Ministry
of Defence

Releasable Extracts of Service Inquiry into the deaths of 3 soldiers in the Brecon Beacons Wales, in July 2013

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EXECUTIVE SUMMARY

1.2B.1 **Incident**. On 13 Jul 13, during a military exercise on the Brecon Beacons, a number of Service personnel succumbed to exertional heat illness, due to the demanding physical nature of the exercise and the prevailing temperatures. Of those who succumbed, 2 Reservists died that day, and a third died in hospital on 30 Jul 13. There were a further 8 heat illness casualties of which 3 were hospitalised after the event. (**Part 1.3**)

1.2B.2 **Background**. Similar military exercises had been conducted on the Brecon Beacons in various forms since the 1950s. This exercise formed part of the training pathway for candidates volunteering for service in 2 Reserve Units and a Regular Signals Regiment. The Signals Regiment planned and conducted the exercise and personnel from the Reserve Units assisted in overseeing and running the activity. (**Part 1.3**)

1.2B.3 **Causal factors**. The investigation panel identified 4 causal factors which led directly to the incident:

a. All 3 Reservists died from the effects of hyperthermia[1] caused by exertional heat illness. Each of the fatalities was unable to maintain thermal equilibrium because of a combination of heat generated by the intensity of the physical activity and an inability to lose this heat, which was compounded by the climatic conditions. (**Part 1.4, Chapter 3**)

b. The Reserve Units did not train their candidates to the same level as the Signals candidates (this included physical fitness); the Reserve candidates had reduced levels of experience and were less well prepared. As a result, the Reservists disproportionally suffered from exertional heat illness[2]. (**Part 1.4, Chapter 5**)

c. Due to an inherent lack of understanding of the risks involved in undertaking such an exercise with Reserve candidates, the Signals Regiment that planned the exercise did not ensure that there was a Safe System of Training in place to reduce the risk to *as low as reasonably practicable*[3]. (**Part 1.4, Chapter 6**)

d. The Panel concluded that the exercise planners, those overseeing the exercise (including the medical support) and, most significantly the chain of command, did not understand exertional heat illness. Therefore, they did not comprehend that this type of military exercise was a high-risk activity and that this risk increased significantly when conducted in hot conditions. (**Part 1.4, Chapter 7**)

1.2B.4 **Exercise conduct and incident response**. The exercise, which was a timed, individual navigation and endurance test, started early in the morning on 13 Jul 13. Candidates were required to navigate their way through a series of manned checkpoints carrying military rucksacks. By 1200hrs the temperature in areas of the Brecon Beacons had reached 31°C. The Training Team did not have the means to measure the temperature. Although 2 candidates suffering from exertional heat illness were withdrawn during the event, due to their lack of understanding of this condition, the Training Team did not realise that there were likely to be more casualties. The exercise continued; no members of the Training Team or medics believed that there was anything out of the ordinary. Towards the later stages of the exercise, several candidates stopped moving, although the Training Team did not identify this at the time. Once one static candidate was recognised, by another candidate, the severity and scale of the incident soon became clear to the Training Team. A limited capacity to command, control and respond to

[1] Hyperthermia is any elevation of core body temperature above the normal range. p 235 Lounsbury, D. (ed.) (2001) Textbooks of Military Medicine: Medical Aspects of Harsh Environments Volume 1, Washington DC: Office of the Surgeon General United States Army.
[2] There was a 30% casualty rate for the Reservists, whereas by comparison there were no Regular casualties.
[3] As Low As Reasonably Practicable. Health and Safety Executive. ALARP at a glance. http://www.hse.gov.uk/risk/theory/alarpglance.htm Date accessed 17 Jan 17.

multiple incidents occurring at the same time hampered the response. The difficulty in recognising that there were problems sooner and the issues in responding were inherent in the plan and the planning process. (**Part 1.4, Chapters 3 & 4**)

1.2B.5 **Reserve candidates preparation**. A total of 78 candidates took part in the exercise, of which 37 were Reservists. All candidates were exposed to the same environmental conditions, however, all casualties on the day were Reservists. The Panel reviewed the historic performance statistics from previous exercises to 2011 and identified that there had been a trend of comparative underperformance by Reservists. This trend was unidentified by the chain of command and the significance of the differences in the training pathway, between Reserve and Signals candidates, was not comprehended. The design of the training pathway for the Reserve candidates meant that they were not as well prepared as the Signals candidates and were less practiced in adapting their behaviours to suit the conditions. They therefore lacked the experience to operate unsupervised in challenging circumstances. In simple terms, they were less prepared and less able to cope. The Panel identified that constraints in the Reserve training pathway meant the Reservists did not have a progressive build up and had less time to prepare than the Signals candidates. (**Part 1.4, Chapters 5 & 7**)

1.2B.6 **Exercise planning**. The Signals Regiment Training Team that planned and delivered the exercise were experienced. However, they did not understand exertional heat illness. They were unaware of the key policy documents which provided direction and guidance on how to mitigate the risks of exertional heat illness. As such, the Risk Assessment for the exercise did not capture the risks and higher likelihood of exertional heat illness in hot conditions. The exercise documentation produced by the Signals Regiment Training Team did not explain how a Safe System of Training would be established. It also did not take into account any subject matter expertise, for example medical advice from a doctor. This meant that the medical plan was not optimised for the risks inherent in this type of activity. The chain of command did not identify the weaknesses in the plan and there was a general assumption at both Commanding Officer level and higher headquarters level that this type of training was low risk. The overall result was that the Signals Regiment Training Team staff did not realise the risk they were taking, and did not know what warning signs to look out for. (**Part 1.4, Chapters 6 & 7**)

1.2B.7 **Management of Training System**. The Headquarters Specialist Military Units was small but had responsibilities that covered a wide range of areas, which included finance, personnel, procurement, policy and operational command. Usually a larger headquarters would be needed to deal with this complexity. However, it had evolved a flat command structure with no intermediate headquarters between the units and the operational-level headquarters. The authority to make decisions was delegated to unit level to increase agility. There was an incomplete Management of Training System as many aspects were missing, including 1st and 2nd Party assurance of military training. The headquarters delegated many functions to its subordinate units, including the management of many aspects of training. The incomplete Management of Training System contributed to the issues with both the preparation of the Reserve candidates and the exercise planning. (**Part 1.4, Chapters 5, 6 & 7**)

1.2B.8 **Organisational Learning**. Headquarters Specialist Military Units and the units were working at a high tempo in response to the nature of the operational environment. This contributed to the learning behaviours associated with routine training not being as well developed as they ideally would have been due to there being limited time for reflection and a perception that this type of training was low risk. The result of this was that information from previous training fatalities was not exploited, lessons were identified but not learnt and opportunities to improve procedures were missed. It also meant that the Signals Regiment Training Team was unaware of the mechanisms that had been implemented in other training environments to reduce the risks associated with exertional heat illness. In addition, the nature of the organisational silos that had developed between and within units for operational reasons, coupled with the cultural differences between units, may have reduced the level of cross-pollination of best practice and sharing of lessons. The

limited organisational learning with respect to routine training prevalent in the period prior to 13 Jul 13 made it more difficult for Headquarters Specialist Military Units to identify that its units were operating outside of the Defence policy guidelines regarding exertional heat illness. The consequence of this was that the headquarters did not realise that its units were not '*training right*'. (**Part 1.4, Chapter 7**)

1.2B.9 **Organisational Drift**. The military exercise on which the fatalities were sustained on 13 Jul 13 had been conducted in various formats for many years. It had gained a cultural significance for both the organisation and the individuals who successfully completed it. There was a belief that it was highly effective and that it helped identify the right people to enable the Specialist Military Units to deliver operational success. There was a belief that it remained relevant to the Reserve Units. However, the purpose of the Reserve Units had not been clearly defined since the end of the Cold War. Headquarters Specialist Military Units had struggled to articulate a meaningful role for the Reserve Units, despite numerous attempts to do so. This had led to a degree of *drift* and the result of this was that the appropriateness and necessity for Reserve Units to continue to conduct the military exercise as part of their training pathway was never questioned; it was just assumed that they should. The potential risks associated in preserving a training pathway, based predominantly on legacy requirements, were not recognised. In addition, the headquarters did not challenge or question the assumption that the routine military exercise was low risk and it did not question whether the organisation were collectively operating in line with Defence policy. This increased the likelihood of the incident occurring. Fundamentally there was insufficient review of activities to determine whether the units were doing the '*right training*'. **(Part 1.4, Chapter 7)**

1.2B.10 **Understanding of exertional heat illness**. There was a lack of understanding of the risks of exertional heat illness at all levels. The link between the design of the military exercise and the risk was not comprehended. This meant that the exercise planners and the chain of command did not recognise that the control measures they had put in place to help reduce the risk of injury were inadequate. Essentially, it was not recognised that there was a risk of sustaining serious casualties due to exertional heat illness in the UK. The Specialist Military Units had been conducting this exercise outside the policy guidelines since its inception and the risks inherent in this practice had not been recognised. The Panel believes that this lack of understanding was not confined to the Specialist Military Units. (**Part 1.4, Chapter 3, 6 & 7**)

1.2B.11 **Current situation**. During the first half of 2016 the Panel benchmarked and reviewed the training pathway for both the Regular Specialist Military Units and the Reserve Units involved in this incident. This aimed to review and assure current practices, and safety arrangements in place, in order to identify any residual safety risk in the training pathways for these units. Significant improvements had been made to the *safety culture* across the Regular Specialist Military Units and the command intent was apparent at all levels. The Panel assessed that the construct of the various training pathways was appropriate and that the risks inherent with the military training were *as low as reasonably practicable*. However, the Panel identified some significant areas of concern and unsafe practices within the training pathway for the Reserve Units. The Defence Safety Authority issued Urgent Safety Advice to Army Headquarters and training activity for the Reserve Units was immediately stopped. (**Part 1.4, Chapter 7**)

1.2B.12 **Specialist Military Unit training**. Operational success is the priority for the Regular Specialist Military Units. In order to avoid transferring risk from training to operations it is necessary for these Regular Specialist Military Units to train in a realistic manner. This means that it may be appropriate for Regular Specialist Military Units to accept a higher level of risk than conventional units, due to the nature of their operational tasks. To attempt to eliminate training risks would increase risk in operations and, therefore, make operational failure more likely. However, the embracing of a positive safety culture across the organisation would support Specialist Military Units training realistically whilst maintaining associated risks to a tolerable level.

However, the Panel was not convinced that there was clear justification for the same level of risk being taken in the training pathway for the Reserve Units. (**Part 1.4, Chapter 7**)

1.2B.13 **Lessons**. A common thread highlighted in accident investigation theory[4] and real case studies, such as the loss of the Space Shuttle Challenger[5] and the shooting down of US Black Hawk helicopters in Iraq[6], is that complex organisations *drift* towards failure. Throughout the course of the Inquiry, the Panel identified a number of organisational factors which are common in other cases where organisations have been judged to have *drifted*. The headquarters and the Specialist Military Units did not understand that there were inherent risks in the military exercise where the incident occurred as it had been conducted for many years. The ability to recognise that the organisation was taking risks was compounded by command overstretch where extremely busy operational units were also having to maintain oversight of routine training as well as deliver success on operations. Finally, the *Safety Culture* that was prevalent at the time with respect to routine training was not sufficiently mature and did not incorporate effective *Learning* and *Questioning* behaviours that might have helped identify the latent risks. (**Part 1.4, Chapter 7**)

1.2B.14 **Recommendations**. The purpose of the Service Inquiry was not to explicitly attribute blame; rather it was to establish the facts of the incident which resulted in the tragic loss of 3 lives, and to make recommendations in order to reduce the likelihood of recurrence. Fundamental lessons need to be learnt and applied following this incident, and these lessons are applicable across the entire Land environment. In the report, the Panel identified 4 Causal Factors, 44 Contributory Factors, 12 Aggravating Factors, 14 Other Factors and 2 Observations. From these the Panel make 114 recommendations which fall into 6 main areas:

a. Recommendations focussed on improving safety culture in order to ask the right questions and learn the right lessons.

b. Recommendations focussed on improving the Management of Training Systems.

c. Recommendations focussed on improving understanding of exertional heat illness.

d. Recommendations focussed on improving the systems and processes in the planning and execution of Specialist Military Units endurance training.

e. Recommendations focussed on ensuring the role and training requirement for the Reserve Units is appropriate.

f. Recommendations focussed on increasing and improving the amount of training delivered in the current Reserve Units' training pathway to ensure that the Reserve candidates are appropriately prepared.

Although these recommendations target Regular Specialist Military Units and the Reserve Units involved in this incident, the Panel believes that other organisations across Defence could learn lessons from understanding how and why this incident occurred. (**Part 1.4, Chapter 8 & Part 1.5)**

[4] Dekker, S. (2011) *Drift into Failure: From Hunting Broken Components to Understanding Complex Systems*. Farnham, UK: Ashgate Publishing.
[5] Vaughan, D. (2016) The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA. Chicago: Chicago University Press.
[6] Snook, S. (2002) *Friendly Fire: The Accidental Shootdown of U.S. Black Hawks Over Northern Iraq*. Princeton: Princeton University Press.

PART 1.5 – RECOMMENDATIONS

1.5.1 **Introduction**. In the report, the Panel identified 114 recommendations which fall into 6 main areas[1]:

a. Recommendations focussed on improving *Safety Culture* in order to ask the right questions and learn the right lessons.

b. Recommendations focussed on improving the Management of Training Systems.

c. Recommendations focussed on improving understanding of exertional heat illness.

d. Recommendations focussed on improving the systems and processes in the planning and execution of Specialist Military Units endurance training.

e. Recommendations focussed on ensuring the role and training requirement for Reserve Units 1 & 2 are appropriate.

f. Recommendations focussed on improving and increasing the amount of training delivered in Reserve Units 1 & 2 current training pathway, to ensure that the Reserve candidates are appropriately prepared.

1.5.2 **Recommendations**. The following recommendations are made in order to enhance safety.

	Analysis Reference
1.5.3 **Army**	
a. The Panel recommended that the Chief of the General Staff should ensure that the role of Reserve Units 1 & 2 are based on operational requirements, in order to ensure that training is appropriate and optimised.	1.4.7.6
b. The Panel recommended that the Chief of the General Staff should review the command and control arrangements for Reserve Units 1 & 2, specifically the dependency agreement, to simplify the current arrangements.	1.4.7.40
1.5.4 **Joint Forces Command**	
a. The Panel recommended that the Commander of Joint Forces Command ensure that the role of Reserve Units 1 & 2 are based on operational requirements, in order to ensure that training is appropriate and optimised.	1.4.7.7
1.5.5 **Surgeon General**	
a. The Panel recommended that the Surgeon General should include '*experience level*' as an '*individual risk factor*' in JSP 539, in order to ensure commanders take this aspect into account during exercise planning.	1.4.3.47 1.4.5.57

[1] Of the 114 recommendations some are repeated as they apply to 2 separate owners.

b. The Panel recommended that the Surgeon General should improve the training and education of medical personnel in order to enhance their understanding and treatment of exertional heat illness and their role in advising commanders in managing this risk. 1.4.3.74

c. The Panel recommended that the Surgeon General should ensure there is sufficient information and guidance in JSP 539 about '*individual risk factors*' to provide clear criteria to enable commanders to understand, quantify and manage the risks. 1.4.5.6

d. The Panel recommended that the Surgeon General should consider whether to include in JSP 539 additional '*individual risk factors*' identified in NATO and other international partners' climatic policies, in order that best practice is adopted. 1.4.5.7

e. The Panel recommended that the Surgeon General should improve the robustness of the medical reviews of Reservists, both on entry and during service, and ensure that medical officers can access both military and civilian records, in order that their assessments are based on a full medical picture. 1.4.5.16 1.4.5.26

f. The Panel recommended that the Surgeon General should ensure that all medical personnel have an appropriate level of training in Medical Planning commensurate with their rank/role in order to improve the quality of Medical Planning for training activities. 1.4.6.38

g. The Panel recommended that the Surgeon General should develop Wet Bulb Globe Temperature Index Limits that are directly applicable to the common endurance activities conducted by UK military personnel, in order to make it easier for exercise planners to understand the limits to apply. 1.4.6.67

h. The Panel recommended that the Surgeon General should review JSP 539 and provide guidance on how to develop bespoke risk assessment criteria for endurance activities which do not match the standard Wet Bulb Globe Temperature Index Limits, in order to assist with the planning. 1.4.6.68

i. The Panel recommended that the Surgeon General should reduce the ambiguity in JSP 539 and improve its readability, to assist the chain of command in applying the relevant control measures to reduce the likelihood of future exertional heat illness incidents. 1.4.6.69

j. The Panel recommended that the Surgeon General should improve how JSP 539 is categorised and located on DII (F) in order to make it intuitive to find by those responsible for training. 1.4.6.70

1.5.6 **Defence Safety Authority**

a. The Panel recommended that the Defence Safety Authority Headquarters Policy should improve the readability of JSP 375 in order to make it easier for the chain of command to understand and apply. 1.4.6.73

1.5.7 **Defence Equipment and Support**

a. The Panel recommended that Defence Equipment and Support Clothing Project Team should undertake thermal burden testing of the current issue Personal Clothing System, in order to understand how the uniform affects the ability of individuals to lose heat during exercise. 1.4.3.49

1.5.8 **Army Headquarters**

a. The Panel recommended that Army Director Information should analyse the dropout rate during Reserve Unit 1 & 2 training pathway, in order to understand whether the design of the training pathway should be adjusted. 1.4.5.19

b. The Panel recommended that Army Director Information should ensure that medical provision and governance for Reserve Units 1 & 2 is reviewed, in order to clearly define what the appropriate level of medical provision should be for Reserve Units 1 & 2. 1.4.5.27

c. The Panel recommended that Army Director Information should introduce a series of physical tests that measure all aspects of fitness, in order to ensure that candidates who are selected have an increased chance of completing the training pathway. 1.4.5.29

d. The Panel recommended that Army Director Information should ensure that Reserve Unit 1 & 2 preparation training is more progressive in order to reduce the potential risk of injury to ALARP. 1.4.5.32

e. The Panel recommended that Army Director Information should ensure that Reserve Unit 1 & 2 candidates complete the swim test prior to conducting any marches, in order to reduce the risks associated with water hazards. 1.4.5.35

f. The Panel recommended that Army Director Information should increase the amount of load carriage and navigation training for Reserve Units 1 & 2 candidates in line with what the Signals candidates complete; this should include consolidated periods of training during the navigation element; as well as the consolidated period prior to the test marches in order to ensure the Reserve candidates are prepared and conditioned to the same level as the Signals candidates. 1.4.3.46 1.4.5.37 1.4.5.42 1.4.5.44 1.4.5.51

g. The Panel recommended that Army Director Information should review the current locations used for Reserve Units 1 & 2 navigation and load carriage training, in order to maximise training time. 1.4.5.38

h. The Panel recommended that Army Director Information should review the training pathway to ensure it takes into account the travelling time that candidates and directing staff may have to undertake, in order to reduce the risk of fatigue induced incidents.	1.4.5.40
i. The Panel recommended that Army Director Information should ensure that the Reserve Unit 1 & 2 processes of collating and analysing training data is enhanced, in order to ensure that issues and risks are identified and managed.	1.4.5.46
j. The Panel recommended that Army Director Information should improve the progression of load carriage training for Reserve Unit 1 & 2 candidates in order to reduce the potential risk of injury to ALARP.	1.4.5.48
k. The Panel recommended that Army Director Information should ensure that all individuals appointed to training roles in Reserve Units 1 & 2 are suitably qualified and experienced persons, in order to ensure training is designed, planned and delivered safely.	1.4.5.53
l. The Panel recommended that Army Director Information should ensure that the Reserve Units 1 & 2 adopt best practice by engaging subject matter experts to assist in the design of the training pathway.	1.4.5.54
m. The Panel recommended that Army Director Information should ensure that Reserve Units 1 & 2 adopt best practice and share knowledge with other units that conduct arduous training.	1.4.5.55
n. The Panel recommended that Army Director Information should review the recruitment policy for Reserve Units 1 & 2 and benchmark it against the Specialist Military Units to ensure that the experience levels of volunteers is appropriate to commence the training pathway to reduce the risk to ALARP.	1.4.5.56
o. The Panel recommended that Army Director Information should ensure that Reserve Unit 1 & 2 establish processes to collect and analyse training data, in order that they understand the effectiveness of their training.	1.4.5.59
p. The Panel recommended that the Army Director Information should ensure there is a suitable Management of Training System for Reserve Units 1 & 2, in order to make sure they are doing the *'right training'* and *'training right'*.	1.4.7.24
q. The Panel recommended that the Army Director Information should conduct a DSAT analysis of the proposed roles of Reserve Unit 1 & 2, to determine whether they are compatible with the Reservist model.	1.4.7.33

1.5.9 **Field Army**

a. The Panel recommended that General Officer Commanding Force Troops Command should ensure Reserve Units 1 & 2 establish effective monitoring criteria for candidates participating in arduous activities. Specifically deterioration in relative and absolute terms for both individuals and groups as well as cut-off times; in order to assist in the timely communication, detection, intervention and treatment of exertional heat illness.	1.4.3.8 1.4.3.15 1.4.3.19 1.4.3.26 1.4.3.30 1.4.3.37 1.4.3.42 1.4.3.59 1.4.3.76 1.4.3.79
b. The Panel recommended that General Officer Commanding Force Troop Command should amend the incentive structure for the test marches to increase the likelihood that candidates make rational decisions concerning their own safety.	1.4.3.12 1.4.3.23 1.4.3.34
c. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 Training Teams understand the risk in motivating candidates to achieve unrealistic objectives and establish processes to ensure this does not occur, in order to reduce the likelihood of exertional heat illness.	1.4.3.29
d. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Training Teams and candidates understand how to optimise the use of clothing to enhance their ability to manage heat in order to reduce the risks of exertional heat illness.	1.4.3.50
e. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Unit 1 & 2 Training Teams and candidates understand the importance of candidates modifying their pace as required, in order to maintain thermal equilibrium and avoid exertional heat illness.	1.4.3.54
f. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams and candidates understand the challenge of recognising exertional heat illness and adjust the threshold for diagnosis in order to reduce the likelihood that candidates suffering from exertional heat illness are not correctly identified.	1.4.3.57
g. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams understand that candidate decision making during endurance activities may be impaired, in order that appropriate control measures to mitigate this risk can be developed.	1.4.3.63
h. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams monitor Wet Bulb Globe Temperature during all endurance activities in order to reduce the likelihood of exertional heat illness casualties.	1.4.3.68

i. The Panel recommended that the Commander of 160 Infantry Brigade and HQ Wales should establish processes to ensure that Wet Bulb Globe Temperature readings are promulgated on a regular schedule to all exercising units, in order to improve awareness of the level of risk of exertional heat illness.	1.4.3.70
j. The Panel recommended that General Officer Commanding Force Troops Command should ensure that all Reserve Unit 1 & 2 Training Teams understand and apply the correct medical and command response to an exertional heat illness casualty, in order to reduce the likelihood of further casualties and ensure the appropriate care is given.	1.4.3.72
k. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams establish robust processes to monitor water usage, and define criteria to trigger a dynamic risk assessment, during endurance events in order to enhance the ability to detect risks from exertional heat illness.	1.4.3.82
l. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams develop a system for fusing and analysing data, in order to make it easier to identify candidates at risk during both the planning and execution of training.	1.4.3.85 1.4.3.88
m. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams understand that candidates are most vulnerable during the final stages of endurance activities, in order that they recognise the increased likelihood of incidents.	1.4.3.91
n. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 Training Teams are educated about the risk of confirmation bias, in order to improve their ability to detect candidates at risk.	1.4.3.94
o. The Panel recommended that General Officer Commanding Force Troop Command should ensure that Reserve Unit 1 & 2 candidates understand that during unsupervised endurance activities they must adjust their own behaviours in order to avoid exertional heat illness.	1.4.3.98
p. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 Training Teams have robust control measures, in order to reduce the likelihood of further incidents once an initial incident is identified, and have sufficient command and control capacity to manage multiple incidents.	1.4.4.4
q. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 Training Teams have a dedicated quick reaction capability; that is appropriately composed; equipped with access to an appropriate number of dedicated and suitable vehicles. The Training Teams also need to be able to generate additional quick reaction capability to respond to multiple incidents.	1.4.4.6

r. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 Training Teams liaise with the emergency services prior to conducting this type of endurance activity, in order to improve coordination in the event of an incident.	1.4.4.8
s. The Panel recommended that General Officer Commanding Force Troops Command should provide Reserve Unit 1 & 2 with clear guidance on what post incident procedures they should follow, in order to improve the response.	1.4.4.15
t. The Panel recommended that General Officer Commanding Force Troops Command should ensure that following a significant incident involving exertional heat illness casualties, medical advice should be sought to help determine the cause, and to ensure that the correct medical screening process is followed, in order to make sure that all potential casualties are identified and properly treated.	1.4.4.19
u. The Panel recommended that General Officer Commanding Force Troops Command should establish processes to ensure Reserve Unit 1 & 2 review the JSP 539 *'individual risk factors'* prior to all physical training serials, in order to reduce the likelihood of exertional heat illness.	1.4.5.3
v. The Panel recommended that General Officer Force Troops Command should ensure that Reserve Unit 1 & 2 candidates understand the *'individual risk factors'* that can increase the likelihood of exertional heat illness, in order that they can avoid placing themselves at increased risk.	1.4.5.9
w. The Panel recommended that General Officer Commanding Force Troops Command should ensure that candidates for Reserve Units 1 & 2 must complete the whole training pathway and pass all criteria tests before continuing with the training pathway.	1.4.5.21
x. The Panel recommended that General Officer Commanding Force Troops Command should make sure that Commanding Officers of Reserve Unit 1 & 2 understand they must confirm that exercise instructions are policy compliant and appropriately detailed to explain how risks will be mitigated in order to reduce the risks to ALARP.	1.4.6.7 1.4.6.16 1.4.6.22 1.4.6.28
y. The Panel recommended that General Officer Commanding Force Troops Command should ensure the exercise documentation for Reserve Units 1 & 2 training are reviewed from first principles on an appropriate schedule to ensure that they remain relevant and take into account any changes in policy guidance.	1.4.6.9 1.4.6.18
z. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 exercise documentation contains formalised Go/No Go criteria, so that commanders make conscious, informed, and accountable decisions when committing to planned activities.	1.4.6.11

aa. The Panel recommended that General Officer Commanding Force Troops Command should ensure that there is appropriate planning capacity, in order to enable Reserve Units 1 & 2 Training Teams to execute and plan concurrently.	1.4.6.32
bb. The Panel recommended that General Officer Commanding Force Troops Command should establish processes to improve the communication and cooperation between Reserve Units 1 & 2 and the other Specialist Military Units, so that any differences in approach are understood and any potential risks identified.	1.4.6.42
cc. The Panel recommended that General Officer Commanding Force Troops Command should ensure a process of collective planning and Rehearsal of Concept drills are used in all Reserve Units 1 & 2 training, in order to improve the effectiveness of their exercise planning and delivery.	1.4.6.46
dd. The Panel recommended that General Officer Commanding Force Troops Command should establish processes to ensure that Reserve Units 1 & 2 Training Teams produce clear written Exercise Instructions, in order to aid the delivery of training and make it easier to assure the plan.	1.4.6.50
ee. The Panel recommended that General Officer Commanding Force Troops Command should ensure that all Reserve Unit 1 & 2 exercise planners understand exertional heat illness and JSP 539, in order to reduce the likelihood of exertional heat illness to ALARP.	1.4.6.54
ff. The Panel recommended that General Officer Commanding Force Troops Command should ensure that all Reserve Unit 1 & 2 exercise planners are educated to understand the importance of producing appropriate written exercise documentation, in order to increase the likelihood that there will be a Safe System of Training in place for all training.	1.4.6.56
gg. The Panel recommended that General Officer Commanding Force Troops Command should analyse and define the skills, training and currency that is required to be competent to design, plan, deliver and assure endurance training for Reserve Units 1 & 2 in accordance with Defence policy.	1.4.6.58
hh. The Panel recommended that General Officer Commanding Force Troops Command should make sure that Commanding Officers of Reserve Units 1 & 2 have an appropriate level of understanding of JSP 539, in order to reduce the risk of casualties from exertional heat illness to ALARP.	1.4.6.61
ii. The Panel recommended that General Officer Commanding Force Troops Command should make sure that Commanding Officers of Reserve Units 1 & 2 have an appropriate level of understanding of JSP 375, in order that they comprehend their duty of care responsibilities to ensure a Safe System of Training is in place.	1.4.6.63

jj. The Panel recommended that General Officer Commanding Force Troops Command should establish formal processes to regularly review Reserve Units 1 & 2 training, in order to avoid a drift in risk perception and improve the management of training safety. 1.4.7.12

kk. The Panel recommended that General Officer Commanding Force Troops Command should ensure that Reserve Units 1 & 2 establish lessons processes to ensure that *Single* and *Double Loop* learning occurs, in order to improve training management and training safety. 1.4.7.17

ll. The Panel recommended that General Officer Commanding Force Troops Command should establish 1st and 2nd Party assurance mechanisms for Reserve Units 1 & 2, in order to ensure that a Safe System of Training is in place for all training activities. 1.4.7.20 1.4.7.38

mm. The Panel recommended that General Officer Commanding Force Troops Command should review Reserve Units 1 & 2 current *Safety Culture*, establish methods to measure its maturity and identify areas for improvement, in order to ensure that training risk is ALARP. 1.4.7.27

1.5.10 **Headquarters of the Specialist Military Units**

a. The Panel recommended that the Director Specialist Military Units should ensure Specialist Military Units establish effective monitoring criteria for candidates participating in arduous activities. Specifically deterioration in relative and absolute terms for both individuals and groups as well as cut-off times; in order to assist in the timely communication, detection, intervention and treatment of exertional heat illness. 1.4.3.9 1.4.3.16 1.4.3.20 1.4.3.27 1.4.3.31 1.4.3.38 1.4.3.43 1.4.3.60 1.4.3.77 1.4.3.80

b. The Panel recommended that the Director Specialist Military Units should amend the incentive structure for the test marches to increase the likelihood that candidates make rational decisions concerning their own safety. 1.4.3.13 1.4.3.24 1.4.3.35

c. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams understand the risk in motivating candidates to achieve unrealistic objectives and establish processes to ensure this does not occur, in order to reduce the likelihood of exertional heat illness. 1.4.3.40

d. The Panel recommended that the Director Specialist Military Units should ensure that Training Teams and candidates understand how to optimise the use of clothing to enhance their ability to manage heat in order to reduce the risks of exertional heat illness. 1.4.3.51

e. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams and candidates understand the importance of candidates modifying their pace as required, in order to maintain thermal equilibrium and avoid exertional heat illness. 1.4.3.55

f. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams and candidates understand the challenge of recognising exertional heat illness and adjust the threshold for diagnosis in order to reduce the likelihood that candidates suffering from exertional heat illness are not correctly identified. 1.4.3.58

g. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams understand that candidate decision making during endurance activities may be impaired, in order that appropriate control measures to mitigate this risk can be developed. 1.4.3.64

h. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams monitor Wet Bulb Globe Temperature during all endurance activities in order to reduce the likelihood of exertional heat illness casualties. 1.4.3.69

i. The Panel recommended that the Director Specialist Military Units should ensure that all Specialist Military Unit Training Teams understand and apply the correct medical and command response to an exertional heat illness casualty, in order to reduce the likelihood of further casualties and ensure the appropriate care is given. 1.4.3.73

j. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams establish robust processes to monitor water usage, and define criteria to trigger a dynamic risk assessment, during endurance events in order to enhance the ability to detect risks from exertional heat illness. 1.4.3.83

k. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams develop a system for fusing and analysing data, in order to make it easier to identify candidates at risk during both the planning and execution of training. 1.4.3.86 1.4.3.89

l. The Panel recommended that the Specialist Military Units should ensure that Regular Specialist Unit Training Teams understand that candidates are most vulnerable during the final stages of endurance activities, in order that they recognise the increased likelihood of incidents. 1.4.3.92

m. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit Training Teams are educated about the risk of confirmation bias, in order to improve their ability to detect candidates at risk. 1.4.3.95

n. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit candidates understand that during unsupervised endurance activities they must adjust their own behaviours in order to avoid exertional heat illness. 1.4.3.99

o. The Panel recommended that the Director of Specialist Military Units should ensure that the Specialist Military Unit Training Teams have robust control measures, in order to reduce the likelihood of further incidents once an initial incident is identified, and have sufficient command and control capacity to manage multiple incidents.	1.4.4.5
p. The Panel recommended that the Director of Specialist Military Units should ensure that the Specialist Military Unit Training Teams have a dedicated quick reaction capability; that is appropriately composed; equipped with access to an appropriate number of dedicated and suitable vehicles. The Training Teams also need to be able to generate additional quick reaction capability to respond to multiple incidents.	1.4.4.7
q. The Panel recommended that the Director of Specialist Military Units should ensure that Specialist Military Unit Training Teams liaise with the emergency services prior to conducting this type of endurance activity, in order to improve coordination in the event of an incident.	1.4.4.9
r. The Panel recommended that the Director of Specialist Military Units should provide all Specialist Military Units with clear guidance on what post incident procedures they should follow, in order to improve the response.	1.4.4.16
s. The Panel recommended that the Director of Specialist Military Units should ensure that following a significant training incident, Specialist Military Units Commanding Officers should pause further training and seek subject matter advice, in order to determine whether it is safe to continue with any planned activities.	1.4.4.18
t. The Panel recommended that the Director of Specialist Military Units should ensure that following a significant incident involving exertional heat illness casualties, medical advice should be sought to help determine the cause, and to ensure that the correct medical screening process is followed, in order to make sure that all potential casualties are identified and properly treated.	1.4.4.20
u. The Panel recommended that the Director Specialist Military Units should establish processes to ensure Specialist Military Units review the JSP 539 *'individual risk factors'* prior to all physical training serials, in order to reduce the likelihood of exertional heat illness.	1.4.5.4
v. The Panel recommended that the Director Specialist Military Units should ensure that Specialist Military Unit candidates understand the *'individual risk factors'* that can increase the likelihood of exertional heat illness, in order that they can avoid placing themselves at increased risk.	1.4.5.10
w. The Panel recommended that the Director of Specialist Military Units should make sure that Commanding Officers of the Specialist Military Units understand they must confirm that exercise instructions are policy compliant and appropriately detailed to explain how risks will be mitigated in order to reduce the risks to ALARP.	1.4.6.8 1.4.6.17 1.4.6.23 1.4.6.29

x. The Panel recommended that the Director of Specialist Military Units should ensure the exercise documentation for Specialist Military Units training are reviewed from first principles on an appropriate schedule to ensure that they remain relevant and take into account any changes in policy guidance.	1.4.6.10 1.4.6.19
y. The Panel recommended that the Director of Specialist Military Units should ensure that Specialist Military Units exercise documentation contains formalised Go/No Go criteria, so that commanders make conscious, informed, and accountable decisions when committing to planned activities.	1.4.6.12
z. The Panel recommended that the Director of Specialist Military Units should ensure that there is appropriate planning capacity, in order to enable Specialist Military Units Training Teams to execute and plan concurrently.	1.4.6.33
aa. The Panel recommended that the Director of Specialist Military Units should review the scheduling of the test marches, in order to reduce the likelihood that the test marches will be conducted in extremes of climatic conditions.	1.4.6.35
bb. The Panel recommended that the Director of Specialist Military Units should ensure that all Specialist Military Units conduct their own analysis during the planning of training, in order to make sure that the plans are appropriate to the specific activity being conducted.	1.4.6.40
cc. The Panel recommended that the Director of Specialist Military Units should ensure all Training Teams are given sufficient time and resources prior to delivering training so that an effective team is formed.	1.4.6.44
dd. The Panel recommended the Director of Specialist Military Units should ensure a process of collective planning and Rehearsal of Concept drills are used in all Specialist Military Units training, in order to improve the effectiveness of their exercise planning and delivery.	1.4.6.47
ee. The Panel recommended the Director of Specialist Military Units should establish processes to ensure that Specialist Military Units Training Teams produce clear written Exercise Instructions, in order to aid the delivery of training and make it easier to assure the plan.	1.4.6.51
ff. The Panel recommended that the Director of Specialist Military Units should ensure that all Specialist Military Units exercise planners understand exertional heat illness and JSP 539, in order to reduce the likelihood of exertional heat illness to ALARP.	1.4.6.55
gg. The Panel recommended that the Director of Specialist Military Units should ensure that all Specialist Military Units exercise planners are educated to understand the importance of producing appropriate written exercise documentation, in order to increase the likelihood that there will be a Safe System of Training in place for all training.	1.4.6.57

hh. The Panel recommended that the Director of Specialist Military Units should analyse and define the skills, training and currency that is required to be competent to design, plan, deliver and assure endurance training for Specialist Military Units in accordance with Defence policy. 1.4.6.59

ii. The Panel recommended that the Director of Specialist Military Units should make sure that Commanding Officers of Specialist Military Units have an appropriate level of understanding of JSP 539, in order to reduce the risk of casualties from exertional heat illness to ALARP. 1.4.6.62

jj. The Panel recommended that the Director of Specialist Military Units should make sure that Commanding Officers of all Specialist Military Units have an appropriate level of understanding of JSP 375, in order that they comprehend their duty of care responsibilities to ensure a Safe System of Training is in place. 1.4.6.64

kk. The Panel recommended that the Director of Specialist Military Units should ensure that JSP 539 is intuitively categorised and located on the Specialist Military Units secure network in order to make it easy to find. 1.4.6.71

ll. The Panel recommended that the Director of Specialist Military Units should establish formal processes to regularly review Specialist Military Unit training, in order to avoid a drift in risk perception and improve the management of training safety. 1.4.7.13

mm. Recommendation: The Panel recommended that the Director of Specialist Military Units should ensure Reserve Units 1 & 2 establish lessons processes to ensure that *Single* and *Double Loop* learning occurs, in order to improve training management and training safety. 1.4.7.18

nn. The Panel recommended that the Director of Specialist Military Units should establish 1st and 2nd Party assurance mechanisms for all Specialist Military Units, in order to ensure that a Safe System of Training is in place for all training activities. 1.4.7.21

oo. The Panel recommended that the Director of Specialist Military Units should consider establishing new command structures to provide oversight of routine training activities, in order to reduce the command burden on operational units. 1.4.7.22

pp. The Panel recommended that Director of Specialist Military Units should ensure there is a suitable Management of Training System for Specialist Military Units, in order to make sure they are doing the *'right training'* and *'training right'*. 1.4.7.25

qq. The Panel recommended that the Director of Specialist Military Units review Specialist Military Units current *Safety Culture*, establish methods to measure its maturity and identify areas for improvement, in order to ensure that training risk is ALARP. 1.4.7.28

PART 1.6 - CONVENING AUTHORITY COMMENTS

1.6.1. When reading this Service Inquiry (SI) we should understand that the risk taken in training is directly related to operational success. If training is not done in a realistic manner then we transfer risk from training to operations. With that in mind, this SI contains a wealth of lessons with regard to how we can conduct high-end training with relative safety, if we have an engaged and questioning safety culture. These lessons are not confined to the activities of the Specialist Military Units (SMU) and there is much to learn from this incident across the armed forces. The three soldiers that died from heat illness were not trained and conditioned to the right level; neither did they have the experience to face the rigours of the Test March being conducted on what was to be the hottest day of 2013. Whilst it has been accepted that mistakes were made that day, we must also acknowledge that, whilst every death is unacceptable, the candidates and organisers were conducting an activity that intentionally placed people close to the edge of the acceptable risk envelope in an aim not to push risk forward to operations.

1.6.2. The Inquiry found that there was ambiguity with regard to the role of the Reserve SMUs which stemmed from uncertainty about the operational requirement for these units. This is important as it led to a training pathway that, without a clearly defined end product, was based on legacy assumptions and did not prepare the Reserves well enough to cope with what turned out to be extreme conditions that day. Without a clear understanding of the preparedness of the Reserve candidates, they were placed into a training system which was potentially inappropriate to their role and did not recognise their vulnerabilities; moreover, the activity was seen as low risk by both those organising the Test March and HQ SMU for reasons explained later. It is worth saying upfront that HQ SMU has now taken what I deem to be large scale improvements which will make a repeat of this event unlikely for Regular and Signals Regiment candidates. However, it is my opinion that the Reserves remain vulnerable whilst there is uncertainty about their training pathway in relation to the operational requirement and role of these units.

1.6.3. This has been a long and complex SI and is unusual in that it started some 27 months after the tragic incident occurred. This has presented the Panel with a range of challenges as memories have faded and key witnesses have suffered investigation fatigue due to the number of times that they have been interviewed by a combination of the civil and military police, Health & Safety Executive (HSE), Land Accident Investigation Team, Defence Safety Authority (DSA) and the Coroner. I am exceptionally grateful for the co-operation of the witnesses who have been involved in these investigations and the candid way in which they have helped the SI. Equally, I am grateful to HQ SMU for their openness and the forward leaning way in which they have responded to DSA Safety Advice over the past few months. Unlike the other investigations, the SI is a safety investigation, rather than one which looks at failings and culpability and it is this investigation that will help prevent an incident in the future. I commend the Panel for their efforts and support the causes identified, the contributory, aggravating and other factors, and the observations made. I also agree with the detailed recommendations made by the Panel which will be tracked by the DSA to conclusion and then signed off by Director General DSA. The Panel has identified that the deaths of Corporal James Dunsby, Lance Corporal Edward Maher and Lance Corporal Craig Roberts were caused by hyperthermia due to exertional heat illness; the Panel found that the Reserve candidates were not trained to the same standard as the Signals Regiment candidates, had reduced levels of experience and were less able to cope with the conditions on the day; there was also an overall lack of understanding of heat illness at every level and a safe system of training was not in place for the Reserves. Finally, evidence shows there was a general lack of comprehension that the Test March (seen as low risk) could quickly become very high risk activity when conducted in warm or hot climatic conditions.

1.6.4. Unusually in Defence, the SMU operational HQ is directly responsible for the training which included the Test Marches. It is easy to see how this routine event, which was considered to be (and generally was) low risk, would not have been the highest priority on the SMU leadership's agenda. Demands for senior oversight of the HQ's activity would be at a premium and it is unlikely that this type of training would be getting the attention that with the benefit of hindsight it deserved. The busy and operationally focussed HQ had a small training team which whilst empowered to make decisions, was responsible for hundreds of lines of training activity and was considerably overstretched. The Test March activity had been further delegated to the Signals Regiment to conduct, making it even more remote from HQ SMU direct control and oversight. I have no doubt that everyone at every level were trying to get this Test March completed safely but realistically it would have been difficult for SMU leadership to have the capacity to devote much time and attention to an activity which they clearly saw as tolerable[1] and ALARP[2]. This clearly raises the question as to whether this training is being conducted by the right people with the right capacity for oversight. There are many examples in Defence where a separate training organisation selects and prepares recruits to the standard demanded by the operators. This should at least be considered and reviewed by the Army and Joint Forces Command. So with the activity realistically having limited leadership attention, combined with little time to reflect on lessons from the past and with no assurance, this was an accident waiting to happen; it did so with the unlucky coincidence of the Test March being planned for this exceptionally hot day in July 2013.

1.6.5. The planning and execution of the Test March by the Signals Regiment did not take into account the direction in Joint Service Publication 539 – Climatic Illness and Injury in the Armed Forces (JSP 539). It would of course be easy, with benefit of hindsight, to point a finger at the organisers and planners of the Test March but that would miss the point that across Defence, and not just in the SMUs, there was a lack of understanding of the real dangers posed by heat illness to personnel conducting strenuous activity in warm climatic conditions. I see this lack of understanding of heat illness being a failure of leadership at many levels across the whole of Defence in not making sure that Health and Safety policies (heat illness) were being applied appropriately. Heat illness has been a persistent problem for many years both within the SMUs and more widely across the Single Services. The issue of heat illness within the UK, due to our temperate climate, was something that few realised was such an insidious and dangerous risk. Indeed, statistics show that heat illness is more prevalent in the armed forces whilst operating in the UK than when operating in warm or hot climates overseas. It is unfortunate that, despite the numerous investigations and the Coroner's inquest since these three deaths, lessons regarding heat illness are only now really beginning to be learnt and truly embedded some four years later.

1.6.6. Since 13 July 2013, Defence has had a number of near-miss heat illness events which have been, or are being, investigated by the police, HSE, DSA and individual units. Importantly, nearly four years after the Brecon incident, the master document, JSP 539, is still not fit for purpose but a revised version is in the final stages of drafting. Whilst the Coroner made comment about JSP 539, it was more with regard to awareness of the policy and training rather than its fitness for purpose. Overall the document is not currently aligned with the type of strenuous activity that units are conducting; specifically it does not recognise the range of fitness, endurance and loaded-march events that are actually being undertaken across Defence. This makes it very difficult for those managing an event to use JSP 539 effectively; rather it provides generic detail with which event organisers find hard to match to their own activity. Moreover, it limits exposure in warm/hot climatic conditions to a maximum

[1] Tolerable' refers to a willingness by society as a whole to live with a risk so as to secure certain benefits in the confidence that the risk is one that is worth taking and that it is being properly controlled. *HSE: Reducing Risks Protecting People (2001).*

[2] As Low As Reasonably Practicable. The ALARP principle derives from Sections 2 and 3 of the Health and Safety at Work Act 1974.

period of one hour – this is clearly not workable for much of our training activity. My final comment with regard to heat illness is that, despite the problems with JSP539, I have been reassured in recent months to note that there is a much improved awareness of heat illness across the commands and measures are being put in place by the leadership in an aim to prevent reoccurrence of this type of incident.

1.6.7. Whilst the cause of the deaths is relatively easy to explain as hyperthermia, as with most serious incidents, there are numerous organisational and cultural factors which contributed to the incident happening. The Panel have come out with three significant contributory factors which include preparation of the Reserves for the Test March, the Reserves' inability to maintain thermal equilibrium and the absence of a Safe System of Training. So how did we place our Reserves in harm's way and why was this allowed to happen? To understand the complexity of what occurred, it is worth looking in some detail at the two Reserve SMUs. Specifically, it is worth asking if the appropriate training pathway was being used for these units. During the Cold War, the Reserve SMUs had a clearly defined and understood role but since then, the requirement for them appears to be less clear and more difficult to articulate. A number of reviews into Reserve Unit 1 & 2 had been conducted over the years and included the prospect of a merger or disbandment which was considered to be presentationally unpalatable. Following a review of historic documentation and interviews during this investigation, it would appear that any proposal to change the role and requirement for these Reserves met with significant resistance from both serving Reserves and ex-members in positions of influence. By way of example, political influences and vulnerabilities were captured as key constraints within a number of documents, including direction from HQ SMU to the units, regarding future Reserves 2020 work. These constraints most certainly limited the freedoms to make changes within the Reserves.

1.6.8. More recently, the 2 Reserve SMUs were placed into the brigade structure of the Army Top Level Budget (TLB) with a role that appears to the Panel to be still not well defined. There is an understandable gradient across the UK's SMUs in terms of capability, performance, kudos and brand which places the Regular units first followed by the Signals Regiment and finally the 2 Reserve SMUs. This is evidenced by the Reserve units' desire to conduct similar training, to wear the same insignia and to train in the Brecon Beacons, despite not being located there and the Reserve role being potentially different. For SMU Reserves, the Test Marches had become the main tangible link with the Regular units and the fixed assumption was that the marches were 'not negotiable' as without this test then the Reserves would be no different from other TLB Reserve units. Therefore, the appropriateness for the Reserve units to conduct the Test Marches was never questioned and remained a legacy assumption regardless of the development of their role. With ambiguity over the role of the Reserves and resistance to change due to perceived or actual political and presentational pressures, this led to an inappropriate training pathway that focussed around the Test March phase. This has made it difficult for HQ SMU to identify the risk to Reserves conducting a legacy, and potentially inappropriate, training pathway which in turn increased the likelihood of the incident happening.

1.6.9. It is worth looking at the standard of input training for the 2 Reserve units as they did not train their candidates to the same standard as the Signals candidates. Importantly, the Reserve candidates did not have a progressive build up and had less time to prepare than the Signals candidates. As a result the Reserves suffered disproportionately from the effects of heat illness on the day. The Reserve Units aimed to prepare candidates for the Test Marches in a 6 month period. Reserve availability and time constraints would mean that only eight individual navigation marches were available to the Reserve units. Moreover, after travelling time to the Brecon Beacons for weekend training is taken into account, only very limited time was available for the actual training itself. Additionally, it appears that not all training opportunities were rigorously exploited. For example, Lance Corporal Roberts did

not attend all of the lead-in training as he had reached the Test March phase previously and had been given permission to do so by his chain of command. This however was not documented in his training records and therefore any additional risk was not taken into account. In contrast, the Signals Regiment consisted of full-time soldiers who were given a 6-8 week period of consolidated training focussed on passing the Test Marches. Their operational role was highly defined and the training pathway appropriate. It is highly questionable if the Reservists were appropriately prepared for the Test Marches - this increased the likelihood of an incident happening.

1.6.10. Placing the Reserves, at a lower preparation standard, into what was clearly a robust and highly challenging training pathway was eventually going to materialise as a significant issue. Whilst there were weaknesses in the training across both the Regular and Signals Regiment, the input standard to these two units was much higher, when compared to the Reserve units and this resulted in more robust candidates able to cope with more challenging conditions on the day. HQ SMU essentially saw the training task as low risk and in accordance with its mission command philosophy, delegated training down to decision makers at the lowest practical level. The training team within HQ SMU was overstretched and the Test March was very much seen as business-as-usual and, indeed, low risk. Over the years, there were a number of indicators that the drop-out rate was much higher for Reserve candidates often coinciding with extreme weather conditions. This was not questioned by the Reserves and appeared to go unnoticed by HQ SMU. The relationship between the HQ SMU, the Signals Regiment and Reserves had developed since 2007 when it was decided that the Signals units should run the Reserves training event at Brecon. The training relationship led to a shared assumption that the training was appropriate as the Reserves continued to pass the phase. There is no evidence of any systematic review of Reserves training or review of risks or changes to the training pathway; basically, the issue of Reserves 'training right' went unquestioned and the inherent risk was unrecognised.

1.6.11. HQ SMU engages in high risk operational activity on a daily basis and had understandably been calibrated to a different level of what was high risk. Consequently the HQ considered the Test Marches to be low risk when perhaps other more conventional units would have considered the risk to be much higher. This Test March was therefore being conducted without a true appreciation of the actual risks involved, this was reinforced by the fact that these marches had been undertaken for many years and were considered routine. These assumptions all served to increase the likelihood of the incident happening and therefore were considered by the Panel to be contributory. The Panel examined 4 previous incidents that had occurred during the SMU training pathway. The previous incidents contained many of the issues that were found to be causal or contributory on 13 July 2013. They are summarised as: a limited understanding of heat illness, a lack of policy conformity to JSP 539, shortcomings in planning, documentation and Command & Control, and an inadequate monitoring of candidates. These factors provided a missed opportunity to spot potential problems but insufficient staff time and a weak lessons process contributed to them being missed. The Panel considered that a lack of an effective learning process increased the likelihood of the incident happening. In addition, at the time of the incident, HQ SMU did not have an effective Management of Training System. They were responsible for hundreds of lines of training, which generated a need to place priority for command oversight on those activities that were considered to be higher risk. The HQ delegated the analysis, design, delivery and assurance of routine training to the 2 Reserve units and the Signals Regiment. This clearly further reduced the likelihood of HQ SMU identifying that the Reserve units were not doing the right training and were essentially marking their own homework. Finally, there was no formal assurance in place for this type of training, either at unit-level (1st Party) or at HQ SMU (2nd Party) level. In summary, the perception that the Test March was low risk, combined with an overstretched training organisation at both Unit and HQ level resulted in

very little oversight of what was perceived to be low risk activity. Combined with a lack of assurance this increased the likelihood of the incident happening.

1.6.12. In conclusion, whilst this incident, which resulted in the tragic loss of Corporal James Dunsby, Lance Corporal Edward Maher and Lance Corporal Craig Roberts, serves as a stark reminder of the dangers of heat illness, more importantly it illustrates how complex organisational factors often have far reaching consequences. Uncertainty with regard to the role and requirement for the 2 Reserve SMUs led to an inappropriate training pathway, defined by legacy assumptions and a desire to train alongside the Regulars. Proposed changes to the units in the past had been opposed and resisted for a variety of reasons; consequently their role remains poorly defined which, in turn, leads to difficulty in designing an appropriate training pathway. This resulted in the Reserve candidates being placed into the Test Marches without the appropriate graduated training such as that conducted by the Regular and Signals units. It would be easy to say that this was an avoidable accident and in some ways it was. However, like so many high profile accidents, there was organisational drift to that which had become the normal and the acceptable over a period of many years. The Test Marches had been viewed as a highly effective gateway to the selection process but it was never questioned as to whether it was suitable for the Reserves, both from a point of view of their role and if they had the time to conduct the appropriate preparation. With a high threshold for risk, an unquestioning culture and no independent challenge then there is little doubt that the organisation drifted towards failure in the Test March activity. It is my opinion that these Reserves currently remain vulnerable to a further incident in the future. Indeed, it is likely that this risk will not recede until the following receive attention: the operational requirement and role for these units is clearly defined; an appropriate training pathway is established for their defined role; and finally, consideration should be given to delink SMU training from the operational HQ.

DG DSA