DIRECTOR GENERAL
MILITARY AVIATION AUTHORITY

AIR SAFETY ANNUAL REPORT

AUG 13 - AUG 14

CONTENTS

DIRECTOR GENERAL MILITARY AVIATION AUTHORITY
DEFENCE AIR SAFETY ANNUAL REPORT - AUG 13 TO AUG 14

INTRODUCTION

1. Much good progress has been made with Air Safety this year as the Regulated Community continues to mature their approach to operating safety while guarding their operational imperatives. Overall, I assess that the MOD as a whole is providing a sound focus on Air Safety, but this picture is not consistent across all areas and there remains differences in the culture and behaviours between the aviation Duty Holder (DH) and DH-facing organizations.[1] Overall, the aviation DH construct continues to prove its worth with strong leadership, empowerment and effective management of Risk to Life (RtL) being evident. The Department has an increasingly clear understanding of the inherent risks in the aviation domain at all levels, and considers them carefully in the delivery of our operational outputs. Indeed, DHs inform us that they are now both far more risk aware and are able to make better and more forward-leaning risk judgements than ever before.

2. The 5 Operating DH (ODH)[2] areas are now compliant with the MAA Regulatory Publications (MRP) and have a high degree of Air Safety maturity, reinforced by strong safety leadership. This is now realising notable improvements in culture and in turn, I believe, safety. The aviation community remains highly committed to operations, while many of its fleets are undergoing transition, with new types or major upgrades being introduced into service. The improved understanding of Air Safety acts as a powerful mitigation to the risks inherent in this activity. Staffs are one-deep in many places and, with the recognised shortages of Suitably Qualified and Experienced Personnel (SQEP), I applaud the commitment to Air Safety that has allowed the seamless and safe transition of force elements across the air transport, helicopter and Remotely Piloted Air Systems (RPAS) fleets against a background of sustained, high operational tempo. However, the tragic loss of 5 lives as a result of the Lynx accident in Afghanistan in Apr 14 acts as a reminder to the enduring need to remain focussed on Air Safety. While no consolation, this accident came at the end of one of the longest periods (22 months) without a military aviation fatality since MOD records began and the average time between fatal accidents continues to increase. Risks will always remain, but I assess that Air Safety continues on a positive vector.

3. Across the DH-facing organizations, progress towards compliance has been less uniform, although good work has been done in some areas. Within the DE&S, there is now a clear focus on Air Safety and an improving trend towards compliance with the MRP across most Project Teams (PTs). However, the challenge of insufficient SQEP is most keenly felt in this area, and manifests itself typically as routine airworthiness tasks not being addressed. In some PTs, more significant tasks are suffering because of the lack of safety-critical and safety-enabling staff, leading overall to an unquantifiable risk being held by the DHs. I will return to the issue of SQEP in more detail within the Strategic Risk and DE&S sections of this report. In the other DH-facing organizations that we have assured over this period, there is an improvement in maturity of Air Safety understanding and the development and evolution of their Air Safety Management Systems (ASMS).

---

[1] A DH-facing organization may not have a primary interest in aviation but holds financial or other levers which directly impact upon the aviation environment and an aviation DH's ability to manage RtL within their respective areas of responsibility. An example might be the DIO and their role in maintaining airfield infrastructure.

[2] The ODHs are Royal Navy ACNS (Aviation & Carriers), Comd JHC, and Royal Air Force AOCs 1Gp, 2Gp and 22Gp. These are all 2* Commanders within the Front Line Commands.

4. Industry partners and contractors represent an increasingly compliant community, with good engagement across the MAA organizational approval schemes. Small pockets of resistance remain; often because an organization's contract with the MOD has not been amended to reflect the regulations now set down in the MRP. However, MAA approval of contractor's design or maintenance organizations seems to be a strong selling point both domestically and overseas, and the smarter contractors are making use of this. To some extent the MAA itself is becoming a recognised entity abroad. To capitalise on this we have continued our work on the harmonization of airworthiness requirements across Europe. Through the medium of the European Defence Agency (EDA) we have this year formally recognised[3] the Spanish airworthiness regulator. This work has been extended outside of Europe to formally recognise the US Army, with the USN and USAF expected to follow shortly. This work has the potential to save time and significant sums of money from the certification, test and in-service support costs for A400M, Typhoon and any UK procurement of US air systems; it will also enable the delivery of savings on which the A400M programme is based. Finally, we have continued our work to improve the MRP, following its launch in 2011, with several significant milestones achieved in this period, and we will shortly be issuing our proposals for change to better regulate Defence's growing inventory of RPAS.

AIR SAFETY ASSURANCE STATEMENT

5. Last year I assessed that Air Safety remained at Limited Assurance,[4] due mainly to the significant and widespread shortage of SQEP. There has been a renewed focus on addressing this weakness this year and, while I consider that there is a better understanding of the issue, it is clear that the task of identifying comprehensive and enduring solutions to improve the situation remains challenging. It would be wrong to suggest that little has been achieved because much has, but whilst we have a better grip of the issue, frankly, tangible benefits have yet to reach the Front Line Commands or the DE&S. As a result, I can only again provide Limited Assurance of Air Safety this year due to the impact of these SQEP shortages. This is unfortunate as much of the community in other areas has reached a maturity level where Substantial Assurance[5] could be justified. I suggest that the range of initiatives that we are now seeing will generate further progress in the next 12 months but that their impact is likely to be modest.

STRATEGIC AIR SAFETY RISKS

6. As last year, I have identified what I believe are the strategic Air Safety risks for Defence Aviation. These are derived from the risks being held across all of the ODH areas and can be prioritised as: the risk of Mid-Air Collision (MAC), the consequence of SQEP shortfalls and the Op HERRICK redeployment and return to contingency. I consider the first 2 risks, MAC and SQEP, to be the most significant with Op HERRICK

---

[3] Military airworthiness standards differ between nations. The only way to make an informed judgement on the extent to which another nation's airworthiness activities would be acceptable to the UK is to look and compare. The process of recognition is set down in EMAD-R Edition 1.0.

[4] Limited Assurance - System of internal control operating effectively, except for some areas where significant weaknesses have been identified. DIA Assurance Classifications (updated July 2014).

[5] Substantial Assurance - System of internal control established and operating effectively with some minor weaknesses. DIA Assurance Classifications – (updated July 2014).

redeployment and return to contingency providing a challenge that is being well managed and mitigated across the operational community, specifically under the PJHQ's leadership.

MID-AIR COLLISION

7. Accident records show that the majority of MACs involving UK Military aircraft have taken place below 3,000 ft in Class G airspace (uncontrolled), reflecting traditional operating patterns. Our aircraft now spend more time at medium level than they did in the past and this in turn has increased the likelihood of a fast-jet conflict with Commercial Air Traffic (CAT). National AirProx[6] reporting is currently tracking well above 5-year averages and this year has already exceeded the expected annual total with some 3 months still to go (181 have been reported up to the end of Sep 14, against a total of 171 reports in 2013).[7] In its last annual report (2013) the UK AirProx Board detailed 14 incidents between UK Military and commercial aircraft of which 5 were risk bearing and included one Class A (risk of collision) and 4 Class B (safety not assured) incidents. Collision between a fast-jet and CAT, which would likely result in significant loss of life for 3rd parties, represents the worst credible MAC scenario for Defence. The risk of MAC, continues to feature in the top level risks of all 5 ODHs and remains a significant operating RtL. AirProx investigations conducted on behalf of the Civil Aviation Authority and the MAA indicate significant levels of DH engagement in managing this risk; indeed, ODHs are well focussed on MAC risk and are working hard to develop and evolve further mitigations. While the risk of MAC can never be eliminated, there is much that Defence can do to further reduce the risk by continually improving operating procedures and wider adoption of technical measures, such as the embodiment of Airborne Collision Avoidance Systems (ACAS)[8] on its fleets.

8. Where an ACAS does not exist on an aircraft type, DHs can apply influence into Front Line Command Capability staffs to include them in capability plans. If necessary any unmitigated risk can be escalated to the respective Senior DH (SDH)[9], who in turn could pass the risk to the Secretary of State. This was done during the provision of the Tornado GR4 ACAS back in 2011. While some critical gaps remain regarding the fitment of ACAS to fast-jet fleets, there is a good news story with the provision of ACAS to large aircraft and more recently helicopters. Under the Rotary Wing Safety Enhancements programme the MOD has funded fitment to the majority of helicopters; on the current schedule this will see most helicopter fleets with an initial fit by the end of 2014 and all fully fitted by the end of 2017.[10] While not a panacea, these systems will help to prevent MAC in the lower airspace where our helicopters tend to operate.

9. ACAS systems like Traffic Collision Avoidance System (TCAS) are effective at medium-level and provide a good confidence level of collision warning. Therefore, given the MAC risk and the existence of a credible mitigation in the form of TCAS, until the point at which a firm commitment is made to fit such a system to each of our fast-jet platforms, their respective ALARP[11] statuses will remain open to challenge. Tornado GR4 is

---

[6] A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

[7] In 2013 approximately 65% involved General Aviation, 47% involved Military types and 31% Commercial Air Traffic. 15% involved other, less common aircraft types.

[8] ACAS includes TCAS (Traffic Alert and Collision Avoidance System) as a specific solution. It is frequently referred to generically as Collision Warning System (CWS).

[9] The single Service Chief of Staff and Top-Level Budget Holder.

[10] Dauphin and Griffin fully fitted in 2014. Gazelle fully fitted by Aug 15. Lynx 9A, Puma 2 and Merlin fleet fully fitted by Dec 16. Apache, Chinook and Wildcat programmes commence next year and are due to be complete by Dec 17.

[11] As Low As Reasonably Practicable.

currently being fitted[12] with TCAS but funded programmes do not yet exist for Hawk T1, Typhoon or Lightning II. DSTL studies show that Typhoon is a far higher MAC risk bearing platform than Hawk T1 in the medium-level environment, largely as a result of the different roles each platform undertakes. Accordingly, the provision of an ACAS to Typhoon is an important issue for Defence. As I stated in the Moray Firth Tornado MAC Service Inquiry, in my view not fitting an ACAS to the Typhoon is an unsustainable position and I recommend that this is pursued with full haste, mindful of the well documented failings over the fitment of an ACAS to Tornado GR4. We must also be clear on how this capability might be delivered on Lightning II, which will provide a whole range of technical and JSF partner-related challenges to any potential programme. Finally, of note, the risk of Typhoon MAC has now been raised by Air Officer Commanding No 1 Gp RAF to his Senior Duty Holder (SDH), the Chief of the Air Staff. In the worst case, which is judged improbable but catastrophic,[13] a Typhoon colliding with CAT could result in severe consequences for the MOD because of the likely substantial 3rd party loss of life. Accordingly, this raises the issue of societal risk, often referred to as societal concern, defined by the HSE as a one-off event killing 50 or more people that would have adverse repercussions for the institution responsible,[14] in this case the Government of the day. The Secretary of State will have been informed of the societal concern with regard to Typhoon MAC by the Chief of the Air Staff in accordance with MAA regulations.[15] Ultimately, the Typhoon will be in service for many years[16] and, if the MOD elects not to fit an ACAS, the decision will need to be well documented and the risk held at the highest levels of Defence.

SUITABLY QUALIFIED AND EXPERIENCED PERSONNEL SHORTFALLS

10. The term SQEP is being increasingly used across Defence to define personnel with context specific skill-sets and experience. In the context of the Air Safety domain the term SQEP broadly refers to appropriately qualified and experienced engineers, aircrew and air traffic managers.[17] Problems with the availability of SQEP have been covered in the last 2 MAA Air Safety Annual Reports, and I provided additional advice[18] to the Secretary of State after last year's Report. Outside of the issues well documented by the DE&S, shortages are most obvious in the areas of Royal Electrical and Mechanical Engineer (REME) Cpl-Sgt aircraft engineers (both Aircraft and Avionics specialisations) and an erosion of experience within RAF Trade Group 1, where between 40-50% of personnel have less than 2 years engineering experience on type. Outflow of experienced aircrew, particularly instructors is also becoming a more frequently voiced concern. Considerable work has been done over the last 12 months across the Department to better quantify and address the challenges faced by the single Services and Civil Service. In its Strategic Workforce Challenge work,[19] the Defence Board has identified that achieving and sustaining appropriate manpower numbers and skills to deliver Defence outputs is probably the single greatest challenge currently facing the Department. The Defence Aviation community has widely reported this concern, and it appears to be validated by the

[redacted]

[13] Cost Benefit Analysis (CBA): Fast-Jet Mid Air Collision Risk (Typhoon), DSTL Mar 14.

[14] "Reducing Risk, Protecting People", Health and Safety Executive, HMSO, first published 2001.

[15] RA1210 states "If RtL is identified that the Senior Duty Holder (SDH) considers is of potential Societal Concern, the Secretary of State (SofS) **should** be informed for consideration of the wider implications before the SDH accepts such a risk."

[16] Typhoon funding is in place until 2030 at present.

[17] As defined in MAA General 1000 series Regulatory Articles 1002 and 1020.
http://defenceintranet.diif.r.mil.uk/libraries/corporate/MAA/Regulatory%20Publications/gen1000seriesprint.pdf

[18] MAA/DG/Comms/MoD/20131015-DG MAA Annual Report – Shortfalls of Aviation SQEP in Defence dated 09 Dec 13.

[19] DCDS(MilCap)/14/6/8 dated 18 Jun 14, Defence Strategic Workforce Challenges.

single Service manning pinch points, which highlight the challenges faced in the engineering area in particular. Against the backdrop of a national shortage of engineers and technicians, and compounded by the challenging age demographic,[20] the work being undertaken through the Defence Growth Partnership (DGP) and the Aerospace Growth Partnership should help to provide a better environment to encourage young talent into Defence aviation, albeit the MOD will have to compete with civil employers for this resource. These Initiatives will take time, but programmes such as the 5% Club,[21] which the Secretary of State will know from his leadership of the DGP previously, will be vital to increase the numbers of graduates and apprentices joining member organizations in future. In the near term, the outcome of the further work commissioned[22] by the Defence Board, in particular on workforce planning, recruiting approaches and supply of critical skills, will clearly help set the strategic direction for the Department to address this deep-rooted problem.

11. Within the context described above, and as we have seen through our oversight visits to the single Service Manning agencies and the Civil Service Engineering and Science Skills Champion, there is much being done to try and mitigate the effects of the skills shortages Defence Aviation currently faces. This is made more challenging within the Civil Service because there is only a limited ability to match skills to posts by managing individuals. While the ODHs are reasonably content that SQEP issues in their own areas are manageable, albeit predominantly through constraining their outputs, shortfalls in engineering resources are a recurring theme. The introduction of revised competence assessment for technicians in the RAF appears to be proving beneficial, and the greater visibility within the Army of the overall liability shortfall in REME aviation manpower is helpful in providing focus on the issues that Army aviation faces. More generally, the use of Full-Time Reserve Service (FTRS) staff to fill Air Safety posts, particularly where there is no deployment liability or continuity is needed, has had mixed success, with the Terms and Conditions of Service for FTRS making the posts relatively unattractive; it would be helpful if this issue was addressed as part of the Defence Board further work referred to earlier.[23]

12. The key concern that ODHs have outside of their own areas, however, is the availability of SQEP in DE&S to deliver the technical support they need; this relates to both the volume[24] and manning of military and civilian posts, although the latter is by far the more concerning. MAA assurance activity sees this manifest itself most typically as routine airworthiness tasks not being addressed, which ultimately transfers risks onto ODHs. This problem is well documented through our oversight activity and well recognized by DE&S, hence CofM(Air) has established a Strategic Challenge programme to address the shortfalls and understand the root causes. The use of existing manpower levers, including higher starting pay for external recruits and a targeted recruitment and retention allowance for existing staff, is being fully explored, and use of the new HR freedoms granted to the organization may also help. But the fact remains that the ODHs are carrying an unquantifiable risk to Air Safety, in particular airworthiness, because of the shortfalls in SQEP required to enable and to make safety-critical decisions within DE&S.

[20] Defence Economics Paper on External Factors Affecting UK Armed Forces Engineers and Future Prospects dated 9 May 14, notes that the UK 16-24 year old population is falling and estimates that 25% of UK engineers will retire in the next 10 years.

[21] Club members make a public commitment to addressing youth unemployment and skills shortages as well as aspiring to have 5% of their workforce consisting of apprentices and graduates on formalized schemes within 5 years. See www.5percentclub.org.uk.

[22] CDP/40/2 & DCDS(MilCap)/14/07/21 dated 31 Jul 14, Defence Strategic Workforce Challenge - Further Work.

[23] Within the work strand on Delegation and the Whole Force Approach.

[redacted]

The situation may improve as DE&S transitions to a Bespoke Government Trading Entity, with the introduction of Managed Service Providers and the use of the recently approved HR freedoms. However, I am concerned at the unintended consequences that may flow from DE&S moving to a pay and grading structure that is different from the rest of the MOD's mainstream science and engineering community; in particular where this affects the ability of the MAA, and the other MOD regulators, to recruit civilian staff with experience of procurement and support to ensure Regulation is delivered effectively.

OP HERRICK AND RETURN TO CONTINGENCY

13. I have been encouraged by the emphasis that has been placed on Air Safety in the operational planning of the redeployment from Op HERRICK. CJO clearly places Air Safety at the heart of his business, expending considerable effort to understand and manage the Air Safety hazards and risks associated with HERRICK re-deployment and Theatre extraction. There have been accidents and incidents, but effective risk management and an appropriate operational Air Safety culture have kept these proportional to the complexity and hazardous nature of the HERRICK air task. In agreement with CJO, I brought forward my Air Safety assurance activity on Op HERRICK and the Airbridge, originally planned for Oct 14, to Jun 14 in order to help assure him that Air Safety considerations were being given appropriate priority during the redeployment process. Overall the Op HERRICK ASMS was found to be effective with no significant concerns associated with the Airbridge. However, the importance of providing SQEP and ensuring the effective integration of Air Safety in a coalition environment are themes that are likely to endure, especially in the light of the UK's ongoing commitment to the Middle East and potential contingent operations.

14. The return to the full spectrum of tasks associated with developing and maintaining contingent capability will be a challenge. Op HERRICK operations are characterised by structured and well resourced training and operational cycles, with operations from well found bases providing all necessary life support and communications to enable controlled and supervised risk management. Whilst a crawl - walk - run approach to rebuilding capability will take time and resource, the luxury of a significant respite from operations is looking increasingly unlikely. It now looks as if some air and aviation force elements will be unable to return to any normalised training and contingent readiness cycle in the near future and are far more likely to re-engage during the re-deployment from HERRICK which will continue to increase stress on people and resource. This will clearly be one to watch and the MAA will assist both PJHQ and the DHs by conducting specific safety interventions as needed or requested by commanders. Circumstances may conspire to test the Regulated Community in new conflict areas, where the appetite and tolerance of risk may be quite different from our recent experience. The ability to operate in complex air defence environments, possibly under threat of chemical weapons and from austere and novel locations must be rebuilt. It is clear from assurance activity that Commanders are alive to this issue, although in some areas their task is complicated by the changes in funding mechanisms[25] and in others by complex transitions to new aircraft types.

15. The individual psychological impacts of re-deployment from Afghanistan are also complex. DHs and the supervisory chain will need to re-calibrate acceptable levels of risk in training, while preparing for future operations. The removal of immediate operational threats also introduces the potential for natural risk takers to subconsciously seek inappropriate stimulation through their flying activities. Robust supervision and assurance

[25] For example, the transition from UOR or NACMO funding into the Core programme.

will be required to develop an appropriate attitude to risk in our future leaders. The MAA is reviewing regulations, the delivery of Air Safety training, and existing Waivers and Exemptions to ensure they remain relevant to this new environment and potential contingent operations. Assistance in the rebuilding of a robust and resilient contingent capability is a priority for the MAA to support.

AIR SAFETY OVERSIGHT

16. Oversight comprises the audit, assurance, and surveillance activity that MAA staff undertake of aviation DHs and DH-facing organizations, principally in DE&S and Industry, but also in Head Office and the Front Line Commands. A risk-based approach is applied that continues to prioritise areas of higher risk, based on a combination of overall risk exposure and known performance. Oversight is expanding progressively to include more DH-facing entities where activity has a major impact on DH-held risks.

OPERATING DUTY HOLDERS

17. Engagement continues to mature between the MAA and the DHs. Increasingly we are approached for dialogue, advice and our view on emerging Air Safety issues. I see this as a positive indication that the MAA and associated Air Safety assurance regime is becoming more deeply embedded in the culture of the Department. ODHs have been found to have fundamentally compliant ASMSs which are becoming increasingly mature and well-structured, supported by well-run Air Safety processes. There is evidence of strong leadership in each of the ODH areas and several examples of self-generated and well-targeted Non-Statutory Inquiries to examine or pre-empt potential issues before they become manifest. This demonstrates that the risk-based assurance models in the DHs' ASMS are starting to bear fruit and enable them to be proactive in their management of risk. The DH construct and risk bearing concept appears to be increasingly well understood at the front-line at all levels, with several ODHs reporting that rather than hampering operations, the systems are now in place to enable commanders to better understand potential risks and therefore exercise informed judgement when determining their risk appetite. We must now ensure that DH-facing organizations develop this same level of understanding.

18. Both the JHC and ACNS (Aviation & Carriers) continue to manage diverse portfolios against a backdrop of challenging change programmes that include the Merlin transition and Wildcat entry into Service. RAF HQ 1 Gp continues to face the challenge of managing risks associated with their ISTAR platforms.[26] The Introduction into Service of the RC-135W Rivet Joint (through the Airseeker project) required considerable work to understand and manage the range of hazards identified with the aircraft while our audit of Reaper reinforced the challenge of supporting an air system introduced as an Urgent Operational Requirement (UOR) and procured under the auspices of the US Foreign Military Sales system. Both procurements, although swift and effective, highlight the heavy reliance on US support that these procurement approaches require in order to assure continuing airworthiness. Our oversight activity in RAF HQ 2 Gp has focused on the operational aspects of intra-theatre airlift. The challenge of withdrawing the Tristar and VC10 fleets from service while introducing the Voyager and A400M capabilities concurrent with maintaining a reliable air-bridge should not be underestimated. Their air-bridge effort has been well supported by both PJHQ and JFC, who are playing an increasingly effective

[26] Reaper, Rivet Joint, Sentinel and Sentry specifically.

role in ensuring Air Safety while managing the logistic complexity of the Op HERRICK transition. At home, RAF HQ 22 (Training) Gp continues to manage a complex Air Safety construct under the UK Military Flying Training System (UK MFTS) contract arrangements and ageing aircraft fleets[27] - a considerable challenge compounded by the need to supervise a dispersed and diverse number of aircraft types across a large number of operating locations.

19. Without labouring the point, SQEP shortfalls are also a significant cause for concern at the front line; most notably in the generation of qualified technicians/engineers (RAF fast-jet and REME) as well as qualified flying instructors. This is being managed flexibly by DHs; however, where mitigation is achieved through a concomitant reduction in flying activity (a solution that delivers immediate effect) there are frequently operational implications. As previously described, there are similar SQEP availability issues within the DE&S PTs - most notably UK MFTS. Such issues inevitably impact ODHs' ability to assure the safety of Air Systems for which they are personally accountable, hence the level of universal concern across the Air domain on this issue.[28]

20. The MAA's programme to approve the Continuing Airworthiness Management Organizations (CAMOs) introduced by DHs in response to our regulations issued in 2012 continues at a good pace. In particular, after a very difficult start because of the heavily contractorised nature of its maintenance activity, RAF HQ 22 (Training) Gp has made significant progress in bringing CAMOs on line. Although I reported last year that I hoped all CAMOs would be approved by the MAA this year, only 17 of 42 CAMOs have been signed off thus far. Visits this year have shown that work in this area is not as mature as expected; in particular because of lack of manpower and ineffective Quality Management Systems (QMS). I anticipate that it will take until Aug 15 before all CAMOs are at their full operating capability. More positively, the requirement for every aircraft to have undergone an airworthiness review to determine its baseline condition, which was another recommendation flowing from the Nimrod Review, is broadly on target to be achieved by 1 Jul 15.

DE&S

21. Overall DE&S has made good progress this year, as identified through our oversight activity at PT and senior management levels and highlighted, specifically, in my DE&S High Level Audit report to CDM.[29] It is clear that Air Safety features strongly in senior management discussions and it is heartening to see that a DE&S ASMS is now being implemented. With a few exceptions, PTs show an improving trend towards baseline compliance, although in many areas there are contracts that have yet to be amended to reflect the need to comply with the MRP. This means that there is a risk associated with divergence from the current regulations, and action is now being taken to ensure any gaps are kept to a minimum and residual risks managed appropriately. DE&S is showing signs of transition towards Air Safety maturity and the MAA is assisting in this development. Many challenges remain, but the initiatives launched by the DE&S Airworthiness Team (DAT) should lead to improved management of Air Safety. Notably, the re-introduction of DE&S policy on the implementation of PT-level QMS, the ongoing Project Team Fitness For Purpose reviews, and the introduction and development of an Airworthiness Scorecard should provide a rich and coherent view on the management of

[27] Tucano and Hawk T1.

[28] Although it took place outside of the period covered by this report, AOC RAF HQ 22 (Trg) Gp elevated the provision of SQEP with DE&S to become his primary risk in his Annual Safety Statement, declared following his annual ASSWG held on 1-2 Oct 14.

[29] DG MAA/Comms/Senior MOD dated 17 Jan 14.

Air Safety across DE&S, improving visibility and communication of equipment risks from DE&S to the DHs in the process.

22. Despite this progress, a considerable imbalance remains between DE&S workload and their SQEP resource, which I have already documented. Within the DE&S the SQEP challenge manifests itself in the amount of lower level non-compliances still found during audits, many of which remain open beyond their agreed closure period, and the prevalence of back-logged routine airworthiness tasks,[30] such as updating technical publications and addressing technical fault reports. The number of non-compliances and the task back-log pose an unquantifiable risk to Air Safety, in particular airworthiness, held by the ODHs. For example, I reported in the Tucano Service Inquiry that DE&S SQEP shortages had likely resulted in the failure of the Engineering Authority to recognise an ageing aircraft component in the fuel system which resulted in the loss of the aircraft. The most significant area of concern has been in the UK MFTS where we issued a Warning Notice[31] because of the extent of non-compliances with the MRP and inability of the PT to address these in reasonable time. While the level of gapping in Safety Critical posts across the DE&S Air Domain has fallen slightly from 9% to 8% over the last year, recruiting and retaining SQEP staff remains a significant challenge with no real end in sight. My staff and the DAT have developed a closer and much more cooperative working relationship over the last year, which I see as key to maintaining the positive momentum that has built up in DE&S. Many of the issues highlighted relate to the need to control a competitive tension between output (planned or current), resource (financial, manpower, skills, etc) and Air Safety. The MAA will continue to focus on this challenge.

INDUSTRY

23. In a similar manner to the way that civil regulatory authorities operate, Industry organizations that provide aircraft design, aircraft maintenance, flying activity and also military Air Traffic Management services to the MOD have to be approved by the MAA. Once approved, there is an on-going requirement for surveillance and periodic re-approval. Many of the organizations with whom the MOD has contracted with, principally through DE&S but also through FLCs, are still required contractually to comply with military regulations that pre-date the formation of the MAA and the issue of the MRP. Not only does this mean a baseline difference exists, but there is further divergence in requirement as regulations are amended; hence, the importance of addressing this issue identified in para 22. Fortunately, the majority of Industry organizations recognise the benefits of working to the revised and more relevant regulatory set and do so. Reassuringly, our relationship with Industry continues to develop positively.

24. **Maintenance Approved Organization Scheme**. Industry organizations conducting aircraft maintenance are required to be approved under the MAA's Maintenance Approved Organization Scheme (MAOS), and there are currently 34 member organizations dispersed across 64 sites. Oversight activity has found these to be largely compliant, with any areas of non-compliance representing no significant RtL. A very small number of organizations have been resistant to embracing the MAOS requirement, usually because it is either not called up in their contract or their respective aircraft are of a civil derivative and the company concerned holds a civil-regulated maintenance approval.[32] In these instances a civil approval may be required to allow the CAA to assure access to the

[30] 20140605_SQEP Assess_DG MAA_OA v3.0, letter from CofM(Air).

[31] MAA/Enf/Act/14/01 Warning Notice UKMFTS PT dated 04 Mar 14.

[32] European Aviation Safety Agency (EASA) Part 145 or civil national equivalent.

civil spares pool, or to take the aircraft back onto the Civil Aircraft Register, but the organization has typically misunderstood the basic requirement to also comply with military regulations. We have recently amended the relevant regulations to make it clear that appropriate recognition will be given for civil approvals, but that a "top-up" explanation is required to detail how additional military requirements will be met. This approach seems to be working well as understanding matures in the Regulated Community.

25. **Design Approved Organization Scheme**. Industry organizations conducting design activity are required to be approved under the Design Approved Organization Scheme (DAOS), of which there are currently 92 members. Oversight activity has found that most are compliant, with the majority of observations made relating to QMS failings and once again, not posing a significant RtL. As with MAOS, some Industry organizations have been reluctant to comply with the MAA approval requirement. Where tensions exist it is mainly around military-registered civil-owned aircraft, and the associated need to access spares or put the aircraft back on the Civil Aircraft Register, or the integration of Commercial Off The Shelf equipment into military aircraft. Although civil design approvals[33] are similar in many respects to the military requirement, they do not always provide the necessary mechanisms for the respective DE&S Type Airworthiness Authorities to discharge their responsibility to assure airworthiness. The regulations have been amended to make clear that civil approvals will be given appropriate credit, but that – as with MAOS – a "top-up" submission will be required depending on the nature of any military differences. This too seems to be working well.

26. **Contractor Flying Approved Organization Scheme**. Industry organizations conducting flying activities using military registered aircraft, either in direct support of MOD requirements or for development and export activities, are required to be approved under the Contractor Flying Approved Organization Scheme (CFAOS). This Scheme has been introduced recently to modernise the previous approach[34] to flying approvals that was inherited from the MOD Flight Test Regulator when the MAA was formed. As such, Industry organizations are in transition with up to 17 expected to be in the Scheme, and 3 approved so far; we anticipate that all organizations will be well on their way to approval by Apr 15. The new CFAOS approval will give Industry more responsibility and flexibility to identify where their aviation risks and hazards lie and focus their efforts accordingly.

JOINT FORCES COMMAND

27. The MAA's oversight activity within JFC has addressed PJHQ, Op HERRICK, British Forces South Atlantic Islands (BFSAI) and Akrotiri/Cyprus Operations Support Unit (COSU). Within PJHQ, we found that Air Safety had achieved increased prominence with a notable improvement in Air Safety culture. The inclusion of Air Safety in the Op HERRICK transition planning process was evident with DHs being consulted routinely, and MAA advice and guidance being sought regularly. The provision of SQEP across a variety of Op HERRICK units was a point of concern both from a quantitative and qualitative point of view, and I have taken steps to address this with the supporting single Service Manning organizations. Our oversight of BFSAI and Akrotiri/COSU found ASMS at varying levels of maturity. Despite the geographic dislocation of BFSAI, operational focus and rapid turnover of staff, Air Safety management was found to be effective and operating in a very similar manner to other UK airbases. The ability to influence Air Safety on the US-operated aerodrome at Ascension Island remains a concern, but the MAA is supporting

[33] EASA Part 21 Sub-Part J or civil national equivalent.
[34] As set down in AvP67.

the work now being undertaken to address this issue. The Akrotiri/COSU ASMS on the other hand was found to be less well developed, with complex Operational Command and DH chains, limited manpower availability due to broader operational requirements and the drive to reduce liabilities, all hindering progress. The MAA's observations were well received by the JFC Chain of Command and I have been reassured by the comprehensive and swift response that has been undertaken to address concerns and limit any potential impact upon the delivery and sustainment of Air Safety and overall capability at Akrotiri/COSU, which remains a vital hub in supporting operations in the Middle East.

FINANCE AND MILITARY CAPABILITY

28. The MAA conducted a series of oversight visits to the Head Office and delegated Finance and Military Capability organizations during Jul 14 in order to gain assurance that Air Safety was being considered appropriately in the ABC and Options decision-making processes, and addressed during the Requirements Definition phase for all new capability programmes and projects. We found strong evidence that Air Safety issues were given a fair hearing during the ABC cycle, and that aviation DHs were more engaged in the process, although it was widely acknowledged that Air Safety decision processes overall were still being developed; once established these processes will need to be codified. Following the Tornado MAC in 2012 and in advance of a potential Scottish Fatal Accident Inquiry, a recommendation was placed on the Secretary of State to ensure that lessons had been learnt from the procurement of the Tornado ACAS with regard to the handling of safety enhancements by the MOD. This action was completed by DCDS (MilCap) and our recent audit confirms that process is now in place to handle safety critical programmes.

DEFENCE INFRASTRUCTURE ORGANIZATION

29. The MAA's oversight programme has increasingly shown that as a DH-facing organization, the Defence Infrastructure Organization (DIO) has the potential to affect directly an aviation DH's exposure to RtL. This can best be illustrated by way of an example, such as the manner in which airfield safety critical infrastructure is maintained on an active airfield. The diverse nature of these DH-facing responsibilities goes some way as to explain why the current level of understanding of individuals' roles and responsibilities within the DIO in relation to the maintenance of Air Safety appears poor. Accordingly, I have directed my team to increase our engagement efforts with the aim of increasing the awareness of Air Safety throughout DIO. I have been heartened by the positive engagement that has begun with the new Management Executive. However, how the new Strategic Business Partner Model will operate within the explicit accountabilities that are required in managing RtL remains to be seen. To that end, the first ever audit of the organization is planned for the end of this year. I expect it to expose a number of risks and but also some opportunities.

AIR TEST AND EVALUATION

30. Air Test and Evaluation (AT&E) is a fundamental mechanism for providing through-life capability and safety assurance of equipment. The AT&E Centre (ATEC), consisting of elements of the Air Warfare Centre (AWC) and QinetiQ, is the principal provider of AT&E for Service aircraft. In Nov 13 an internal Air Safety Assurance Visit conducted by the AWC highlighted significant concerns within the Empire Test Pilot School and, as a result, the ODH stopped flying activity whilst issues were resolved. Earlier this year QinetiQ wrote to the DH chain and the MAA to articulate their concern with the governance arrangements, accountability and ownership of RtL within the ATEC construct. QinetiQ

also proposed an alternative governance model. This proposed solution, if adopted, has numerous implications for the conduct of AT&E and, as a result, RAF HQ Air DCOM Ops, with full QinetiQ support, has initiated a review of ATEC that will examine governance and regulation. The MAA will remain engaged throughout this review and provide advice as appropriate. Whilst I have assurances from all parties that RtL of current ATEC activities is tolerable and ALARP, I have chosen to examine the current arrangements as part of our ongoing oversight activity. As such, MAA staff will conduct an audit of elements of AT&E later this year and will focus heavily on ATEC's compliance with the MRP to provide assurance of AT&E delivery across defence; moreover, it will help to inform the ATEC review.

INTERNATIONAL ENGAGEMENT

31. During the period, the MAA has been actively engaged with our international colleagues, both within Europe and further afield. The main effort has been with the European Defence Agency through the Military Airworthiness Authorities (MAWA) Forum. This body aims to harmonize European airworthiness requirements and create the potential to share documents and artefacts with other European military airworthiness authorities. This will simplify the transfer of airworthiness information and approvals between Nations, offering the potential for DE&S to reduce programme risks and exploit financial savings on collaborative projects (including legacy projects like Typhoon).

32. Our work in Europe has focussed on influencing the development of European Military Airworthiness Requirements (EMARs). This is consistent with the intent set down by Ministers in 2008 and reflected in the associated Basic Framework Document.[35] The starting point for the development of these EMARs has been the European Aviation Safety Agency's civil regulations, which have been adapted to take into account the fundamental differences of the Defence environment. Once agreed, the intent is that the EMARs will be implemented into national military regulation and this has already happened for EMAR Part 145,[36] relating to aircraft maintenance organizational approval. The expectation is that there are significant benefits to be realized, in terms of time and cost savings, across acquisition organizations and Industry by adopting a more co-ordinated military airworthiness framework in Europe for multi-national programmes. Recognising the benefits to be derived, my staff has been at the forefront of this work, shaping and influencing the developing Requirements. We have already recognised the French Continuing Airworthiness regulator (DSAÉ[37]), thereby gaining access to the maintenance organization approvals that they will issue for A400M (Atlas C Mk1 in UK service), and we have recently recognised our Spanish equivalent (DGAM[38]) to also benefit the A400M project. We plan to go through the recognition process with the German and Italian MAAs next, in support of the Ministerial Task Force on Typhoon and further leveraging A400M support approvals.

33. Our unique position as members of both the EDA MAWA community and the Air and Space Interoperability Council[39] (ASIC) airworthiness group has enabled us to share good practice between the European and 'Five Eyes' communities, in particular around

---

[35] The European Harmonized Military Airworthiness Basic Framework Document, Ed 2 dated 23 May 13.

[36] The EMAR Part 145 requirements have been incorporated into the MAOS regulations in the MRP.

[37] Direction de la Sécurité Aéronautique d'État, which cover all military and other government aircraft, eg Police, Coast Guard.

[38] Dirección General de Armamento y Material.

[39] Comprising Australia, Canada, UK, New Zealand and USA, and established in 1947 to improve interoperability of the military aviation forces of those countries. Also known as the "Five Eyes" community.

this recognition activity. Our significant influence on the progress of harmonization and translation between the different airworthiness groups has, as highlighted in my last report, led to the ASIC nations adopting a version of the European recognition process which the UK authored (as an ASIC Air Standard). This ASIC work has supported increased engagement with the US military airworthiness authorities, enabling formal recognition between us and the US Army[40] regulator. A similar agreement with the USN[41] regulator is imminent and we have started the journey with the USAF[42] regulator; this should lead to formal recognition before the end of 2014. Recognition in this way also helps the US authorities satisfy their duty of care responsibilities[43] for Department of Defense personnel flying in foreign aircraft. As with European collaborative projects, recognition with the US authorities offers the potential to reduce cost and time on US-sourced projects through re-use of the extensive evidence they usually develop to underwrite Military Type Certification. Projects where there is likely to be most benefit in the future are the Apache Capability Sustainment Programme, future upgrades to C-130J Hercules, C-17 Globemaster, RC-135W Rivet Joint and Lightning II.

POLICY, REGULATIONS AND STANDARDS

34. I have reported previously on the work we were doing to further simplify the current regulations following the launch of the MRP in 2011; this was a key tenet of the Nimrod Review. Of note, the first phase review of the Continuing Airworthiness Engineering (CAE) regulations was published in Feb 14, with the revised Flying regulations and Air Traffic Management regulations following in Jun and Aug 14 respectively . We have also completely revised and published Def Stan 00-133, which sets down design requirements for aviation arrangements in surface ships. These reviews involved extensive consultation with key stakeholders from the Regulated Community, who have had significant input into the finished product. Acknowledging that the Regulated Community requires time to comply with new regulations, due to the challenges of implementation and the need to cascade to lower-level orders, we have provided a scaled path to compliance where appropriate. We also intend to issue the revised Design and Modification Engineering (DME) regulations for consultation in the first quarter of 2015. Finally, our General regulations, that set the overall framework for the MAA's regulatory requirements, have been under progressive review for the last 18 months on an individual basis, and I anticipate that this work will be concluded around the end of 2014.

35. The civil regulatory framework continues to evolve, and within Defence we continue to learn more from the Regulated Community about the application of our current regulatory set. Concurrently, as Defence embraces new technologies, we need to constantly assess the applicability of our existing regulations and adapt in response. In doing this, my staff are mindful of the need to make regulation proportionate and to minimise the compliance burden while, nonetheless, ensuring that our military regulatory framework is fit for purpose. Key work underway to achieve this is described briefly below:

a. **RPAS**. The increasing use and prominence of RPAS in Defence's inventory, ranging in weight from 18g to over 2200kg currently, has driven the need to review all aspects of the MRP to ensure that the existing regulation is proportionate and reflects the differences associated with RPAS design,

[40] Aviation and Missile Research Development and Engineering Center.

[41] Naval Air Systems Command.

[42] Air Force Life Cycle Management Centre.

[43] As set down in DoD 5030.61 – DoD Airworthiness Policy.

maintenance and operation. In order to identify and address some of the more fundamental aspects of RPAS exploitation, I produced a paper[44] jointly with DCDS(MilCap) that made a number of high-level recommendations for VCDS. This sets the scene for a more appropriate Defence approach to these technologies. To address some of the resulting work, we have formed an MAA Multi Disciplinary Team (MDT) that has engaged extensively with the Regulated Community, the CAA, DSTL, foreign MAAs and other key stakeholders to review the regulations, and ensure that - where practicable - the military and national civil regulations are kept in step. I have seconded a MAA staff officer to the CAA, to increase mutual understanding and ensure consistency where necessary, to support this intent. The RPAS MDT's way of working has encapsulated the MAA's more inclusive approach to engagement with the Regulated Community and sets the tone for our future regulatory work. The revised regulations have recently been issued for consultation.

b. **Flight Data Monitoring**. Aircrew Human Factors are a major contributor to accidents across the Regulated Community and as a vector, are likely to increase as our risk-based management of technical and equipment founded risks continues to improve. Flight Data Monitoring (FDM) is mandated by the International Civil Aviation Organization for civil passenger aircraft over 27,000 kg and civilian operators are increasingly utilising it to improve flying performance and reduce risk in the business jet and helicopter operating environment. It is worth noting that many of our aircraft types already capture Flight Data for engineering purposes, but the MOD is not yet exploiting the potential benefits this could provide. However, I am reluctant to add to the regulatory requirements on operators and am considering the most appropriate way that the use of FDM could be exploited to reduce RtL. Comd JHC has agreed to run a trial to help develop our thinking and expose the potential to enhance both Air Safety and aircrew training.

c. **Def Stan 00-970**. Def Stan 00-970 sets the design standards for military aircraft, and has evolved over time from its first formal appearance as the "Handbook of Strength Calculations" in 1918. Consequently, it contains a mix of mandated standards and good practice without making clear which are essential requirements, and neither does it cover the range of military aircraft types now in service. In line with the rest of the MRP, we are re-writing and re-structuring it to separate the design requirements from guidance in order to make the former easier to follow. As a key component of our approach to Military Type Certification, the revision will separate out those requirements that are military specific and those that are the same as civil standards; where appropriate, the civil standards will simply be sign-posted, not duplicated. The first element of the Def Stan has already been re-written in this way (Part 5 – Large Fixed Wing Aircraft) and issued for consultation. The complete re-write is a significant body of work that I anticipate will take around 3 years to complete.

[44] MAA/A&P/MGMT & DCDS(MilCap)/14/02/2 dated 13 May 14.

CERTIFICATION

36. This reporting period has seen extensive work conducted on Military Type Certification. It is worth making the point that the MAA will take full account of Type Certificates from recognised civilian (eg EASA) and military regulators when conducting its own certification activity, but due consideration must be given to any military usage or national deltas when this evidence is put forward. Specific certification projects worth noting are:

a. **Atlas C Mk1 (A400M)**. The culmination of much hard work and effort across the A400M partner nations led to the provision by DE&S of a comprehensive, if complicated, set of evidence to support Military Type Certification of Atlas C Mk1. The evidence presented against the standard of the first French aircraft allowed the MAA to provide Substantial Assurance of the Type Design in Jun 14 which will support the first flight of a UK variant under a UK RTS scheduled for Oct 14.

b. **Chinook HC Mk6**. The high quality, broad and detailed argument presented by DE&S enabled the MAA to provide Substantial Assurance of the Chinook HC Mk6 Type Design. Although this programme was presented initially as a major design change from earlier Marks of the aircraft, the comprehensive argument presented by DE&S enabled my team to consider it as a new air system for the purposes of Military Type Certification. The presentation of evidence by the Chinook PT represents best practice in this area and will be used to inform future certification work.

c. **Rotary Wing Safety Enhancements**. We have taken a pragmatic approach to Military Type Certification of the large number of modifications introduced under the Rotary Wing Safety Enhancements programme, relating mostly to wire-strike protection and airborne collision avoidance. Most of these are based on solutions similar to civil modifications and are expected to result in a net reduction in RtL. Consequently, our assurance has been tailored to ensure the speedy introduction of the enhancements.

d. **RC-135W Rivet Joint**. Introduced under the Airseeker project, the RC-135W Rivet Joint has required considerable attention from my staff over the last 12 months. [redacted] not being able to follow the MAA's Military Type Certification process. The potential inability to comply with the extant, pre-MAA, airworthiness regulations was recognised as a major programme risk by the DE&S at Main Gate in 2009. Unfortunately, this risk materialised and DE&S had to develop an alternative approach to demonstrate the platform's design safety, which was agreed by the previous Secretary of State. Deployed on operations in advance of its planned In-Service Date, extensive work has been undertaken to provide the underpinning safety assessments that allow a limited Release to Service (RTS) with a supporting Safety Case. The MAA provided advice on the fitness for purpose of this alternative approach and continues to be engaged with DE&S and the RAF RTS Authority, in order to provide assurance of the further evidence being developed to support extending the RTS.

e. **Scan Eagle**. The Scan Eagle RPAS was the first air system to be subject to a full application of the MAA's Military Type Certification process, albeit at expedited pace due to its status as a UOR. A tailored approach based on risk and the

operating environment enabled an initial Limited Assurance of all but some software elements of the air system. Submission of additional evidence enhanced understanding of the associated risks, resulting in the MAA being able to provide Substantial Assurance of the physical aspects of the platform and Limited Assurance of the safety-related software.

f. **Voyager KC Mk3**. Excellent collaboration between DE&S and my Certification team culminated in approval of the final major capability release of the Voyager aircraft, providing 3-point Air-to-Air Refuelling capability. DE&S is still working to close out a small number of post-Certification actions, with the focus now on consolidating the Type airworthiness requirements through life.

g. **Watchkeeper**. Difficulties assuring software due to limited underpinning evidence was a theme continued in Watchkeeper during this reporting period. Consequently, although there were no significant concerns with the Type Design, we were only able to provide Limited Assurance against the platform because of the lack of comprehensive software assurance.

AIR ACCIDENTS AND INVESTIGATION

37. The MAA conducts independent investigation into military air accidents using the Service Inquiry (SI) process and the Military Air Accident Investigation Branch (MilAAIB) assisting nominated Inquiry Presidents that are drawn from the single Services. One of the recent improvements made to the SI process is to increase transparency for the DH chain, the wider aviation community and, where appropriate, the public. Initiatives now include a formal process for providing ODHs with the requisite information to allow a timely, considered decision to return to flying following an accident. In addition, the ODHs are provided with regular updates on the progress of ongoing inquiries, including a face-to-face briefing at about the 2 month point following an accident. I have also released Interim Reports into the public domain including one on the Voyager loss of control incident, which was particularly welcomed by Airbus and world-wide A330 operators. While Interim Reports on this year's Gazelle and Lynx accidents have been published, I will not commit to always releasing information using this process; each case will be judged on its merits but I will continue to do so where appropriate.

38. I have convened 5 SIs during this reporting period. While a relatively small number, they continue to highlight recurrent themes. Operator errors, authorisations and supervision are of particular note and, as stated earlier, will continue to present significant potential RtL as we transition into a contingent operational posture. The SIs convened include:

a. **Sea King (3 Oct 13)**. An RN Sea King suffered a heavy landing while carrying out advanced single-engine failure training at RNAS Yeovilton, resulting in rear fuselage detachment but no injury to the crew.

b. **Voyager (9 Feb 14)**. An RAF Voyager suffered loss of control in flight while en-route from the UK to Afghanistan, resulting in a number of minor injuries to the passengers.

c. **Parachuting Accident (23 Apr 14)**. While on an exercise in Greece, a soldier sustained significant injuries whilst parachuting with a BT380 parachute.

d. **Lynx (25 Apr 14)**. An Army Lynx AH Mk9A crashed whilst conducting gunnery training in Afghanistan with the tragic loss of all 5 Service personnel on board.

e. **Gazelle (2 Jun 14)**. A QinetiQ Gazelle HT Mk3 helicopter, being operated by the ETPS, sustained significant damage to its tail during engine-off-landing training at Boscombe Down Airfield.

39. **Reports Published**. The following SI Reports have been published in this period:

a. **Hawk (20 Aug 11).** A Red Arrows pilot was killed following an inadvertent ejection and failure of the parachute to deploy.

b. **Tornado GR4 Mid-Air Collision (3 Jul 12).** Three crew members were killed following a mid-air collision over the Moray Firth.

c. **Tucano (8 Jan 13).** The crew survived after crash landing on Linton-on-Ouse airfield following an engine failure during an engine air test.

d. **Sea King (3 Oct 13).** The crew survived a crash on the airfield at Yeovilton during poorly executed practice single engine failure.

40. **MilAAIB Support to Non Statutory Inquiries**. Support has been provided to a number of incidents this year where I have elected not to conduct a Service Inquiry:

a. Tornado GR4 loss of aircraft panel - Malta (Sep 13).

b. Apache tail rotor failure - Afghanistan (Jan 14).

c. USAF PaveHawk accident – Norfolk (Jan 14).[45]

d. Scan Eagle engine failure - [redacted] (Jun 14).

e. RAF Falcons parachute accident - Weston-Super-Mare (Jun 14).

f. Bell 212 heavy landing - Kenya (Jun 14).

g. Zephyr High Altitude Pseudo Satellite loss on recovery - [redacted]

KNOWLEDGE EXPLOITATION

41. The development of the Air Safety Information Management System (ASIMS)[46] has progressed well and reporting rates continue to increase, with over 1,000 Occurrence Reports being added each month and a total of 180,000 reports now available for analysis. This is a 7% annual growth rate and indicates an increasing willingness to report Air Safety occurrences and concerns. Importantly, the quality of reporting has improved

[45] This involved a US helicopter and therefore a UK SI was not required, however, MilAAIB actively supported the USAF in their inquiry.

[46] ASIMS is a computer-based incident reporting platform, available across all Defence flying locations through DII.

markedly with many more contributory factors being included within the analysis. These provide strong indications of themes to be targeted by Air Safety interventions which chime with observations from SIs that continue to reflect the need for strong supervision. Work has progressed towards ASIMS v3.0 which will introduce a new taxonomy to help to identify precursor indicators of risks and to better enable risk identification and mitigation. This work is progressing in parallel with the development of risk analysis tools with the potential to auto-populate modelled accident sequences. This is ground breaking work, conducted in combination with Industry partners and the CAA. We have assisted the Regulated Community to develop its own risk analysis tools and this should improve understanding of the effectiveness of mitigations and avoid inappropriate or overly burdensome additional restrictions. We are also seeking to better communicate the outcome of our own risk analysis and look to share good practice in Air Safety risk analysis techniques.

42. In order to ensure that the entire community can benefits from the lessons identified within air incident reporting we continue to provide relevant and targeted training to frontline operators. Continuing analysis of the data collected through ASIMS, from civil aviation and where available, foreign militaries, confirms that human factors remain the principle causal factor in aviation accidents, reaffirming one of the key focuses of our range of Air Safety related courses that MAA staff continue to deliver through our facilities at the Defence Academy.

DEFENCE SAFETY AUTHORITY

43. From 1 Apr 15, I will take the other Defence safety regulators under command, namely, Land (Land Systems, Fuel and Gas, Transport and Movements), Maritime, Nuclear, Ordnance and Fire.[47] In doing so, I will form the Defence Safety Authority (DSA), which will provide a common management framework for Defence safety. The initial benefits will be the provision of a single 3-star officer responsible for safety regulation across Defence providing enhanced clarity at the statutory and inter-domain boundaries. In addition, this will bring the other regulatory areas further into line with the principles that the Department accepted following Haddon-Cave's Review. It is intended that the Department continues to benefit from appropriate and proportionate regulation by internal regulators, thereby allowing operational freedoms for commanders without them becoming constrained by inappropriate regulation and associated legal frameworks. The MAA will become one of the pillars of the DSA and this will not change the way in which the MAA does its business. I have instigated a Project Board to lead the establishment of the DSA and to deliver the Initial Operating Capability from 1 Apr 15.

MAA AUDIT - EXTERNAL AUDIT PANEL

44. In line with the requirements of my Charter, the MAA will be audited by an independent external panel in Nov 14. The audit team will be asked to assess the MAA's effectiveness as a regulator based upon our six Assurance Principles: risk-based assurance; minimal regulatory burden; independence; a proportionate sanctions regime; optimisation; and provision of feedback. These Assurance Principles have been developed from the Hampton Principles[48] and are, therefore, closely aligned with the

[47] The inclusion of the Defence Fire and Safety Regulator within the DSA is still subject to formal agreement with FLC Army.

[48] The Government commissioned the Hampton Report, published in 2005, that identified the principles of regulatory best practice. Amongst others, these principles include; the use of risk assessment to concentrate regulation in the areas that it is needed most,

Department for Business, Innovation & Skills' (BIS) Better Regulators Code, which is likely to be the standard against which we will be judged (albeit tailored to reflect an emphasis on enabling military capability rather than commercial aspects). This year's Audit will be chaired by a senior member of the CAA and the members will be drawn from the HSE, the US Army Airworthiness Authority, the French DSAÉ and BIS.

SUMMARY

45. Air Safety has made much progress across the Department this year. The DH organizations are rapidly maturing and we are seeing excellent examples of risk management leading to increased operational outputs and, whilst unquantifiable, a historically low accident rate. Whilst there is evidence of better Air Safety awareness and progress across many DH-facing organizations, there is still much work to do in this area. Risk is being well managed by the DHs but well documented SQEP shortages continue to provide hotspots across the front-line and the gaps in safety appointments in the DE&S provide a level of risk for the DH community that is hard to accurately gauge. In the face of these shortages in SQEP I can only provide a level of Limited Assurance for the Defence Aviation community. As I documented last year, I remain convinced and evidence suggests, that we are carrying unnecessary risk by not yet having collision warning systems fitted across our fast-jet fleets. In particular, a programme for Typhoon should be pursued with haste and I know this is receiving attention at the highest levels of Defence. During transition to the Defence Safety Authority next April, care will need to be taken to ensure that the MAA is not distracted and the momentum of the good work in the aviation domain is not lost. I will monitor this carefully and make sure that appropriate good practise is taken from Air Safety into the other safety areas across Defence.

Air Marshal R F Garwood
Director General Military Aviation Authority

---

regulators should provide accessible and cheap advice, regulations should be easy to understand and enforce, and that the regulated community should not be asked to produce the same piece of information twice.