and EU Exit (EBRX) Team.*

²⁴¹ Part of the International Security Policy directorate, under Head European Bilateral Relations & EU Exit.

²⁴² DSA regulators are closely engaged with the Health & Safety Executive, Maritime and Coastguard Agency, National Fire Chiefs Council, Medical & Healthcare Products Regulatory Agency, European Defence Agency, European Aviation Safety Agency.

²⁴³ There is improving clarity regarding consequential safety-related risks from Brexit. As an example, the threat to DSA SQEP has lessened, whereas the impact to Environmental Protection legislation, particularly in the Maritime domain, remains undefined. Overall, UK compliance with NATO standards and agreements mitigates the impact of UK forces operating in the EU. These risks

5.3 National Security & Capability Review (NSCR) and the Modernising Defence Programme (MDP)

5.3.1 Need for Change. The NSCR²⁴⁶ concluded that the world has become more uncertain and volatile since 2015. The resulting MDP²⁴⁷ which comprises the four work-streams is shown in Figure 5-2.

Modernising Defence Programme

Workstream 1 – MOD Operating Model: establishing a refreshed and clearer Operating Model for Defence, to enable better and faster decision-making and more efficient and effective delivery of Defence outputs.

Workstream 2 – Efficiency and business modernisation: providing confidence in the MOD’s ability to realise existing efficiency targets, and a set of options for future efficiency and business modernisation investments.

Workstream 3 – Commercial and industrial approach: assessing how MOD can improve on commercial capability and strategic supplier management.

Workstream 4 – Defence policy, outputs and military capability: analysing the global security context and its implications for Defence policy, the roles and tasks that we prioritise, and the opportunities or imperatives for modernising our workforce, military capabilities and force generation processes.

Figure 5-2

5.3.2 Consideration of Safety. By ensuring safety is an integral consideration throughout this change programme, the MOD can protect its operational capability from unnecessary losses, ensure the safety of its personnel and maintain its professional reputation through compliance with applicable legislation. The DSA has been a stakeholder in these planning groups to ensure safety is being considered throughout this iterative process.

5.3.3 Safety and Governance Structures. Particular emphasis on safety and governance structures will be needed in Workstream 1 where the MOD should ensure it has the appropriate

have been shared by regulators with the relevant statutory bodies; but, presently no centralised intervention is deemed necessary at this stage. This will develop further as our understanding matures.

²⁴⁴ Hansard, House of Commons Debate, Volume 635, *Modernising Defence Programme*, 25 January 2018.

²⁴⁵ Hansard, House of Commons Written Statement, HCWS883, *Modernising Defence Programme - Update*, 19 July 2018.

²⁴⁶ <https://www.gov.uk/government/publications/national-security-capability-review-hsncr>.

²⁴⁷ Hansard, House of Commons Debate, Volume 635, *Modernising Defence Programme*, 25 January 2018.

governance structures in place to manage safety and ensure legislative compliance. Work to deliver a new and effective governance structure has commenced under the Chief Operating Officer (COO) with support from the DSA.²⁴⁸

5.3.4 Managing Change Effectively.

Workstream 4 of the MDP has the potential to substantially compound further Organisational and Equipment Programme change to what is already a large portfolio,²⁴⁹ particularly as the magnitude and breadth of Change across the Department was reported last year as a pan-domain root cause risk to safety.²⁵⁰ SROs who managed Change effectively and consider safety throughout by conducting OSAs²⁵¹ have a greater likelihood of maintaining safety during the Change, and addressing the enduring safety risks affecting Defence.²⁵²

Recommendation 2: *The DSA should continue to engage with MDP workstream leads and conduct independent assurance of safety planning and policy compliance of final MDP workstream products.*

5.4 Significant Safety Risks

The previous DSA AAR²⁵³ highlighted 6 significant safety risks, many of which have endured from previous assurance reports. These were categorised as *Pan-Domain Root Cause Risks*²⁵⁴, *Individual Risks*²⁵⁵ and *Assurance Risks*.²⁵⁶ There has been progress against some of these risks, but not in all, and any progress has been more the result of individual TLB initiatives and leadership. There is now evidence that deficiencies in Head Office's governance of safety represents an emerging pan-domain risk of sufficient concern to warrant enhanced assurance and the attention of the SofS/Defence Board and senior risk owners, including those generating Strategic BOI recommendations



through the MDP and in subsequent Annual Budget Cycle rounds.

5.4.1 Head Office Governance. As a result of the development and issue of the policy for SEMS in Defence²⁵⁷ it has become clear that Defence lacks an overall safety governance structure to support those accountable at the highest levels. Without such a governance structure and the ability to generate and execute an overarching SEMS for Defence, it is unclear how safety and environmental risks are informing the MOD's holding-to-account process. This is a critical omission, as without an effective method of accountability there is no incentive for senior risk owners to act or ambition to strive towards achieving **Substantial Safety Assurance**, the

²⁴⁸ The Perm Sec tasked COO with establishing the top level of safety governance for Defence and has set Terms of Reference of a Review of the Head Office Governance of HS&EP.

²⁴⁹ The Defence Equipment Plan alone equated to £180Bn out to 2026/27. MOD, *Defence Equipment Plan 2017*, 31 January 2018.

²⁵⁰ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, paras 39-40.

²⁵¹ DSA01.2, Chapter 7, *Assessment of Organisational Change on Health, Safety and Environmental Protection*, issued 8 July 2018.

²⁵² As example, safety-aware change management can avoid contributing towards the enduring deficiencies in SQEP where there has been an historical disconnect between capability planning and manpower generation and highlighted in the recent NAO report on

Defence manning, NAO, *Ministry of Defence: Ensuring sufficient skilled military personnel*, HC 947 2017–2019, 18 April 2018.

²⁵³ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 36.

²⁵⁴ Effects of Change and lack of SQEP.

²⁵⁵ Mid-Air Collision (MAC), the condition of Fuel & Gas Infrastructure (FGI) and the management of Fire Safety and the associated infrastructure.

²⁵⁶ 2PA risks in the Maritime and Land domains.

²⁵⁷ DSA01.2, Chapter 2, *Requirement for Safety & Environmental Management Systems in Defence*, issued 23 January 2018 and revised 26 June 2018.

minimum level that Defence should accept.²⁵⁸ With no apparent action to address this after 3 months and no adequate evidence of compliance 3 months after issue of the policy, an Improvement Notice was served on the Perm Sec to document this identified weakness.²⁵⁹ Subsequently the DSA has offered support to the COO in forming these governance arrangements as he builds a new Defence Operating Model and associated Performance and Risk Review process as part of the MDP.²⁶⁰ This will also assist with the Head Office HS&EP Governance Review and include guidance on what should be considered, such as:

Head Office Governance 10 Key Questions

1. Who is ultimately responsible for safety risks in the MOD?
2. What is the Perm Sec's role as 'Senior Responsible Official'?
3. Who has been appointed with safety responsibilities for each of the TLBs and what are those responsibilities?
4. How does the SofS and Perm Sec hold these appointed individuals to account?
5. How are safety risks reported to the SofS and Perm Sec?
6. How does a senior risk owner raise the requirement for additional resource to manage safety and environmental risks with the Perm Sec?
7. How does the Perm Sec raise the requirement for additional resource for safety and environmental risks with the SofS?
8. If additional resource is not forthcoming, how does a senior risk owner transfer ownership to the SofS?
9. How does the SofS decide whether or not a Risk to Life is ALARP or legal compliance is achievable?
10. How would the SofS decide to invoke the legal provision to exempt Defence from ensuring Risk to Life is ALARP for essential military activities?

Figure 5-3

²⁵⁸ **Substantial Assurance** describes safety systems which are effective at identifying, assessing and managing hazards with only minor weaknesses.

²⁵⁹ DSA/IN/DSA/HQ/18/1-Perm Sec dated 24 April 2018.

²⁶⁰ MDP Workstream 1.

²⁶¹ Although both standalone meetings, the Armed Forces Committee (comprising the majority of senior safety risk owners) and the Executive Committee (comprising the remaining Head Office and TLB risk owners) hold a joint meeting on a periodic basis.

Establishing a safety governance structure integral to the Defence Operating Model and supporting governance frameworks. This need not be achieved through a bespoke forum, but could be integrated within existing governance meetings and directives (eg combined AFC/ExCo or a Defence Risk Committee).²⁶¹

- Directing the level of safety assurance expected from TLBs and across domains. In Defence Plan 2010 the Defence Board had previously stipulated that it should achieve a level of **Substantial Safety Assurance** and specified the timescale for it to be achieved.²⁶² As proposed in the DSC paper 'Limited Assurance – So What?', the question remains as to what level of safety is Defence willing to resource and what level of residual risk is it willing to tolerate.
- Monitoring and assuring the safety and environmental risks of Defence and the safety performance of senior risk owners. Fed by the outcomes of a Head Office safety governance structure, an opportunity exists under MDP Workstream 1 to generate both ambition and incentive for senior risk owners by aligning a Head Office safety governance structure with the revised holding to account principles. This would allow the SofS and Perm Sec to agree annually safety and environmental performance levels with senior risk owners²⁶³ and periodically review performance and jointly manage risk.

Further areas for consideration have been summarised in 10 Key Questions for Head Office Safety Governance, shown in Figure 5-3. These questions were developed by the DSA for the COO-led Safety Governance Review as part of his work on a new Defence Operating Model. The questions articulate the 'What' regarding the new governance model's outputs and what it needs to achieve, the 'How' is for the Department to decide on. Adopting this method ensures the continued independence of the DSA.

²⁶² Defence Plan 2010 (DP10), Defence Board Standing Objective: *'Whilst the Defence Board Standing Objective target of "Substantial Assurance" by 2012 remains achievable, the lack of real progress in 2010 and potential for further degradation from numerous change programmes, reported by all Functional Environmental and Safety Boards (FESBs), and DG Military Aviation Authority (MAA), remains a serious concern.'*

²⁶³ Safety performance targets can be set and agreed through the annual Defence and Command Planning cycle.

Recommendation 3: *The Perm Sec should establish Head Office governance of safety and environmental performance through the revised Defence Operating Model, its performance, risk and review (PRR) framework and the Department's approach to overall risk management.*

Recommendation 4: *The Defence Board should direct, through the Defence Plan, the minimum levels of safety assurance TLBs should achieve and by when.*

5.4.2 Progress with Pan-Domain Risks. The 2 pan-domain significant risks identified in the last AAR were the impact of Change on Safety and shortage of SQEP.

- **Change.** Change, whether organisational change or that driven by the Equipment Programme, has the potential to adversely impact safety if not managed correctly. There has been growing evidence that the requirement for SROs²⁶⁴ to generate and consider OSAs has been gaining traction,²⁶⁵ with OSAs now mandated within the SofS's HS&EP policy statement.²⁶⁶ DSA staff have used the preceding 12 months to mentor several SROs and hold workshops with their staff across a range of major and safety-significant programmes, demonstrating how effective OSAs can be in helping identify and manage risk. However, there remains a danger that this positive momentum could be lost as Defence enters a period of further Change or, more likely, a period of Change on Change with each MDP workstream expected to output a series of significant organisational and Equipment Programme changes.²⁶⁷ The positive engagement witnessed from SROs, spanning many TLBs, places Defence in a considerably better

informed and prepared position than last year. As examples of OSAs adding real value grows and the many in progress mature, DG DSA wrote to the Perm Sec highlighting the important role well-managed change plays in maintaining safety and the need for this positive trend of SRO engagement to continue, particularly during the implementation of the MDP.²⁶⁸

Recommendation 5: *The DSA to propose a training package on OSAs for inclusion in Head Office-run SRO training.*

Recommendation 6: *The DSA and Defence Portfolios & Assurance Secretariat (DPAS) to include scrutiny of OSAs as part of the assurance process in JSP 655 and SRO mandates.*

- **SQEP.** A lack of sufficient SQEP has been an enduring issue across TLBs, having been raised as a Defence-wide concern in each annual safety report since 2005.²⁶⁹ Driven mainly by a lack of personnel with sufficient experience rather than qualifications, it represents a composite of numerous separate manning threads and highlights the inherent tension between a TLB's perceived need for SQEP and its ability to grow and maintain a cadre of people with sufficient experience to be deemed competent.²⁷⁰ Overall visibility of SQEP concerns is limited, with few TLBs highlighting their issues to Head Office in routine reporting.²⁷¹ However, the CDP has developed a number of measures²⁷² which Single Services can choose to enact. These measures, coupled with several TLB-driven initiatives such as the Royal Navy's Personnel Recovery

²⁶⁴ Each major equipment or business change programme has a Senior Responsible Owner appointed by the Perm Sec.

²⁶⁵ DSA01.1, *Defence Policy for Health, Safety and Environmental Protection*, v1.0, August 2016 sets the requirement to conduct an OSA; whereas, DSA01.2, Chapter 7, *Assessment of Organisational Change on Health, Safety and Environmental Protection*, issued 8 July 2018 details the necessary content and approach.

²⁶⁶ MOD, Health, Safety and Environmental Protection in Defence: Policy Statement by the Secretary of State for Defence, dated 20 June 2018.

²⁶⁷ Workstreams 1 & 2 will propose changes to the Defence Operating Model and Head Office structure, Workstream 3 will influence Defence's commercial relationship with Industry, and Workstream 4 will propose changes to the Equipment Programme.

²⁶⁸ DG DSA wrote to the Perm Sec in February 2018 highlighting the importance in conducting OSAs.

²⁶⁹ Annual Safety and Environmental Assurance Reports for Defence have been produced by the DSA since 2015. Previous reporting was by incarnations of the Defence Environment and Safety Committee and Defence Environment and Safety Board.

²⁷⁰ MOD, *Defence Safety Authority Annual Assurance Report April 2016 – March 2017*, 31 October 2017, para 41.

²⁷¹ Quarterly Performance and Risk Reports (QPRR) are submitted to Head Office by each TLB, giving them an opportunity to report manning pinch points, SQEP and safety concerns.

²⁷² Options such as recruitment initiatives (golden handshakes, recruitment bounties), financial retention incentives and financial rewards aligned to attaining professional qualifications.

Programme (PRP)²⁷³ and the DE&S Transformation Programme (including Project SALUS), have led to an improved position against specific shortfalls in marine and nuclear engineering. These improvements are expected to increase and endure, aided by the targeted recruitment and retention measures included in the 2018 Armed Forces Pay Award.²⁷⁴ However, despite these improvements, SQEP shortages in these specialisations have not been eradicated.

There are worrying examples of SQEP requirements being disregarded in areas of significant risk to life and the environment.²⁷⁵ Evidence shows that individual SQEP shortfalls can be treated successfully. However, despite a mature understanding of Duty Holding across domains (albeit a 'maturing' position in the Land domain), there is still an absence of overall visibility, monitoring and coordination of SQEP issues, missing a key opportunity to exploit these individual successes and share good practice. However, to manage this effectively, organisations must consider all aspects of the lifecycle of SQEP, as too easily units become focused on solely filling a specific gap in their organisation. Every organisation needing SQEP should consider and support defining the requirement, providing the necessary training, delivering opportunities to gain experience and establishing recognised and valued career pathways,²⁷⁶ rather than leaving these to the single Services and Principal Personnel Officers (PPOs). Defence can thus guard against the risk of SQEP 'creep' and setting unrealistic or unjustified demands on PPOs.

Recommendation 7: *The TLBHs should more formally report the scale and impact of SQEP deficiencies to Head Office through existing PRR mechanisms.*

5.4.3 Progress with Individual Risks. The 3 pan-domain significant risks identified in the last AAR were Fire Safety Management and

Infrastructure, Fuel & Gas Infrastructure and Mid-Air Collision.

- **Fire Safety Management & Infrastructure.** The Defence Fire Safety Regulator (DFSR) has highlighted the continued decline in the maintenance and condition of infrastructure as an increasing threat to the safety of both personnel and materiel across the Defence Estate. This was highlighted to the Defence Board as a significant concern when submitting the previous annual report, but the DSA is unaware of any collective action being taken. Although fire safety is not necessary the greatest RtL in Defence it is one of the more avoidable, and the decline witnessed in its safety assurance should not be allowed to continue. The 2 significant fires in SLA,²⁷⁷ which triggered DG DSA's targeted review, and the tragic consequences of Grenfell Tower brought this firmly into focus. Through the DFSR's findings and 8 recommendations into fire safety in Defence SLA²⁷⁸ it highlighted the need to clarify the fundamental issues of ownership and accountability at all levels, and the lack of training and guidance available to HoE and those non-specialists in the assurance chain. It emphasised the need for TLBs to understand better, document and assure the services delivered by DFMRO and, in the coming months, DFRP. It will require the concerted effort of Head Office and TLBs to arrest and reverse this decline.

Recommendation 8: *The VCDS should write to all TLBs directing HoE to take ownership of all fire safety risks within their AOR and to comply with policy.*

Recommendation 9: *The DSA should lead the production of HoE policy guidance, supported by DIO and the Directorate of Security and Resilience.*

²⁷³ The PRP combines a number of former RN manning initiative such as the former Submarine Sustainable Manpower Programme.

²⁷⁴ The 2018 Pay Award included a range of Recruitment and Retention, Financial Retention Incentives and a new Engineer Professional Recognition Award targeted at Defence Engineers.

²⁷⁵ See sections 3.3.3 and 3.6.3 for examples in the Land and Fire domains.

²⁷⁶ Are posts that build SQEP seen as career enabling, and do they attract the right people?

²⁷⁷ Fires in SLA at Aliwal Barracks and Theipval Barracks.

²⁷⁸ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFSR/18/001/Report dated 14 August 2018.

Recommendation 10: The Perm Sec should request the Infrastructure and Projects Authority conduct an independent assurance review, supported by DSA, of DFRP and DFMRO approximately 12 months post initial service delivery.

Recommendation 11: The DSA should facilitate a Fire Safety Governance focused meeting of the Defence Safety Committee.

- **Fuel & Gas Infrastructure (FGI).** The DSA assessment of the current condition of FGI from a safety perspective was provided separately to VCDS after last year's AAR. There remains widespread regulatory non-compliance, exacerbated by limitations on DIO resource and the complex ownership and commercial arrangements supporting our FGI. Similarly, the DLSR²⁷⁹ cannot demonstrate fully the impact of any action taken by TLBs or collectively by Defence to address this significant risk.

These issues are not exclusive to FGI, but are symptomatic of Defence Infrastructure as a whole. Defence recognises there is a *significant risk*²⁸⁰ that the poor condition of the estate will affect defence capability, with FGI being a key element. In addition to the chronic effects of a declining estate impacting the moral component, FGI presents the greatest risk of generating a strategic shock through a major accident or environmental event – the causes and impact of the Buncefield explosion²⁸¹ serve as a reminder.

However, it would be naïve to assume that the projected £8.5Bn shortfall in overall infrastructure funding estimated by the NAO²⁸² could be substantially treated in the current fiscal climate. Moreover, the transition of infrastructure funding and direction back to user TLBs from the DIO under the Defence Infrastructure Model Review (DIMR) adds further complexity to this '*huge challenge*'²⁸³ of maintaining the Estate. The DSA has worked closely with



DIMR to help mature their OSA and aid their understanding of the risks arising from this change. The DSA recognises the enormity of the overall infrastructure challenge facing Defence and the senior governance in place to direct and monitor the recovery of FGI. Now that DIMR has been implemented,²⁸⁴ Regulators will monitor closely how infrastructure risks are being managed and, particularly, how FGI is being prioritised. However, despite it presenting a greater environmental and reputational risk rather than RtL, it is no less worthy of Defence Board attention. Maintaining momentum in addressing FGI concerns and ensuring they retain an appropriate priority against other competing demands will prove a key challenge for Head Office.

Recommendation 12: The Perm Sec should consider how Head Office integrates FGI risk within overall risk governance.

- **Mid-Air Collision (MAC).** The risk of MAC is unchanged however, there has been positive engagement by both the Regulator (MAA) and RAF in better understanding the threat posed by a growing UAS market. The recent promotion of DRONESAFE and 'The Drone Code' by the civilian regulator (CAA) alongside recent regulation goes towards partially mitigating the threat of MAC, particularly from recreational users. However, the effectiveness of the CAA's campaign has yet to be assessed. With AIRPROX rates reducing²⁸⁵ and further

²⁷⁹ Including the Defence Fuel & Gas Safety Regulator (FGSR).

²⁸⁰ House of Commons Library, *Defence Estate strategy*, 11.

²⁸¹ COMAH, *Buncefield: Why did it happen?*, February 2011.

²⁸² NAO, *Delivering the Defence Estate*, HC782 2016-17, 15 November 2016.

²⁸³ NAO, *Delivering the Defence Estate*, 7.

²⁸⁴ Infrastructure funding and accountability transferred to user TLBs on 1 April 2018.

²⁸⁵ The total number of Airprox involving military aircraft in the UK in 2017 (62) is notably lower than 2016 (95), but remains broadly consistent with 10-year average rates.



measures taken to mitigate MAC, such as the introduction of an Enhanced Collision Avoidance System for Typhoon combat aircraft and Collision Warning Systems in many of our training aircraft, there is a risk of complacency. Manning deficiencies and increasing reports of fatigue in our Air Traffic Controllers and Air Battlespace Managers require DHs safety management and governance to be at its most effective. These safety systems are working, with risks being identified and managed at the correct level by the right SQEP. Whereas this may reflect a mature and established safety culture in aviation, it reflects upon a system under pressure and required to make daily informed judgements concerning risk versus operational output.

5.4.4 Progress with Domain Assurance.

Where the DSA previously highlighted a shortfall in assurance across the Land and Maritime domains, it can **report positive change**. There is now strong evidence of senior leadership commitment in both environments, with a recognition of the operational value of conducting effective internal assurance. Work is still required in cross-cutting areas²⁸⁶ and the effects of these key commitments need to permeate throughout their organisations. However, the DSA is confident these will follow the progress made by the Army and Navy Comd in their core domains.

Unfortunately, assurance in the Aviation domain has weakened based on the evidence seen this year. Regulator findings during audits of A400M operations and the DHFS, and the independent review of Sentry (E-3D) maintenance commissioned by Air Comd (38 Group) exposed weaknesses in 1PA, 2PA and increased instances of a Failure to Follow Procedures

(F2FP). While the root causes of each finding are being addressed, it has highlighted an increasing number of gaps being tolerated in key assurance positions. Whether caused by manpower prioritisation or insufficient SQEP, it reinforces the priority being afforded to these safety functions and to the staff who occupy those roles. The previous points on 'lifecycle' of SQEP and valuing these roles as career enhancing rather than career limiting would go some way to improving the safety culture of an organisation.

Recommendation 13: *TLBHs should review how they resource, deliver and sustain assurance throughout their organisation.*

5.5 Emergent Risks

Each Regulator highlighted a number of emerging risks across Defence, some of which have the potential to become significant or cross-cutting. Most require further investigation and analysis so are therefore not documented in this report. However, each potential risk will be developed jointly between Regulators and the Regulated Communities over the coming year. These form a watchlist of potential risks which will continue to be monitored by Regulators.

However, there is one cross-cutting emerging risk of potential significance that is worthy of inclusion in this report. The DSA is not currently able to provide adequate assurance of Environmental Protection (EP) policy and regulation to SofS. Whilst there are pockets of activity on EP occurring within many of the domains, there is no consistent or coordinated coverage.

Recommendation 14: *The DSA should review existing Environmental Protection assurance mechanisms and, where necessary, issue policy and conduct the necessary assurance.*

²⁸⁶ For example, in RAF and RN land activities, and Army and RAF maritime activities.

5.6 What do we need to do?

To provide a consolidated picture of the action needed to improve the MOD's safety performance and management the recommendations of this report, together with other related ongoing work, are summarised below to show the action required of the Department, the TLBHs and the DSA.

5.6.1 As a Department of State and Head Office there is a need to:

- Establish a framework to govern safety and environmental performance throughout the Department and embed it within the Defence Operating Model. *[Recommendation 3]*
- Set the level of safety performance and assurance Defence is willing to tolerate and direct the TLBHs to achieve it. *[Recommendation 4]*
- Hold SDHs and senior risk owners to account for their safety performance and assurance. *[Recommendation 3]*
- Generate a top level SEMS for Defence. *[Recommendation 3]*
- Integrates FGI risk within overall risk governance within Head Office. *[Recommendation 12]*
- Direct HoE to take ownership of all fire safety risks within their AOR and to comply with policy. *[Recommendation 8]*
- Consider requesting independent reviews of major change programmes post implementation. *[Recommendation 10]*
- The DSA and Defence Portfolios & Assurance Secretariat (DPAS) to include scrutiny of OSAs as part of the assurance process in JSP 655 and SRO mandates. *[Recommendation 6]*

5.6.2 As TLBHs there is a need to:

- Assess effectiveness of their SEMS. *[DP10, Defence Task 8.12.3]*
- Consider how they resource, deliver, exploit and sustain assurance throughout their organisation. *[Recommendation 13]*
- Report safety, environmental and SQEP issues to Head Office through existing performance reporting mechanisms. *[Recommendation 7]*
- Escalate significant safety and environmental risks to Head Office using existing risk reporting mechanisms, pending further direction from Head Office. *[Recommendation 3]*
- Exploit the collective benefits of the revised Head Office safety governance structure, the DSC and cross-fertilise good practice.

5.6.3 As the DSA there is a need to:

- Facilitate pan-TLB/Head Office discussions through the DSC. *[DSA Charter, para 6]*
- Advise, assure, assist the Department in achieving its safety goals. *[DSA Charter, para 2]*
- Lead the production of HoE policy guidance, supported by DIO and the Directorate of Security and Resilience. *[Recommendation 9]*
- Promote a culture of safety within Defence. *[DG DSA's Intent for 2017/18]*
- Further improve and sustain Regulator maturity. *[para 4.11]*
- Conclude PRISM. *[para 2.5.2]*
- Pursue the statutory protection of Defence safety investigations. *[para 4.10]*
- Conduct a further assessment of the safety implications of Brexit. *[Recommendation 1]*
- Conduct independent assurance of safety planning and policy compliance of final MDP workstream products. *[Recommendation 2]*
- Propose a training package on OSAs for inclusion in Head Office-run SRO training. *[Recommendation 5]*
- Facilitate a Fire Safety Governance focussed DSC(I). *[Recommendation 11]*
- Review existing Environmental Protection assurance mechanisms, issue policy and conduct assurance. *[Recommendation 14]*
- The DSA should continue to engage with MDP workstream leads and conduct independent assurance of safety planning and policy compliance of final MDP workstream products. *[Recommendation 2]*

Summary

6.1 TLB Safety Assurance

While this year's AAR is still based on assessments by domain, Figure 6.1 shows how this translates into an assessment of the level of safety assurance of each major TLB. I hope this proves useful to TLBHs.

TLB	Aviation	Maritime	Land	Fire	OME	Med Services
Navy Comd	Yellow	Green	Yellow	Yellow	Green	Green
Army	Yellow	Orange	Yellow	Orange	Green	Yellow
Air Comd	Yellow	Grey	Yellow	Yellow	Blue	Green
JFC	Yellow	Orange	Orange	Yellow	Green	Yellow
DE&S	Yellow	Green	Yellow	Yellow	Green	Grey
DIO	Grey	Orange	Yellow	Orange	Blue	Grey

Figure 6-1

Figure 6-2 shows DSA's assessment of where individual TLB Assurance sits relative to its peers.

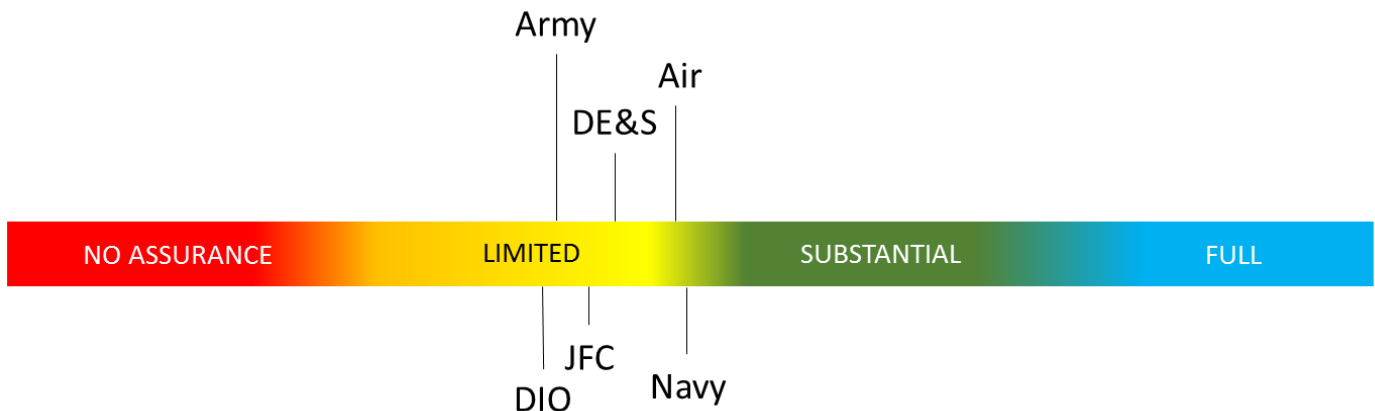


Figure 6-2

6.2 What's needed?

At para 5.6 of this report I suggest what the Head Office, the Commands and Enabling Organisations and the DSA should do to improve safety in Defence, including the 14 key recommendations of this report listed in Annex C. In essence this equates to:

- Head Office getting its governance of safety right, embedding it in the revised Defence Operating Model and holding senior risk owners and SDHs to account.
- TLBs investing in their 2PA, using its findings to drive its risk management and to remain vigilant to the significant risks affecting Defence (SQEP Change, MAC, FGI, Fire safety management and 2PA).
- The DSA develop better risk-based regulation, apply common and consistent enforcement action across domains, and develop a single DSA interface and brand.

I will progress the actions relating to the DSA and will support Head Office and the TLBs in taking these recommendations forward, under the guidance of the subsequent senior MOD Board to which they are assigned as part of the Perm Sec's review of safety governance within Defence.

6.3 Conclusion

I regard this Annual Assurance Report (AAR) as the DSA's most important output, as it allows me to pull together where I regard Safety in Defence to be. It is based on evidence provided by my 7 x Regulators, the DAIB, from TLB assessments and reports and from the many visits I've conducted across Defence. In doing so it's important to remember that the DSA is not 'in charge' of Safety for Defence. Ultimately that is the responsibility of the SofS and Defence's Senior Duty Holders (SDHs/single Service Chiefs) and TLBHs. The DSA is Defence's Safety Authority, Regulator and Accident Investigator. It is the DSA's role to assure Safety across Defence, to write the rules and to offer advice and guidance on how Defence can achieve continuous improvement in the safe conduct of its activities. And that is exactly what this Report seeks to do.

It might appear critical in places, especially as some of the indicators in Section 2 are positive.²⁸⁷ This might be so, but sorting out the shortfalls in the Head Office's governance of Safety, including introducing effective holding to account procedures, are essential. The reason why there has been no demonstrable improvement across all the areas of weakness highlighted in last year's AAR, is because Defence did not have the mechanisms to deal with the issues raised. It still doesn't, but I am confident the work being undertaken by the COO on behalf of the Perm Sec, will ensure this will not be allowed to happen again.²⁸⁸

I have assessed there to be **LIMITED Safety Assurance** across Defence. This is the same as last year and should not be accepted as being good enough. However, without appropriate governance, there exists no effective mechanism to incentivise improvement. Defence should strive for at least **SUBSTANTIAL Safety Assurance**, with TLBHs being directed to comply or to explain why they see fit to not do so.

In my introduction I highlighted a number of themes, which I regard as prevalent accident factors. I reiterate these for emphasis as they now appear with monotonous regularity in Service Inquiries (for safety related fatalities) and DAIB deployments. The themes are: a failure to follow procedures, a lack of appropriate supervision, the taking of inappropriate levels of risk and a lack of or inadequate leadership. The latter theme on leadership I regard as particularly important as appropriate leadership is essential in developing and sustaining Safety Culture.²⁸⁹ The Report acknowledges the personal leadership shown by the SDHs in promoting Safety. Sustaining this is also essential and I urge our senior leaders to give the fostering of an effective Safety Culture their highest priority.

Of the significant Safety Risks I raised last year, the one that causes me most concern and has shown the highest levels of deterioration, is Fire Safety Management. Despite fewer fires and false alarms, unless the recommendations of the Review I directed into Fire Safety in Single Living Accommodation²⁹⁰ (Defence's highest Fire Safety Risk to Life) are addressed, I cannot provide adequate assurance regarding the potential of a significant fire event and injury/loss of life.

This AAR also recognises that the DSA cannot yet assure the full scope of the SofS's HS&EP policy, particularly compliance with legislation governed by non-MOD regulators such as the HSE and concerning Environmental Protection. However, now the DSA's Safety Policy and Assurance Team has been established and has started audits of TLBs' SEMS, I will be able to provide a level of assurance for this in subsequent reports.

²⁸⁷ For example – a reduction in DAIB deployments and a downward trend in enforcement action by statutory regulators.

²⁸⁸ And satisfy the requirements for the lifting of the Improvement Notice served on the Perm Sec.

²⁸⁹ I regard Safety Culture as the attitudes, beliefs, perceptions and values that employees share in relation to Safety in their workplace. A Safety Culture combines Just, Reporting, Flexible, Learning and Questioning cultures.

²⁹⁰ DSA, *Fire Safety Review: Defence Single Living Accommodation*, DFRS/18/001/Report dated 14 August 2018.

Finally, I feel it's important to acknowledge the part played by all members of the DSA in discharging their duties. The DSA is still young and has yet to establish itself as a 'brand'. Doing so is important as not only does it assist with resolving issues regarding Mutual Recognition and Certification with industrial partners and allies, including for Brexit, but it confers a level of credibility. I hope the imminent external audit of the DSA²⁹¹ and the International Safety Conference the DSA is supporting in the Autumn²⁹² will catalyse views in this regard.



Lieutenant General Richard Felton CBE
Director General
Defence Safety Authority

²⁹¹ DG DSA to Perm Sec, *Intent for External Audit of the Defence Safety Authority*, DSA/DG/PS/1/18 dated 28 February 2018.

²⁹² The Defence Safety Conference, supported by the DSA, will take place in London on 1 and 2 October 2018. <https://www.smi-online.co.uk/defence/uk/conference/defence-safety>.

Safety-Related Inquiries and Investigations April 2017 – March 2018

New and ongoing Defence Service Inquiries: April 2017 – March 2018

30 July 2013	Brecon. An SI was convened in July 2015 to investigate the circumstances surrounding the loss of 3 soldiers who died whilst undertaking an endurance march as part of selection for a specialist military unit. The inquiry also reviewed the safety arrangements now in place for the whole of the selection process for Regulars and Reserves. This report was published on 19 April 2017. ²⁹³
8 July 2016	Yak 52. A civilian-registered Yak 52 aircraft, on contract to the Empire Test Pilots School, crashed in a field 8 nautical miles west of MOD Boscombe Down, resulting in the death of a Royal Air Force pilot and serious injuries to a civilian pilot. This report ²⁹⁴ was published on 25 April 2017 and concluded that the crash was caused by a failed forced landing following an unexplained engine problem.
19 July 2016	Rifles Training Team, Infantry Battle School. A soldier from the RIFLES Training Team, Infantry Battle School collapsed and died 400m from the finish of an 8-mile loaded march. As reported in the 2016/17 DSA Annual Assurance Report (AAR), it was confirmed that this death was not the result of any safety failure. The SI report was published on 13 November 2017. ²⁹⁵
9 August 2016	Griffin. A Griffin helicopter (ZJ241) operated by the Defence Helicopter Flying School, RAF Valley, experienced severe vibration after landing in the vicinity of Yr Aran, Snowdonia. During the subsequent shutdown the aircraft caught fire. The crew evacuated safely but the aircraft was rapidly consumed by the fire and sustained Category 5 damage. The SI report was published on 16 August 2018. ²⁹⁶
22 August 2016	Otterburn. A soldier from 3 SCOTS received a fatal gunshot wound during a night Live Fire Tactical Training exercise at Heely Dodd Battle Shooting Area on Otterburn Training Area. This report was published on 15 November 2017. ²⁹⁷
1 November 2016	RAF Tain. Whilst part of the waiting detail prior to a night live firing sniper shoot, a soldier from 3 RIFLES received a fatal gunshot wound. An SI was convened on 12 January 2017 after further information was received from the Police regarding the nature of the death. This report was published on 9 August 2018. ²⁹⁸
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. An SI was convened in January 2017 but was paused for 3 months to allow an associated Courts Martial to be conducted and is still ongoing.
3 February 2017	Watchkeeper 042. Watchkeeper (Tail No WK042) crashed into the sea in Cardigan Bay to the north of West Wales Airport. The UAV was being flown by a mixed UTacS, ²⁹⁹ Thales crew under a Military Flight Test Permit for the purpose of conducting a de-icing equipment trial. The SI was convened on 15 February 2017 and is approaching its final stages of completion.

²⁹³ <https://www.gov.uk/government/publications/service-inquiry-report-into-the-deaths-of-3-soldiers-in-the-brecon-beacons-wales-in-july-2013>.

²⁹⁴ <https://www.gov.uk/government/publications/service-inquiry-into-the-aircraft-accident-involving-yak52-q-yakb-on-8-july-2016>.

²⁹⁵ <https://www.gov.uk/government/publications/service-inquiry-report-into-the-death-of-a-soldier-during-an-annual-fitness-test-at-brecon-on-19-july-2016>.

²⁹⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733515/Griffin_Final_Report_-_RT.pdf.

²⁹⁷ <https://www.gov.uk/government/publications/service-inquiry-into-the-death-of-a-soldier-participating-in-live-fire-tactical-training-at-heely-dodd-range-otterburn-on-22-august-2016>.

²⁹⁸ <http://www.gov.uk/government/publications/service-inquiry-report-into-the-death-of-a-soldier-participating-in-a-night-live-firing-sniper-cadre-at-raf-tain-range-field-firing-area-on-1-november>.

²⁹⁹ UAV Tactical Air Systems Ltd.

New and ongoing Defence Service Inquiries: April 2017 – March 2018

24 March 2017	Watchkeeper 043. Watchkeeper (Tail No WK043) crashed into the sea in Cardigan Bay to the north of West Wales Airport. The Unmanned Air Vehicle (UAV) was being flown by a mixed Army, UTacS, Thales crew under a Military Flight Test Permit for the purpose of conducting an Army student conversion sortie. The SI was convened in April 2017 and is approaching its final stages of completion.
14 June 2017	Royal Tank Regiment, Challenger 2 (CR2) live firing accident. A CR2 suffered an internal explosion whilst conducting a live firing exercise at Castlemartin ranges, Pembrokeshire. All 4 crew members were injured to varying degrees. Unfortunately, 2 of the crew members later died from their injuries. The report was published on 26 July 2018.
25 August 2017	Hercules C130. Hercules C-130J CMk4 (Tail No ZH873) was conducting a night cargo delivery mission to a natural surface landing strip. The aircraft landed hard and was damaged. The report is due in October 2018.
31 January 2018	Al Asad Airbase, Iraq. An SI was 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 is ongoing.
20 March 2018	Hawk T1. An SI was convened in March 2018 to investigate the crash of a Hawk T1 (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 is ongoing.
26 March 2018	Diving Fatality National Diving and Activity Centre (NDAC). A Navy Comd led SI was convened on 26 April 2018 into the circumstances surrounding the underwater death of a soldier during Army Diver training at the NDAC, Chepstow.

New and ongoing Non-Statutory Service Inquiries: April 2017 – March 2018

Automated Gate Crush Injury. An Army Cadet received crush injuries at the Ulverscroft Road Army Reserve Centre (ARC), Leicester on 6 February 2017 from the electrically powered hinged vehicle gate at the main entrance of the ARC. The cadet had attempted to squeeze through the gap between the gate post and the inner end of the gate when it was activated. The inquiry report was published on 24 April 2017.

Land Rover Wheel Detachments. Following repeated instances of Land Rover wheels becoming unintentionally detached whilst the vehicles were moving, a DAIB-led NSI was initiated due to the potential for serious injury. The inquiry report was published on 15 November 2017.

MAN Support Vehicle (MAN SV) Crashworthiness. Following 3 serious collisions involving MAN SV over a period of 15 months between June 2015 and December 2016, resulting in serious injury to cab occupants, an NSI was held to investigate the crashworthiness of the vehicles and related issues. The inquiry report was published on 28 November 2017.

Luge Accident. An RAF Senior Aircraftsman (SAC) was injured on 29 January 2018 during the RAF Bobsleigh, Skeleton and Luge Association (BSLA) Novice Ice Championships at Innsbruck Olympia Eiskanal, Austria. The SAC was a Novice Luge athlete and suffered a serious head injury. The inquiry report is expected to be published in October 2018.

Defence Nuclear Domain Assurance - NOTAL

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Report Recommendations

Recommendation 1:	The DSA should conduct a further assessment of the safety implications of Brexit to inform Perm Sec through the European Bilateral Relations and EU Exit (EBRX) Team.
Recommendation 2:	The DSA should continue to engage with MDP workstream leads and conduct independent assurance of safety planning and policy compliance of final MDP workstream products.
Recommendation 3:	The Perm Sec should establish Head Office governance of safety and environmental performance through the revised Defence Operating Model, its performance, risk and review (PRR) framework and the Department's approach to overall risk management.
Recommendation 4:	The Defence Board should direct, through the Defence Plan, the minimum levels of safety assurance TLBs should achieve and by when.
Recommendation 5:	The DSA to propose a training package on OSAs for inclusion in Head Office-run SRO training.
Recommendation 6:	The DSA and Defence Portfolios & Assurance Secretariat (DPAS) to include scrutiny of OSAs as part of the assurance process in JSP 655 and SRO mandates.
Recommendation 7:	The TLBHs should more formally report the scale and impact of SQEP deficiencies to Head Office through existing PRR mechanisms.
Recommendation 8:	The VCDS should write to all TLBs directing HoE to take ownership of all fire safety risks within their AOR and to comply with policy.
Recommendation 9:	The DSA should lead the production of HoE policy guidance, supported by DIO and the Directorate of Security and Resilience.
Recommendation 10:	The Perm Sec should request the Infrastructure and Projects Authority conduct an independent assurance review, supported by DSA, of DFRP and DFMRO approximately 12 months post initial service delivery.
Recommendation 11:	The DSA should facilitate a Fire Safety Governance focussed DSC(I).
Recommendation 12:	The Perm Sec should consider how Head Office integrates FGI risk within overall risk governance.
Recommendation 13:	TLBHs should review how they resource, deliver and sustain assurance throughout their organisation.
Recommendation 14:	The DSA should review existing Environmental Protection assurance mechanisms and, where necessary, issue policy and conduct the necessary assurance.

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