



Defence
Safety Authority

Service Inquiry

Fatal Night Firing Accident at
Castlemartin Training Area

4 March 2021

Defence Safety Authority

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PART 1.1

Covering Note & Glossary

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PART 1.1 – COVERING NOTE

[File Reference]

Mar 21

DG DSA

SERVICE INQUIRY INVESTIGATION INTO A FATAL NIGHT FIRING ACCIDENT AT CASTLEMARTIN TRAINING AREA ON 4 MAR 21

1. The Service Inquiry Panel assembled at Boscombe Down, on the 17 Mar 21 by order of the DG DSA for the purpose of investigating the accident involving Sgt Hillier, 1 Battalion, The Welsh Guards on 4 Mar 21 and to make recommendations in order to prevent reoccurrence. The Panel has concluded its inquiries and submits the provisional report for the Convening Authority's consideration.

PRESIDENT

[Signature]



Lt Col
President
Service Inquiry

MEMBERS

[Signature]



Capt
Member 1
Service Inquiry

[Signature]



Flt Lt
Member 2
Service Inquiry

2. The following inquiry papers are enclosed:

- Part 1 (The Report)
- Part 1.1 Covering Note and Glossary
- Part 1.2 Convening Orders & TORs
- Part 1.3 Narrative of Events
- Part 1.4 Findings
- Part 1.5 Recommendations
- Part 2 (The Record of Proceedings)
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- Part 2.2 List of Witnesses
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GLOSSARY

Acronym/Abbreviation	Explanation
1 Sect	1 Section
1 Sect Comd	1 Section Commander
1(UK) Div	1 (United Kingdom) Division
1WG	1 Welsh Guards
2 Coy	2 Company
2IC	Second in Command
2ITB	2 Infantry Training Battalion
2Lt	Second Lieutenant
2 Sect Comd	2 Section Commander
3IC	Third in Command
3 Sect Comd	3 Section Commander
5 Pl	5 Platoon
5 Pl Sgt	5 Platoon Sergeant
590	590 milliradians Safety Angle for Live Firing Weapons
6 Pl	6 Platoon
6 Pl Sgt	6 Platoon Sergeant
11X	11th Infantry Brigade
AAMB	Air Ambulance
AAR	After Action Review
ACMT	Annual Combat Marksmanship Tests
ACSO	Army Command Standing Order
ACSSU	Air Combat Service Support Unit (Photographic Operations)
AESP	Army Equipment Support Publication
AF	Army Form
AFC (H)	Army Foundation College, Harrogate
AFM	Army Field Manual
AGAI	Army General Administrative Instruction
ALPHA	Crew/Section level training
Ammo	Ammunition
AOSP	Army Operational Shooting Policy
APRC	Army Personnel Research & Consultancy
ARITC	Army Recruiting and Initial Training Command
ASCen	Army Safety Centre
ATSB	Australian Transport Safety Bureau
BAMS	Booking & Allocation Management System
Bayonet	A knife mounted on a weapon
BCS	Battle Craft Syllabus
Bde	Brigade
BFA	Battlefield Ambulance
BG	Battle Group
BG CP	Battle Group Command Post
BHQ	Brigade Headquarters
Binocular Vision	Vision with both eyes together
Bn	Battalion

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Bn HQ	Battalion Head Quarters
BRAVO	Troop/Platoon level training
BUND Line	Built Up Natural Defence Line
C2	Command and Control
CALFEX	Combined Arms Live Fire Exercise
Capt	Captain
CAST(N)	Command and Staff Training (North)
CBRN	Chemical Biological Radiological Nuclear
CBT	Combat
CBW	Combermere Barracks Windsor
CCTE	Close Country Tropical Environment
CD Cbt	Capability Directorate Combat
CFA	Commander Field Army
CGS	Chief of the General Staff
CHARLIE	Sub-Unit (Coy-Level) Special to Arm Training.
CIC	Combat Infantryman Course
CIS	Communication Information Systems
CIVPOL	Civilian Police
CMR	Castlemartin Ranges
CMT	Combat Medical Technician
CO	Commanding Officer
CoC	Chain of Command
Cones	Eye photoreceptors responsible for colour perception.
COS	Chief of Staff
Coy	Company (consist of 3 Platoons – c. 90 soldiers and a Headquarters (HQ))
Cpl	Corporal
CPR	Cardiopulmonary Resuscitation
Crows-foot	An aid mandated for use by safety staff for live fire ranges, as a means of checking the 590mil safety angle for firers' weapon danger areas
CQB	Close Quarters Battle
CR	Combat Ready
CRT	Combat Ready Training
CSgt	Colour Sergeant
CSM	Company Sergeant Major
CT2+	Collective Training Level 2+, Coy-Level Specific to Arm training.
CT3	Collective Training level 3, Coy-Level in a BG context
CTG	Collective Training Group
CT Scan	Computerised Tomography Scan
CTO	Collective Training Objectives
CYALUME	Light emitting plastic tube, disposable
DAIB	Defence Accident Investigation Branch
DCC	Dismounted Close Combat
DCCU	Dismounted Close Combat User
DCOS	Deputy Chief of Staff
DDH	Delivery Duty Holder
DELTA	Special to Arm Unit training (Blank Rounds).

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DE&S	Defence Equipment and Support
DG	Director General
DI	Detective Inspector
DIO	Defence Infrastructure Organisation
DIV	Division
DLE	Defence Learning Environment
DMICP	Defence Medical Information Capability Programme
Down Rep	Down Report (Reporting down the Chain of Command)
D Pers Cap	Directorate of Personnel, Capability
DPHC	Defence Primary Health Care
DSA	Defence Safety Authority
DSAT	Defence Systems Approach to Training
DSTL	Defence Science Technology Laboratories
DTE	Defence Training Estate
DTSO	Deputy Training Safety Officer
E	East
EO	Enabling Objective
Ex	Exercise
Ex AS	Exercise Askari Storm
Ex DF	Exercise Dragons Fury
Ex Dir	Exercise Director
Ex DR	Exercise Dragon's Revenge
Ex DV	Exercise Dragons Victory
Ex ST	Exercise Shader Tempest
F&M	Fire and Manoeuvre
FATD	Field Army Training Directive
FCO	Fire Control Order
FFG	Flanking Fire Gun
F Gen	Force Generation
FHPI	Force Health Protection Instructions
FIRIC	Falkland Islands Roulement Infantry Company
FIST	Future Integrated Soldier Technology
FLOT	Forward Line of Own Troops
Fmn HQ	Formation Headquarters
FoE	Forecast of Events
F Prep O	Force Preparation Order
FSCM	Fire Support Coordinating Measures
FSG	Fire Support Group
FSP	Fire Support Position
FT	Fire Team
FTA	Fire Team Attack
FTC	Fire Team Commander
FTS	Formal Training Statement
FTU	Field Training Unit
Gdmn	Guardsmen; a Guards-Specific rank, equivalent to Private.
GOC	General Officer Commanding
Gp	Group
GPMG	General Purpose Machine Gun

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GRIT	Group, Range, Indication & Type of Fire (Sequence of giving a Target Indication)
GS	General Service
GSR	General Service Respirator
Hd	Head
HE	High Explosive
HF	Human Factors
Hi-Viz	High Visibility
HoC Cbt	Head of Capability, Combat
HMNVS	Head Mounted Night Vision System
HQ	Headquarters
HQ 1(UK) Div	Headquarters 1 (United Kingdom) Division
IBS	Infantry Battle School
IBSR	Individual Battle Shooting Range
ICQB	Individual Close Quarters Battle
IFM	Individual Fire and Manoeuvre
IMA	Initial Medical Assessment
Inf Bn	Infantry Battalion
IPC	Initial Planning Conference
IPCC	Intergovernmental Panel on Climate Change
IR	Infra-Red
ISTAR	Intelligence Surveillance Target Acquisition Reconnaissance
ITC(C)	Infantry Training Centre (Catterick)
ITDU	Infantry Trials and Development Unit
IWD	Infantry Weapon Division
JCCC	Joint Compassionate Co-ordination Centre
JNCO	Junior Non-Commissioned Officer
JMES	Joint Medical Entry Standard
JOTAC	Junior Officers Tactical Awareness Course
JPA	Joint Personnel Administrative System
JSP	Joint Service Publication
KLP	Key Learning Point
KRH	King's Royal Hussars
L/R	Left to Right
L/Cpl	Lance Corporal
L/Sgt	Lance Sergeant
LDS	Lightweight Day Sight
LE	Late Entry (Officer commissioned from the rank of Warrant Officer)
LF	Live Firing
LFTT	Live Fire Tactical Training
LFTTA	Live Fire Tactical Training Area
LFTT FFQ	LFTT Field Firing Qualification
LFMT	Live Fire Marksmanship Training
LLM Mk3	Laser Light Module, Mark 3
LNV	Limit of Night Visibility
LOE	Limits of Exploitation
LONDIST	London District

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Lt	Lieutenant
Lt Col	Lieutenant Colonel
LUCIE	Universal Night Vision Goggle
LWC	Land Warfare Centre (Warminster)
Maj	Major
MATT	Military Annual Training Tests
Mils	A unit for accurate angular measurement. 1 degree = 17.78 mil
MOD	Ministry of Defence
MRT	Mission Ready Training
MRX	Mission Rehearsal Exercise
MST	Mission Specific Training
MT	Mechanical Transport
MTP	Multi Terrain Pattern
Myopia	Short-sighted (difficulty viewing objects at distance)
N	North
N/A	Not Applicable
NATO	North Atlantic Treaty Organisation
NCO	Non-Commissioned Officer
NIHL	Noise Induced Hearing Loss
No2 Coy	Number 2 Company
NOK	Next of Kin
NOTICAS	Notification of Casualty
NPA	Nasal Pharyngeal Airway
NSP	Normal Safety Precautions
NVD	Night Vision Device
NVG	Night Vision Goggle
OC	Officer Commanding
OC Sp Coy	Officer Commanding Support Company
OC 2 Coy	Officer Commanding 2 Company
OC 5 PI	Officer Commanding 5 Platoon
OC 6 PI	Officer Commanding 6 Platoon
ODH	Operating Duty Holder
ODR	Operational Deployment Record
OM	Observer Mentor
Op	Operation
OPA	Oral Pharyngeal Airway
OPS	Operational Performance Statement
OSP	Operational Shooting Policy
OTA	Otterburn Training Area
Pam 21	Pamphlet 21: Training Regulations for Armoured Fighting Vehicles, Infantry Weapon Systems and Pyrotechnics
Para-Lume	L24A1 Rocket, Hand fired, Parachute Illumination
PI	Platoon
PCBC	Platoon Commanders Battle Course
PEARL	Pupils Equal and Reacting to Light
Photopic	Vision in bright light conditions where fine detail and colours can be seen.
PI Comd	Platoon Commander

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PoW	Prince of Wales
PPE	Personal Protective Equipment
PRR	Personal Role Radio
PRT	Permanent Range Team
PSBC	Platoon Sergeant's Battle Course
Pte	Private
PTT	Press To Talk
QMSI	Quartermaster Sergeant Instructor
QBO	Quick Battle Order
RA	Risk Assessment
RAMC	Royal Army Medical Corps
RASP	Range Action Safety Plan
RCD	Regional Clinical Director
RCO	Range Conducting Officer
RDA Trace	Range Danger Area Trace
Recce	Reconnaissance
RMAS	Royal Military Academy Sandhurst
RMO	Regimental Medical Officer
Rods	Eye photoreceptors responsible for seeing shades of grey.
RoLE	Recognition of Life Extinct (Deceased)
RPAS	Remotely Piloted Air System
RSDC	Regimental Signals Detachment Commander
RSM	Regimental Sergeant Major
RSO	Range Standing Order
RTGS	Residual Training Gap Statement
RtL	Risk to Life
SA80 (L85A2)	SA80 (L85A2), Current in-service rifle
RWMIK	Revised Weapons Mounted Installation Kit
S	South
SA (A)(90)	SA(A)(90) range qualification that allows individuals to plan, conduct and supervise all live firing with Infantry weapon systems and pyrotechnics.
SA (E)(90)	SA(E)(90) range safety supervisor qualification for TLFFT and LFFT exercises
SARTS	Small Arms Range Targetery System
SASC	Small Arms School Corps
SCBC	Section Commanders Battle Course
SCHINF	School of Infantry
Scotopic	Vision in low light conditions. Results in no colour perception, and no fine detail in central vision. (see Para-Lume) Common name for the L24A1 Rocket, Hand fired, Parachute Illumination based upon the name of the original manufacturer.
Schmooly	
SCPD	State Ceremonial & Public Duties
SDH	Senior Duty Holder
Sect	Section
Sect Cmd	Section Commander
SENTA	Sennybridge Training Area

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SFT	Switch Fire Target
Sgt	Sergeant
SI	Service Inquiry
SIB	Special Investigation Branch
SIO	Senior Investigating Officer
SITREP	Situation Report
SME	Subject Matter Expert
SMI	Sergeant Major Instructor
Snellen Fraction	Ratio of the distance a visually impaired individual is required to be from an object (in meters) compared to a normally sighted individual.
SO	Standing Orders
Sp Coy	Support Company
SPO	Senior Planning Officer
SPTA	Salisbury Plain Training Area
SRM	Safety Risk Management
SS	Safety Supervisor
SST	Safe System of Training
STANTA	Stanford Training Area (Norfolk)
STSO	Senior Training Safety Officer
STTT	Short Term Training Team
STV	Scalable Tactical Vest
SVRM	Suicide Vulnerability Risk Matrix
Switch Fire	An alternate target at least 590m offset from a target. Simulates fire support directed toward the same main target.
TAB	Tactical Advance to Battle
TAS	Technical Advisory Section
TD	Training Directive
TDA	Training Delivery Authority
Tgt Op	Target Operator
TLFTT	Transition to LFTT
TO	Training Objective
TOR	Terms of Reference
THPS	Tactical Hearing Protection System
THPS BU	Tactical Hearing Protection System Basic User
THPS DCCU	Tactical Hearing Protection System Dismounted Close Combat User
THPS SU	Tactical Hearing Protection System Specialist User
TI	Thermal Imaging
Tolerable	People are only exposed where some defined benefit is expected, where the Risk exposure is proportional to the expected benefit and where the risks are adequately controlled.
TP	Training Provider
TPS	Training Performance Standard
TRA	Training Requirement Authority
Trg Offr	Training Officer
Trg WO	Training Warrant Officer
TriM	Trauma Risk Management

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TY21	Training Year 2021
UAS	Unmanned Air System
VA	Visual Acuity
VHF	Very High Frequency
VIRTUS	Integrated armour and load carriage system (including helmet) for the British Army
W	West
Webbing	Fighting Order
WO	Warrant Officer
WO1	Warrant Officer Class 1
WO2	Warrant Officer Class 2
WTS	Workplace Training Standard
Zero	Zeroing of weapons

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PART 1.2

Convening Order & TORs

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17 Mar 21

SI President
SI Members

Hd DAIB
DSA HQ Legad

DAIB Mentor
DAIB Office Manager

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PS/Min(AF)
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PS/Min(DPV)
PS/Min(DP)
PS/PUS
DPSO/CDS
MA/VCDS

Sec/CNS
MA/CGS
PSO/CAS
PSO/COMD UKStratCom
MA/CJO
MA/CFA
MA/GOC 1(UK)XX
DIR HS&EP

DSA-DLSR-Hd
ASCen-CS(A)
DAIB-Hd
APSG-PersSvcs-DACOS
DDC Dir
DDC Head of News
DDC PR News Army

DSA DG/SI/01/21 – CONVENING ORDER FOR THE SERVICE INQUIRY INTO THE DEATH OF A SENIOR NON-COMMISSIONED OFFICER OF 1ST BATTALION, THE WELSH GUARDS, DURING A NIGHT LIVE FIRE TACTICAL TRAINING EXERCISE AT CASTLEMARTIN RANGE ON 4 MAR 21

1. In accordance with Section 343 of Armed Forces Act 2006 and JSP 832 – Guide to Service Inquiries (Issue 1.0 Oct 08), the Director General, Defence Safety Authority (DG DSA) has elected to convene a Service Inquiry (SI).
2. The purpose of this SI is to investigate the circumstances surrounding the incident and to make recommendations in order to prevent a reoccurrence.
3. The SI Panel will commence administrative briefing at 1300 on Wed 17 Mar 21 at DAIB, B120, MoD Boscombe Down, and will be formally convened by the DG at 1500.
4. The SI Panel comprises:

President: Lieutenant Colonel [REDACTED] RM [REDACTED]

Members: Flight Lieutenant [REDACTED] RAF [REDACTED]
Captain [REDACTED] RRF [REDACTED]

5. The legal advisor to the SI is Wing Commander [REDACTED] RAF and technical investigation/inquiry support is to be provided by the Defence Accident Investigation Branch (DAIB). The nominated mentor team for this SI is Captain

~~OFFICIAL SENSITIVE~~ — ~~SERVICE INQUIRY~~

██████████ SASC and Warrant Officer Second Class (AQMS) ██████████
██████████ REME.

6. The SI is to investigate and report on the facts relating to the matters specified in its Terms of Reference (TOR) and otherwise to comply with those TOR (at Annex A). It is to record all evidence and express opinions as directed in the TOR. An Initial Report on the commencement of the investigation is to be submitted on 30 April 2021.
7. Attendance at the SI by advisors/observers, unless extended by the Convening Authority, is limited to the following:

Head DAIB – Unrestricted Attendance.

DAIB investigators in their capacity as advisors to the SI Panel – Unrestricted Attendance.

Human Factors Specialists in their capacity as advisors to the SI Panel – Unrestricted Attendance.

8. The SI Panel will initially undertake induction training at the DAIB facility at MOD Boscombe Down immediately after convening. Thereafter, permanent working accommodation, equipment and assistance suitable for the nature and duration of the SI will be requested at a location decided by the SI President in due course.
9. Reasonable costs will be borne by DG DSA under UIN D0456A.

Original Signed

S C Gray CB OBE FREng
Air Marshal
DG DSA – Convening Authority

Annex:

- A. Terms of Reference for the Service Inquiry into the death of a Senior Non-Commissioned Officer from 1st Battalion, the Welsh Guards, during a Night Live Fire Tactical Training Exercise at Castlemartin Range on 4 Mar 21

OFFICIAL SENSITIVE — SERVICE INQUIRY

Record of Changes

Date	Change No.	Detail	Made by

~~OFFICIAL SENSITIVE~~ — SERVICE INQUIRY

Annex A To
DSA DG/SI/01/21
Convening Order
Dated 17 Mar 21

TERMS OF REFERENCE FOR THE SERVICE INQUIRY INTO THE DEATH OF A SENIOR NON-COMMISSIONED OFFICER FROM 1ST BATTALION, THE WELSH GUARDS, DURING A NIGHT LIVE FIRE TACTICAL TRAINING EXERCISE AT CASTLEMARTIN RANGE ON 4 MAR 21

1. As the nominated Inquiry Panel for the subject SI, you are to:
 - a. Investigate and, if possible, determine the cause of the occurrence, together with any contributory, aggravating and other factors and observations.
 - b. Ascertain whether the personnel (Service and civilian) were acting in the course of their duties.
 - c. Examine what policies, orders and instructions were applicable and whether they were appropriate and complied with.
 - d. Establish the level of training, relevant competencies, qualifications and currency of the individuals involved in the incident.
 - e. Identify if the levels of planning and preparation met the activities' objectives.
 - f. Review the levels of authority and supervision covering the task during which the incident occurred.
 - g. Investigate and comment on relevant fatigue implications of an individual's activities prior to the matter under investigation.
 - h. Determine the state of serviceability of relevant equipment.
 - i. Determine any equipment deficiencies.
 - j. Determine and comment on any broader organisational and/or resource factors.
 - k. Make appropriate recommendations to the DG DSA.
2. The investigation should not seek to attribute blame and you should use JSP 832 Guide to Service Inquiries and DSA 03.10 as guidance for the conduct of your inquiry. You are to report immediately to the DG DSA should you have cause to believe a criminal or Service Offence has been committed.
3. If at any stage the Panel discovers something that they perceive to be a continuing hazard presenting a risk to the safety of personnel or equipment, the President should alert the DG

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DSA without delay to initiate remedial actions. Consideration should also be given to raising an Urgent Safety Advice note.

4. During the course of your investigations, should you identify a potential conflict of interest between the Convening Authority and the Inquiry, you are to pause work and consult DG DSA. Following that advice it may be necessary to reconvene reporting directly to MOD PUS.

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PART 1.3

Narrative of Events

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Figure 1.3.5 - VIRTUS Scalable Tactical Vest being used as PPE by all firers and safety staff.

Figure 1.3.6 – Safety Supervisor dressed in PPE and high-visibility jacket.

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Figure 1.3.8 - SA80 L85A2 rifle with Lightweight Day Sight (LDS) and bipod attached.

Figure 1.3.9 – Sharpshooter rifle L129A1.

Figure 1.3.10 – General Purpose Machine Gun.

Figure 1.3.11 - CMR Range Number 7 general view.

Figure 1.3.12 – No2 Coy advancing to contact.

Figure 1.3.13 – 5 PI engaging simulated enemy targets.

Figure 1.3.14 – 5 PI left flanking assault with two GPMGs (Gdsm 6 and 7) providing fire support.

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Figure 1.3.15 - 5 PI secured enemy positions 1 and 2. 6 PI echeloning through in preparation to assault enemy position 3.

Figure 1.3.16 - Movement on the range leading up to the accident. Gdsm 5 moving onto the Trench Line.

Figure 1.3.17 - 6 PI assaulting position 3.

Figure 1.3.18 - Gdsm 1 moving into position to reinforce the fire support.

PART 1.3 – NARRATIVE OF EVENTS

Synopsis

1.3.1. On 4 March 2021, personnel from Number 2 Company (No2 Coy), 1st Battalion, Welsh Guards (1WG), were conducting a night Coy level live fire exercise on Castlemartin Ranges (CMR), Range number 7 (see Figures 1.3.1 and 1.3.2). During this Exercise a safety supervisor, Sergeant (Sgt) Gavin Hillier, was shot and fatally wounded.

Background

1.3.2. 1WG were based at Combermere Barracks in Windsor (CBW), Berkshire (see Figure 1.3.1). Exercise (Ex) DRAGON'S REVENGE was a week-long exercise taking place in CMR, Pembrokeshire between 1 and 5 March 2021. The exercise troops came from the Prince of Wales's (PoW's) and No2 Coys, with a composite range team drawn primarily from Support (Sp) Coy that provided range safety and planning staff. Ex DRAGON'S REVENGE was the final exercise in the 'DRAGON' series of exercises. This series was designed to prepare the unit for Mission Specific Training (MST) and Mission Ready validation on Ex SHADER TEMPEST,¹ on 8 March 2021, prior to Coy level deployments on Operation (Op) SHADER 13 later that year. The aim of the exercise was to conduct Live Fire Tactical Training (LFTT) up to Coy level, by day and night, and to complete outstanding training serials required before Ex SHADER TEMPEST, scheduled to be conducted at Stanford Training Area (STANTA), Norfolk.

¹ Mission Ready is the term used to describe a unit which has successfully validated on Mission Ready Training (known at the time as Mission Specific Training). Mission Ready and Mission Specific Training (MST) prepares a unit for a specific operation. It delivers bespoke training to account for different equipment, structures and theatre-specific tactics, techniques and procedures (TTPs).



Figure 1.3.1 - Geographical locations of key areas.

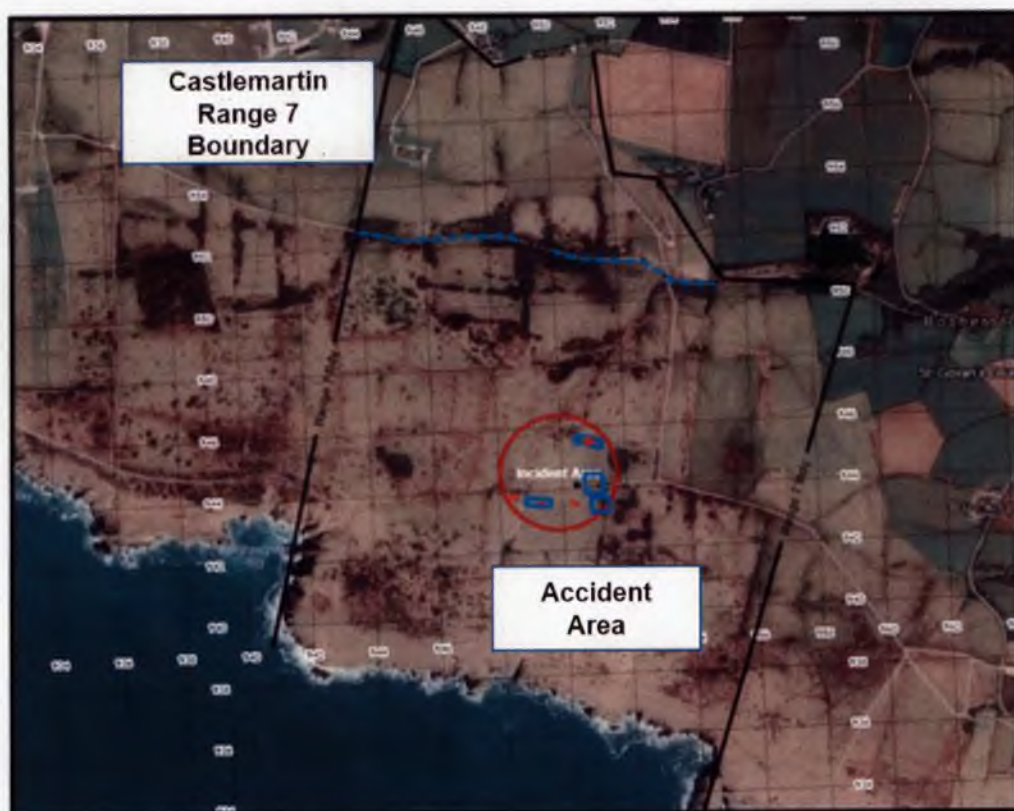


Figure 1.3.2 – CMR Range 7, Ground in general & boundaries.

1.3.3. After 2 years under the command of London District (LONDIST) on State Ceremonial and Public Duties (SCPD), 1WG transitioned to 11th Infantry Brigade (11X), where they were committed to various operations around the world. In preparation for the various deployments, 1WG planned to complete elements of the Special-to-Arm Battlecraft Syllabus (BCS) training before going through a period of Combat Ready Training (CRT)², Mission Ready training and MST.

1.3.4. BCS focused on individual, team, and collective training (see table 1.3.1) to sub-unit level (CHARLIE).³ It was a syllabus of training, specifically designed to meet the annual special-to-arm training requirements needed to maintain sub-unit competence in their core role. 1WG completed their planned elements of the BCS over the DRAGON series of exercises that culminated on Ex DRAGON'S REVENGE.

Training Level	Previous Collective Training levels	Training Output (proficiency)
ALPHA	NEW	Crew/section
BRAVO	1	Troop/platoon
CHARLIE	2/2+	Special-to-arm sub-unit
DELTA	NEW	Special-to-arm unit
ECHO	3	Combined arms sub-unit
FOXTROT	4	Combined arms battlegroup
GOLF	5	Brigade or group
HOTEL	6	Division
INDIA	7	Corps

Table 1.3.1 - Field Army Training Directive Definition of Training Levels.

1.3.5. CRT for 1WG was planned to be achieved on Exercise ASKARI STORM; a light role validation exercise held in Kenya. This exercise would have included all elements of the live fire progression up to Company-level. However, this was cancelled due to COVID-imposed travel restrictions. CRT validates a sub-unit alongside its integrated Combat Support and Combat Service Support elements. CRT prepares the unit to operate in the context of a Land Component in all eventualities of war.

1.3.6. Prior to their operational deployment, 1WG completed MST and subsequently validated Mission Ready on Ex SHADER TEMPEST.⁴ This

Exhibit 203

² Different to Mission Ready training, Combat Ready training prepares a unit to play its part as an element of a whole Land Component able to operate and warfight at scale and is therefore not specific to any particular operation.

³ Training Level CHARLIE is sub-unit (Coy) special-to-arm training. Its focus is on troops and platoons training alongside each other in the context of their sub-unit role.

⁴ Direction to complete BCS and MST is detailed in the Land Warfare Centre Op SHADER Force Preparation Order 13 / 14, dated 25 Oct 20.

involved training specific to the theatre-specific equipment, structures, processes, and procedures that may be encountered on Op SHADER.

Key organisations

1.3.7. **Land Warfare Centre (LWC).** LWC was a 2 Star organisation within the Field Army responsible for driving adaptation and preparing forces for current and contingent operations. LWC was the Training Requirement Authority for Op SHADER and owned the Training Directive and Force Preparation Orders. It set the Collective Training Objectives (CTOs) for that operation.

Exhibit 203

1.3.8. **Collective Training Group (CTG).** CTG delivered education and training to units within the Field Army to prepare Force Elements for success on operations. It was responsible for using the CTOs to design and subsequently assess training to provide the Chain of Command (CoC) with a clear status on what had been achieved and to what standard. CTG were the Training Delivery Authority for Collective Training at training level CHARLIE in the context of MST. Commander CTG was the Delivery Duty Holder (DDH) for CTG delivered activity (Exercise SHADER TEMPEST.)

1.3.9. **11 Infantry Brigade (11X).** 11X was the superior formation commanding 1WG. Commander 11X was the nominated Delivery Duty Holder (DDH) for Risk to Life activity, including Ex DRAGON'S REVENGE.

1WG personalities

1.3.10. All soldiers involved directly in the Live Firing (LF) activity will be referred to from here on as 'exercising troops' or 'firers'. Other members of 1WG will be referred to by their role title. The following paragraphs provide a background on the deceased, Sgt Hillier, and the key personalities present on 4 March 2021 who were subsequently interviewed by the Panel during its investigation. This includes all safety staff, all tactical commanders, and all Guardsmen (Gdsm) from the assaulting Fire Team and the fire support element. Individuals are not necessarily described in rank or seniority order; their roles have been organised relative to their position within 1WG and No2 Coy and, where appropriate, their significance in relation to the accident.⁵

Exhibit 276

1.3.11. **Sgt Hillier.** Sgt Hillier was the Motorised Transport (MT) Platoon (PI) Sgt within 1WG. For Ex DRAGON'S REVENGE he was part of the range safety team supporting the Range Conducting Officer (RCO). He held the SA

⁵ Accident as defined in Pamphlet 21, Amendment 2 (Feb 21), Training Regulations for Armoured Fighting Vehicles, Infantry Weapon Systems and Pyrotechnics, p.2-22 is: 'Irrespective of cause or severity, an accident is any unintended event or sequence of events that results in death or injury to a person(s) and/ or damage to equipment and/or property, military or civilian.'

(E) 90 qualification⁶ that empowered him to be a safety supervisor. At the time of the accident, Sgt Hillier was a safety supervisor with the assaulting Fire Team, positioning himself to mark the forward element of that grouping for the benefit of other range safety staff and exercising troops.

Witness 12
Exhibit 276

1.3.12. **Commanding Officer (CO).** The CO of 1WG was a Lieutenant Colonel (Lt Col) who had assumed command of the Battalion (Bn) in 2019. The CO was the Exercise Director for Ex DRAGON'S REVENGE and was therefore responsible, in accordance with Pamphlet 21 (Pam 21),⁷ for the appointment of a suitably qualified Senior Planning Officer and setting the training objectives for the exercise. The CO was on the range as an observer at the time of the accident.

1.3.13. **Senior Planning Officer (SPO).** The Officer Commanding (OC) Sp Coy was appointed the SPO for Ex DRAGON'S REVENGE in December 2020. OC Sp Coy was a Major with 16 years commissioned service in the Army, including multiple operational deployments. They had held their SA (A) 90 qualification to plan and conduct live fire tactical training since 2006. After receiving direction from the CO, the SPO attended the range reconnaissance on 18 and 19 January 2021. A SPO's responsibilities included the appointing of suitably qualified Range Conducting Officers (RCOs) for each live fire serial within Ex DRAGON'S REVENGE, and ensuring planning and execution was policy compliant and complied with the safe system of training.⁸ The SPO was present during the accident, located in a vehicle next to the Range Warden's hut.

Witness 4
Exhibit 276

1.3.14. **Officer Commanding Number 2 Company (OC No2 Coy).** The OC No2 Coy was a Major with 14 years' service in the Army, including two operational deployments in Afghanistan. They had been in this role for over a year. OC No2 Coy was not present for the initial phase of the exercise, arriving on the evening of 3 March 2021 at approximately 23:00. This arrival was in preparation to the Coy attacks on 4 March 2021. OC No2 Coy was part of the exercising Coy and was responsible for the tactical planning and command and control (C2) of the No2 Coy attacks.

Witness 25

1.3.15. **Battalion Training Officer (Trg Offr).** The Trg Offr commissioned as a Late Entry (LE)⁹ Captain in 2020. They had over 25 years' service, including a period as a Warrant Officer in the Small Arms School Corps (SASC).¹⁰ Upon Commissioning into the Foot Guards, they were appointed to 1WG as the Trg

Witness 10
Exhibit 276

⁶ See 1.3.51 for explanations of all range qualifications. SA(A) allows the planning and conducting of LFTT, SA(E) allows the provision of safety supervision.

⁷ Pamphlet 21, Amendment 2 (Feb 21), Training Regulations for Armoured Fighting Vehicles, Infantry Weapon Systems and Pyrotechnics.

⁸ The Safe System of Training is in place to ensure that the risk resulting from any training activity is as low as reasonably practicable. It seeks to guarantee four things: Safe Place, Safe Persons, Safe Practice and Safe Equipment.

⁹ LE is the term used for individuals who have reached the rank of Warrant Officer and subsequently Commission. They are generally more experienced than their Direct Entry peers with the same rank seniority.

¹⁰ The SASC are the Army's specialists in small arms, support weapons and range management.

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Offr. They gained their SA (A) 90 qualification in 2008. Due to their significant experience they mentored the relatively inexperienced RCO. The Trg Offr assisted in both the planning and the building¹¹ of the range. They also provided oversight to all range walkthroughs for Ex DRAGON'S REVENGE. They were present on the night of the accident as an observer.

1.3.16. **Observer 1.** Observer 1 was a Warrant Officer Class 1 (WO1) with 22 years' service in the Army. During the week of Ex DRAGON'S REVENGE, they were visiting the range package with the CO and were present as a visitor during No2 Coy's night attack and was providing oversight to the Coy's exercise casualty evacuation procedures.

Witness 7

1.3.17. **Range Conducting Officer (RCO).** The RCO for the Coy attack serials on Ex DRAGON'S REVENGE was a Captain with 4 years' service. They gained their SA (A) 90 qualification in mid-2017 as part of their phase 2 training. They had been nominated in January 2021 as the principle RCO for the package. They were the lead for planning and delivery of the most complex serial during the week. Having never been responsible for LFTT beyond section level, they were mentored by the Trg Offr throughout the planning process and range build. At the time of the accident, the RCO was overseeing the range from the trench line, behind the fire support position.

Witness 2

1.3.18. **Number 2 Company Second in Command (2IC).** 2IC No2 Coy was a Lieutenant (Lt) who had 3.5 years' service. They joined 1WG in December 2018, completed 12 months as a Platoon Commander (PI Comd) in 2019, before being appointed 2IC No2 Coy. As 2IC No2 Coy their responsibilities included tracking the training progression for all members of No2 Coy and reporting the training standards to the SPO. They were in role as 2IC No2 Coy during the Coy night attack. Their tactical responsibilities, in accordance with doctrine, included liaison with the Coy's higher headquarters, maintaining situational awareness for the CoC via Situation Reports (SitReps), within the Coy by periodic Down Reports (DownReps) and deputising for the OC if required. At the time of the accident, the Coy 2IC was to the rear of the trench line behind the fire support position.

Witness 15

1.3.19. **No2 Coy Company Sergeant Major (CSM).** The CSM of No2 Coy was a WO2 with 17 years' service, including operational deployments to Afghanistan. The CSM arrived at the range complex with the OC No2 Coy on 3 March 2021. During the Coy Attack serials, they were in role, exercising as the CSM and were responsible for ensuring the flow of ammunition and supplies, the management of casualties and the maintenance of battlefield discipline. At the time of the accident, they were in the vicinity of the fire support location.

Witness 9

¹¹ The range build included the preparing and placing of targets, digging enemy positions and grenade bunkers, and ensuring all hazards had been removed from the range.

1.3.20. **Officer Commanding 5 Platoon (OC 5 PI).** OC 5 PI was a Second Lieutenant (2Lt) with 1.5 years' service in the Army. They finished their final element of training, the Platoon Commander's Battle Course (PCBC) in November 2020, however the final exercise was delayed until January 2021 because of Covid-19. Ex DRAGON'S REVENGE was their first exercise out of Phase 1 and 2 training, and their first time doing Coy-level LFTT. During Ex DRAGON'S REVENGE they were in-role and exercising as OC 5 PI, responsible for the command and control of their PI. At the time of the accident, OC 5 PI was co-located with the other tactical commanders from No2 Coy (the OC and OC 6 PI) on a bund line to the north of the first enemy position.

Witness 20

1.3.21. **5 Platoon Sergeant (5 PI Sgt).** The incumbent 5 PI Sgt was not present on the week of Ex DRAGON'S REVENGE and, therefore, 5 PI Sergeant was a role being filled by the most senior section commander within 5 PI. They were a Lance Sergeant (LSgt)¹² with 13 years' service, including operational deployments to Kosovo and Afghanistan. They had taken a career break from 2013 to 2018, before re-joining 1WG. At the time of the accident, they had been made an exercise-play casualty by observer/mentors and were being extracted along the North – South bund line away from the first enemy position.

Witness 28

1.3.22. **Officer Commanding 6 Platoon (OC 6 PI).** OC 6 Platoon was a Lt who had been in role for 15 months after completing the PCBC in December 2019. Their overseas experience included a one-month, short term training team (STTT) in early 2020, teaching range management to the Belize Defence Force. They were not present for the whole of Ex DRAGON'S REVENGE, arriving on the evening of 3 March 2021. At the time of the accident, they were co-located with OC No2 Coy and OC 5 PI, discussing plans for the next phase of the attack.

Witness 13

1.3.23. **6 Platoon Sergeant (6 PI Sgt).** 6 PI Sgt had 11 years' service at the time of the exercise, with operational experience in Afghanistan. They were present throughout the week of Ex DRAGON'S REVENGE, acting as 6 PI Comd for the platoon attack serials on 3 March 2021. They were in role as PI Sgt during No2 Coy's company attack serials on 4 March 2021.

Witness 17

1.3.24. **Combat Medical Technician (CMT).** The CMT providing medical cover throughout the exercise was a Sgt from the Royal Army Medical Corps (RAMC). They had operational experience in Afghanistan. At the time of the accident, they were located in a safety vehicle with the trauma equipment towards the rear of the range, tracking the advancing troops and moving incrementally forward. They reached the casualty's location within three minutes of the accident occurring and took over giving immediate first aid.

Witness 14

¹² The Household Division rank of LSgt is the equivalent of a Corporal in the British Army and NATO OR4.

1.3.25. **Target Operator (Tgt Op).** The Tgt Op was a Guardsman (Gdsm) from the Mortar PI with 10 years' service. As the Tgt Op, their responsibilities included attending all range walkthroughs, understanding the sequence of the range, and ensuring that the right small arms targets were raised and dropped at the appropriate time. This was done via a tablet computer with connectivity to the target mechanisms. At the time of the accident, the Tgt Op was co-located with the RCO near the fire support location, see Figure 1.3.3.

Witness 5

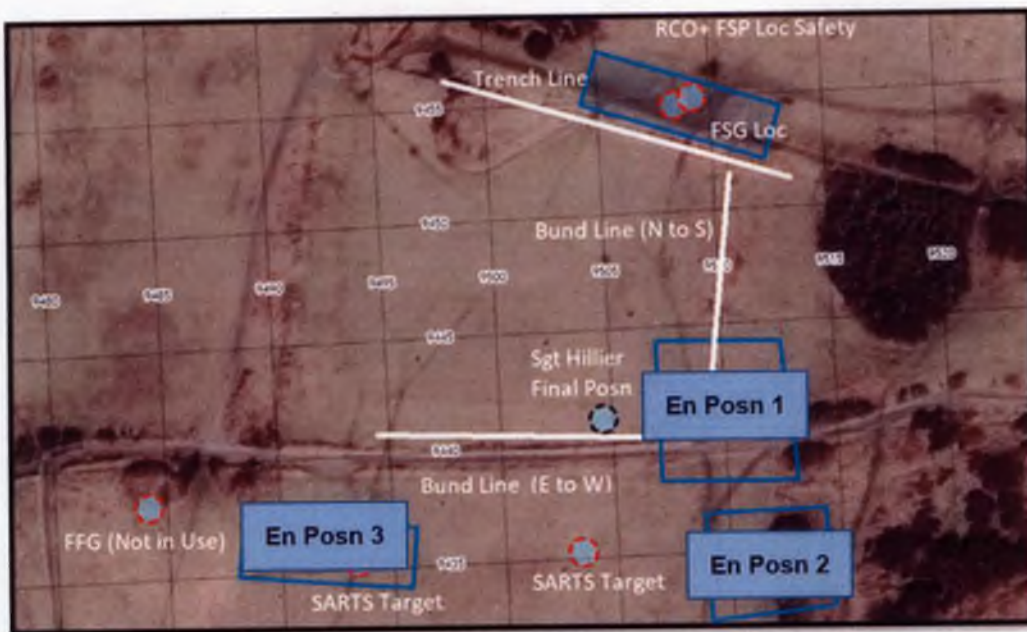


Figure 1.3.3 - Range laydown in detail at the time of the accident.

1.3.26. **Safety 1.** Safety 1 was a Capt with 7 years' service. Safety 1 was a staff officer being employed in the 1WG Headquarters (HQ). They arrived at the range complex with 2IC Sp Coy and the Trg Offr on 2 March 2021 to augment the safety staff for the platoon and company ranges. During the accident, Safety 1 was co-located with one of 5 PI's rifle sections.

Witness 16

1.3.27. **Safety 2.** Safety 2 was a LSgt with 12 years' service. They were employed as a Regimental Signals Detachment Commander (RSDC) within Sp Coy Communication Information Systems (CIS) PI. Safety 2 was present throughout the week. At the time of the Accident, Safety 2 was on the trench line providing safety supervision to the composite fire support element.

Witness 24

1.3.28. **Safety 3.** Safety 3 was a Colour Sergeant (CSgt) with experience of multiple operational deployments. They were nominated to act as a safety supervisor throughout the week of Ex DRAGON'S REVENGE. At the time of the accident, they were acting as the safety supervisor assigned to the assaulting Fire Team, partnered with Sgt Hillier. Safety 3 was marking the rear of the assaulting Fire Team.

Witness 6

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1.3.29. **Safety 4.** Safety 4 was a WO2 with 20 years' service. During Ex DRAGON'S REVENGE they provided safety for the PI and Coy ranges. At the time of the accident, Safety 4 was located near enemy position 1 and observing the advance of the assaulting Fire Team. They provided immediate first aid to Sgt Hillier when he was wounded.

Witness 8

1.3.30. **Safety 5.** Safety 5 was a Capt with 4.5 years' service, including operational experience in Afghanistan. Throughout the course of the week, they had been a safety supervisor for various ranges including the Coy Night Attack. At the time of the accident, they were escorting a real-time minor casualty off the range.

Witness 30

1.3.31. **Safety 6.** Was a Capt with 4.5 years' service at the time of the accident and had joined the Bn shortly before Ex DRAGON'S REVENGE. Throughout the week they were part of the range safety team and provided safety supervision for the company attack serials. At the time of the accident, Safety 6 was located near to enemy position 1 and provided first aid to Sgt Hillier.

Witness 34

1.3.32. **Safety 7.** Safety 7 was a Sgt with 14 years' service, including multiple operational deployments to Afghanistan. Safety 7 was present during the Coy attack as a safety supervisor. At the time of the accident, Safety 7 was located in the vicinity of enemy position 1.

Witness 19

1.3.33. **Safety 8.** Safety 8 was a Sgt of 16 years' service with 1WG, exclusive of a two-year career break from 2018 to 2020. Their career included operational deployments to Northern Ireland, Iraq, and Afghanistan. They were present throughout the week and were the RCO for other ranges. They attended the range reconnaissance in January 2021 and assisted the SPO and the RCO throughout the planning process. When not acting as RCO they provided safety supervision for the other LFTT ranges, including the Coy night range.

Witness 3

1.3.34. **Safety 9.** Safety 9 was a WO2 with 24 years' service in the Army, including operational tours of Bosnia, Northern Ireland, Iraq, and Afghanistan. They were involved in the planning and deputised for the Trg Offr during the range reconnaissance between 16 and 18 January 2021. During the week of Ex DRAGON'S REVENGE, they were part of the range safety team performing the duties of a safety supervisor. At the time of the accident, Safety 9 was co-located with Safety 6 at the grenade bunker next to enemy position 1.

Witness 33

1.3.35. **Gdsm 1.** Gdsm 1 had been in the Army for 18 months at the time of the range package, completing their basic training at ITC(C) in March 2020. Throughout the package they had been acting as the grenadier for 1 Sect, 6 Pl. Immediately prior to the start of the night range, Gdsm 1 reported issues with their Head-Mounted Night Vision System (HMNVS), Figure 1.3.4. They were consequently removed from their section and assigned to the Coy 2IC's party to give flank protection. At the time of the accident, Gdsm 1 was located

Witness 11

approximately 2m behind and 8m to the right of the fire support location. The fire support location was a trench on the East – West BUND line.



Figure 1.3.4 - Head-Mounted Night Vision System (HMNVS) affixed to VIRTUS Helmet, with counterweight fitted.

1.3.36. **Gdsm 5.** Gdsm 5 had 9 months service at the time of the package. Like Gdsm 1, they had been assigned to the 2IC's party to provide flank protection. They had been pushed forward by the 2IC to resupply the General Purpose Machine Guns (GPMGs) on the fire support position with ammunition. After arriving, they were using their SA80 L85 A2 rifle to augment the fire support from the trench line.

Witness 22

1.3.37. **Gdsm 6.** Gdsm 6 had been in 1WG for 3 months at the time of the accident. During the Coy night attack, they were equipped with a GPMG. They were part of 3 Sect, 5 PI and had been placed on the trench line to form part of the composite fire support element. During the attack, Gdsm 6's GPMG suffered a stoppage that could not be cleared by the firers or the safety staff on the position.

Witness 27

1.3.38. **Gdsm 7.** Gdsm 7 had 20 months service by the time of Ex DRAGON'S REVENGE. They were equipped with a GPMG and had been detached from 2 Sect, 5 PI to form the composite fire support element on the trench line. At the time of the accident, Gdsm 7 was firing the GPMG at the Switch Fire Targets (SFT) beyond enemy position 3.

Witness 18

Range Control personalities

1.3.39. **Senior Training Safety Officer (STSO).** The STSO was a Maj and the senior military officer of the Castlemartin Range (CMR) Staff. They were responsible for the management of the complex and the adherence to range management policy. The STSO was on duty on the night of the accident and acting as the Range Safety Officer from Warren Tower, the centre of range control operations for the complex. In accordance with CMR Standard Operating Procedures, the Range Safety Officer co-ordinated the liaison with civilian emergency services and their access to Range 7.

Witness 1

1.3.40. **Deputy Training Safety Officer (DTSO)**. The DTSO was a civil servant with a prior 23 years' service in the Army, retiring as a WO1. They had 13 years' experience working on the range complex as a civil servant. The DTSO was not on duty on the night of the accident but supported 1WG in the planning of Ex DRAGON'S REVENGE.

Witness 40

1.3.41. **Quartermaster Sergeant Instructor (QMSI)**. The QMSI at CMR was a WO2 from the SASC. They had 18 years' service in the Army and had transferred to the SASC from 1WG in 2012. Their responsibilities included the checking of exercising units' range documentation and providing an impartial advisory function to exercising units. They had checked both the Range Action Safety Plan (RASP) and Range Danger Area (RDA) trace produced by 1WG. They were not on duty during the night of the accident but were called back to the range complex following the accident to assist with the response from Warren Tower that evening.

Witness 35

Dress and equipment

1.3.42. **Safety Supervisors**. All safety supervisors wore VIRTUS¹³ Personal Protective Equipment (PPE), see Figure 1.3.5. This included a Scalable Tactical Vest (STV) with soft armour inserts and a VIRTUS Helmet. The safety supervisors wore yellow fluorescent high-visibility jackets over their body armour, to differentiate themselves from exercising troops, see Figure 1.3.6. The RCO wore an orange high-visibility vest to be easily distinguished from other range staff. Hearing protection from the Tactical Hearing Protection System (THPS) range was worn by all range staff, with most choosing to wear the THPS Specialist User (SU). All safety supervisors wore a red Cyalume to the rear of their helmet in order to be differentiated from exercising troops.

Witness 2
Exhibit 146

¹³ Personal issue load carrying system and ballistic PPE within the Armed Forces.



Figure 1.3.5 - VIRTUS Scalable Tactical Vest being used as PPE by all firers and safety staff.



Figure 1.3.6 – Safety Supervisor dressed in PPE and high-visibility jacket.

1.3.43. **Exercising Troops.** Exercising troops wore the same PPE from the VIRTUS system as worn by safety supervisors. All wore situational awareness hearing protection, with most wearing the THPS Dismounted Close Combat User (DCCU). All commanders were equipped with the Bowman system of Very High Frequency (VHF) radios. Exercising troops were equipped with the SA80 L85 A2 rifle, L129A1 Sharpshooter rifle, or L7A2 GPMG, see Figures 1.3.8 to 1.3.10. All exercising troops were equipped with the HMNVS. However, as the Coy attack used parachute-illumination flares (paralume¹⁴), HMNVS were only used for the insertion that took place under the cover of darkness. All exercising troops wore a blue Cyalume at the back of their helmet.

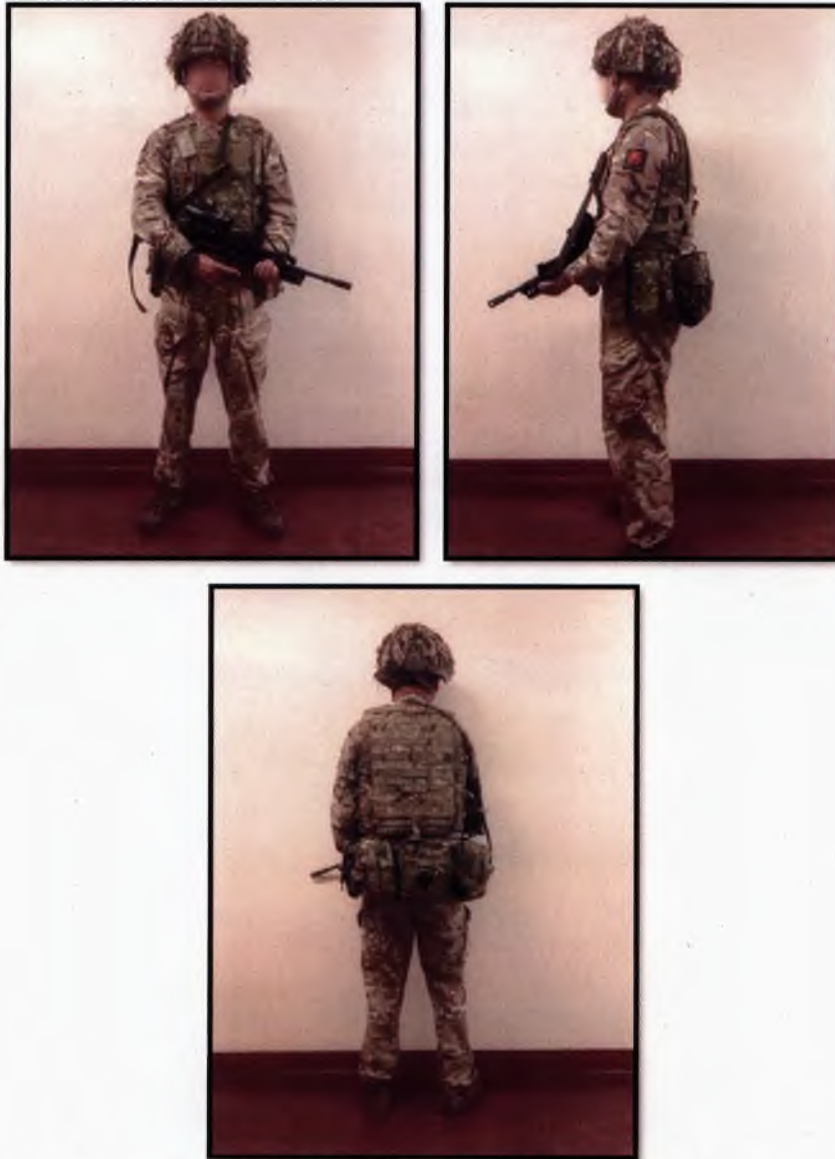


Figure 1.3.7 – Exercising Troops' Dress: VIRTUS PPE & Load Carriage Equipment.

¹⁴ Paralume is the in-service flare. It is a Magnesium flare attached to a small parachute, designed to provide intense illumination.



Figure 1.3.8 - SA80 L85A2 rifle with Lightweight Day Sight (LDS) and bipod attached.



Figure 1.3.9 – Sharpshooter rifle L129A1.



Figure 1.3.10 – General Purpose Machine Gun.

1.3.49. The Unit was due to undertake Combat Ready training on Ex ASKARI STORM, in Kenya, from August to October 2020, to validate the Battle Group ahead of Mission Specific Training (MST) in March 2021. This was ahead of a planned deployment on Op SHADER 13 in June 2021. However, due to the COVID-19 pandemic and subsequent Force Health Protection Instructions (FHPI), Ex ASKARI STORM was cancelled, and a Mission Ready training pipeline was directed by the Land Warfare Centre (LWC). In order to achieve the directed start-state for the Combined Arms Live Fire Exercise (CALFEX) element, 1WG began the full training progression, designed, and delivered by the Bn, from autumn 2020 to spring 2021.

1.3.50. On 9 September 2020, 1WG Bn HQ issued orders directing that the Bn was to achieve Coy level training in the Battlegroup Context (Training Level DELTA (see Figure 1.3.1)) (dry training¹⁷) by December 2020, and Coy level ranges by day and night (Training Level CHARLIE) prior to the CALFEX on Ex SHADER TEMPEST in March 2021. This was to enable 1WG to exceed the CALFEX start state of PI by night and be ready to undertake operations in June 2021. The breakdown of the training progression for No2 Coy is detailed below:

Exhibit 204
Exhibit 205

a. **Training Progression.** Following the completion of Collective Training Level ALPHA and BRAVO (basic soldiering up to Platoon level) training in September and October 2020, the Bn deployed to Otterburn Training Area (OTA) from 15 to 28 November 2020 on Ex DRAGON'S FURY. This was a Training Level DELTA exercise, conducting Coy operations in the Battle Group context at both day and night. This blank firing progression set a foundation for tactical manoeuvre, offensive and defensive operations from Section to Battle Group level.¹⁸

b. **Live Fire Marksmanship Training (LFMT).** Multiple Annual Combat Marksmanship Tests (ACMT) for SA80 rifle, GPMG, Sharpshooter, Pistol and L109 High Explosive (HE) Grenade were conducted between September 2020 and February 2021 and recorded on the Operational Deployability Record (ODR).

c. **Transition to Live Fire Tactical Training (TLFTT).** The following TLFTT was planned and executed:

Exhibit 206

(1) **Ash Ranges:** 5 October 2020. Rifle Long Range Suppression, Fire and Movement Assessment¹⁹.

¹⁷ Training conducted without live ammunition.

¹⁸ The dates specified constituted the centre of mass for Coy training. Individual wash-up ranges were conducted, with details of qualifications entered onto the Operational Deployability Record.

¹⁹ The Fire and Movement Assessment is not required for Infantry Soldiers. In consultation with the Training Officer, the Coy Comd decided to run this range to assure and develop skills prior to LFTT.

Range qualifications

1.3.44. The following range qualifications were held and utilised by the range team involved in the planning and execution of Ex DRAGON'S REVENGE.

a. **SA (A) 90/18**¹⁵. This qualification allows holders to plan, conduct and supervise all live or blank firing with Infantry Weapon Systems (except Light Mortar). The SA (A) 90/18 course is completed by all Infantry Officers during the PCBC and all SNCOs that have completed the Platoon Sergeant's Battle Course (PSBC).

Exhibit 276

b. **SA (E) 90/18**¹⁶. This qualification allows holders to act as a Safety Supervisor during Transition to Live Fire Tactical Training (TLFTT) and LFTT exercises on Live Fire Tactical Training Areas using shoulder-controlled weapons and pistols. The SA(E) 90/18 is held by all OR4 (Lance Sergeant in the Foot Guards) who have successfully completed the Section Commander's Battle Course (SCBC).

Exhibit 276

Recent history

Exhibit 246

1.3.45. 1WG are Wales's Senior Infantry Regiment and have a dual role. First, they are Light Role Infantry, capable of deploying on operations around the world. Second, they deliver State Ceremonial and Public Duties (SCPD).

1.3.46. In December 2018, the Battalion returned from Op TORAL in Afghanistan and began preparing for SCPD commencing in March 2019. During the period of SCPD 1WG deployed Coys to the Falkland Islands and to Belize.

1.3.47. In March 2020, 1WG provided personnel to support the Government response to the Coronavirus outbreak. The codename for Defence providing personnel to support the civil authorities was Op RESCRIPT. 1WG supported the National Health Service, initially through expanding capacity and later, carrying out COVID-19 testing and supporting the Ministry of Housing, Communities and Local Government.

1.3.48. 1WG personnel not employed on Op RESCRIPT commenced a period of dispersed working in accordance with Government guidelines. In July 2020 and in preparation for returning to work, socially distanced annual training tests were conducted; this included the Annual Combat Marksmanship Test (ACMT).

¹⁵ The SA (A) 90 qualification was awarded to all ranks who had completed the necessary qualification course prior to May 2018, the SA (A) 18 was awarded to all those who gained the qualification post May 2018. Each qualification enabled the holder to complete the same duties as described.

¹⁶ As above.

(2) **Castlemartin Ranges**: 12 October 2020. Individual Battle Shooting Range (IBSR) and Limit of Night Visibility shoot.

(3) **Castlemartin Ranges**: 2 March 2021. Bayonet Point of Aim Shoot (single shot, not automatic-fire).²⁰ This was carried out at a later date as it subsequently transpired that bayonets would be used on the CALFEX.

d. **Live Fire Tactical Training (LFTT).**

(1) **Castlemartin Ranges (CMR)**: 12 October 2020. Individual Fire and Movement, Fire Team Attack (Day and Night) and Section Attack (Day and Night).

(2) **Salisbury Plain Training Area (SPTA) Ranges**: 13 to 15 January 2021. Platoon Attack by Day and Night. These evolutions were run by Sp Coy, with the same SPO utilised for the CMR ranges as detailed below.

(3) **Castlemartin Ranges**: 2 to 4 March 2021. Individual Close Quarter Battle (ICQB), including L109 High Explosive Grenade - for Grenadiers, Section Attack (Day), Platoon Attack (Day),²¹ Company Attack (Day and Night).²²

Sequence of events

1.3.51. In December 2020, following a Bn Training Conference, OC Sp Coy was directed to act as SPO for Coy-level LFTT in early 2021. This included Ex DRAGON'S REVENGE at CMR, between 1 and 5 March 2021. An initial planning conference was subsequently held in Windsor on 13 January 2021. Key members of the range planning team, SPO, Trg WO and the RCOs conducted a reconnaissance of the ranges on 18 and 19 January 2021. The RDA trace was approved by the QMSI at CMR range control on 19 January 2021 before the conclusion of the range reconnaissance. The RASP for the range was approved by range control on 27 January 2021.

Witness 33
Exhibit 114

1.3.52. Shortly before travelling to CMR, 1WG were informed of an administrative error in the booking process that meant the accommodation had

Witness 2
Witness 4
Witness 10

²⁰ Soldiers were not expected to use 'burst fire' in the assault, and so conducted a confirmatory single shot point of aim shoot with bayonet fitted.

²¹ No2 Coy had completed PI attacks by night on 13 to 15 January 2021, therefore the next stage in their progression was Coy attack by day. They were not required to complete a further PI attack by night range prior to the Coy attack range.

²² The Coy Attack range by night was the same range, with the same targets, same safety supervisors, same contact points, and same firers as by day. The PI Attack ranges of 3 March 2021 had also been on Range 7, although a different part of the range.

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been double booked. As a result, 1WG erected tents inside the camp for troops to sleep in during the exercise.

1.3.53. The advance party, including the SPO, RCO and the Trg Offr, arrived at CMR on the 28 February 2021 and conducted range administration and build of the range until 1 March 2021. The safety staff, led by the SPO, used this opportunity to walkthrough the conduct of each of the ranges.

1.3.54. The exercising troops began to arrive from the afternoon of 1 March 2021. On 2 March 2021 the exercising troops collimated their weapon systems²³ prior to completing the ICQB range, the bayonet point of aim shoots and the section attack range. The PI daytime attacks were conducted on 3 March 2021. On completion, exercising troops received the safety brief for the following day's ranges. The Coy by day and by night attacks occurred on 4 March 2021.

Witness 2

1.3.55. On 4 March 2021, the Range Safety Staff left the camp assembly area at 07:15 and conducted a walkthrough of Range 7 and safety brief, lasting for nearly two hours. This covered safety supervisors' duties including safe covering of exercising troops, advancing, and withdrawing, as well as actions on throwing grenades. This set the conditions for exercising troops to begin firing at approximately 09:30. No2 Coy completed the Coy attack range first, finishing by 12:00. No2 Coy had completed it in good order, albeit with some tactical points for improvement, but with no identified safety concerns. Safety supervisors returned to the assembly area and received a debrief from the RCO.

Witness 2
Witness 4
Witness 10

1.3.56. After a short break, the range safety team met up with the PoW's Coy on Range 7. The PoW's Coy day attack was complete by 16:45 and the Coy remained on Range 7 and prepared to be the first Coy to conduct the Coy night attack range. The safety team returned to camp for their evening meal and returned to Range 7 at 18:00.

Witness 2
Witness 4
Witness 10

1.3.57. Prior to the start of the night range, the Trg Offr briefed the Safety Staff, reminding them of their duties, of night specific firing regulations and of the need to be alert as some personnel by then may have been showing signs of fatigue. PoW's Coy attack by night was completed and the Coy was cleared from the range by 20:00. Once PoW's Coy had departed the range area, the RCO gave notice for No2 Coy to move onto the range and begin their advance.

Witness 2
Witness 10

1.3.58. At approximately 21:00 No2 Coy departed Southrow Quarry, see Figure 1.3.11, and began patrolling South until they were joined by the safety team, who were waiting in a woodblock at the edge of the first movement

Witness 2

²³ Aligning the sight specific to the firer using a special Collimator tool, this makes the weapon more accurate when fired.

box.²⁴ The initial advance used darkness as cover, so the exercising troops and safety supervisors had HMNVS monacles to aid movement and safety. No2 Coy, being a relatively small Coy²⁵ began the advance with 5 PI in the lead with 6 PI in reserve.



Figure 1.3.11 - CMR Range Number 7 general view.

1.3.59. No2 Coy continued to advance in a Southerly direction, covering the ground tactically until they came under enemy fire which was simulated by the firing of paralume and the raising of the targets. These flares had a burn time of approximately 50 seconds and were fired at regular intervals to provide continuous illumination throughout the attack. They were fired by a dedicated member of the range team. Once the attack had been initiated, the exercising troops and Safety Supervisors removed their HMNVS and reverted to Lightweight Day Sights (LDS) and the naked eye. The Coy reacted to the enemy fire and began a frontal assault on the enemy position.

Witness 2
Witness 9

²⁴ A movement box is an area on a RDA trace, within specified grids, in which troops may have weapons made ready and fire their weapons within safe arcs.

²⁵ No2 Coy had two Platoons, 'standard' light role infantry Coy have three Platoons.

1.3.60. During this initial assault, the CO felt that the tactical movement could be improved and that the Coy's reaction to coming under contact wasn't to the required standard. After speaking to the RCO to confirm that they had the time and the resources, the CO halted No2 Coy's attack so they could reset and better carry out the first assault. The CO felt that the PI had taken too long to react to the enemy contact, individual tactical techniques had been poor and the plan to assault the enemy position could have been better. Therefore, safety catches were applied and No2 Coy returned to the start of the second movement box.

Witness 2
Witness 12

1.3.61. No2 Coy began their second approach and came into contact in the vicinity of the Trench Line, see Figure 1.3.12. Again, contact was initiated by paralume and the appearance of targets to their front.

Witness 2
Witness 12



Figure 1.3.12 – No2 Coy advancing to contact.

1.3.62. Following the simulated enemy engagement, 5 PI moved forward tactically to take up a position on the high ground of the trench line and engaged simulated enemy positions in the foreground at a range of between 140m and 160m, see Figure 1.3.13.

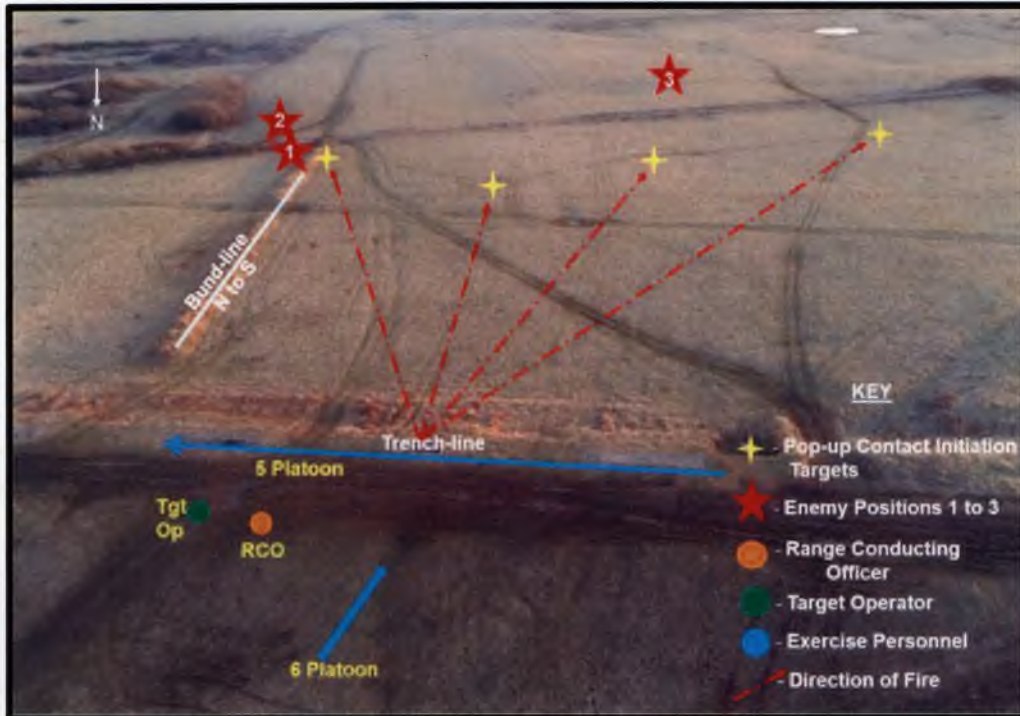


Figure 1.3.13 – 5 Platoon engaging simulated enemy targets.

1.3.63. After placing two GPMGs into a firing position to provide covering fire, 5 Platoon continued with a left flanking manoeuvre along the North to South bund-line to secure the first and second enemy objectives, see Figure 1.3.14. 6 Platoon remained in reserve.

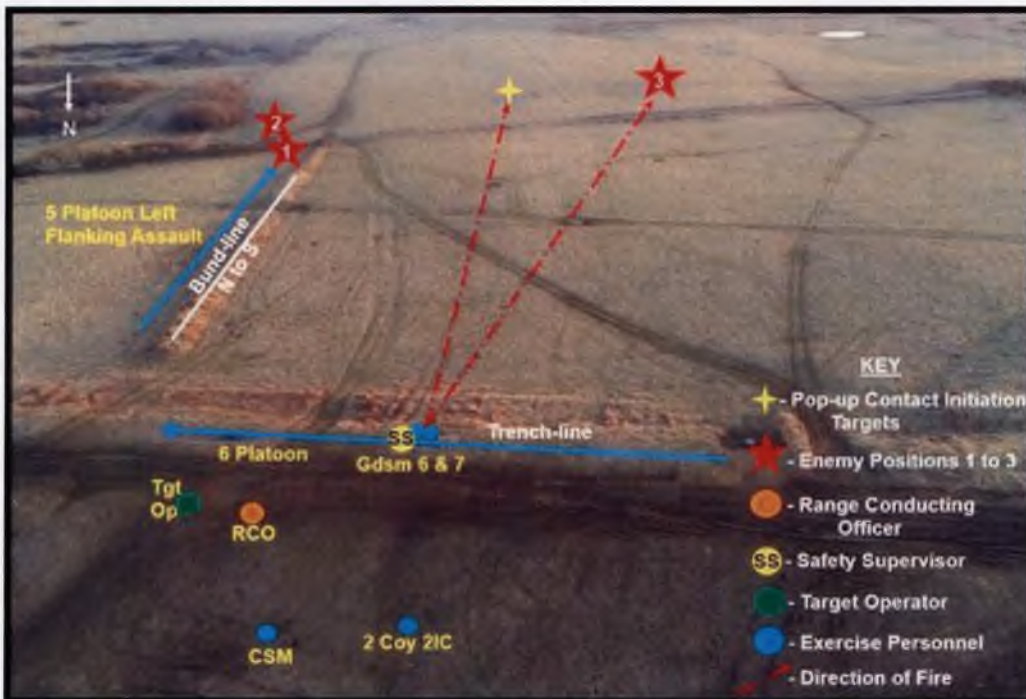


Figure 1.3.14 – 5 Platoon left flanking assault with two GPMGs (Gdsm 6 and 7) providing fire support.

1.3.64. Upon clearing positions 1 and 2, 5 PI identified enemy position 3 directly to the West of their location at a distance of approximately 80m. It was decided by OC No2 Coy that 6 PI were in the better position to launch the assault onto enemy position 3, see figure 1.3.15.



Figure 1.3.15 - 5 PI secured enemy positions 1 and 2. 6 PI echeloning through in preparation to assault enemy position 3.

1.3.65. Whilst observing from behind the trench-line No2 Coy 2IC requested the ammunition state of the GPMG gunners. Concerned that they were running low on ammunition, the 2IC ordered Gdsm 5, one of the two Gdsm from his party, to move forward and deliver the spare ammunition to the GPMG. They were told to remain in the trench and support the GPMG gunners under the direction of the Safety Supervisor, see Figure 1.3.16.

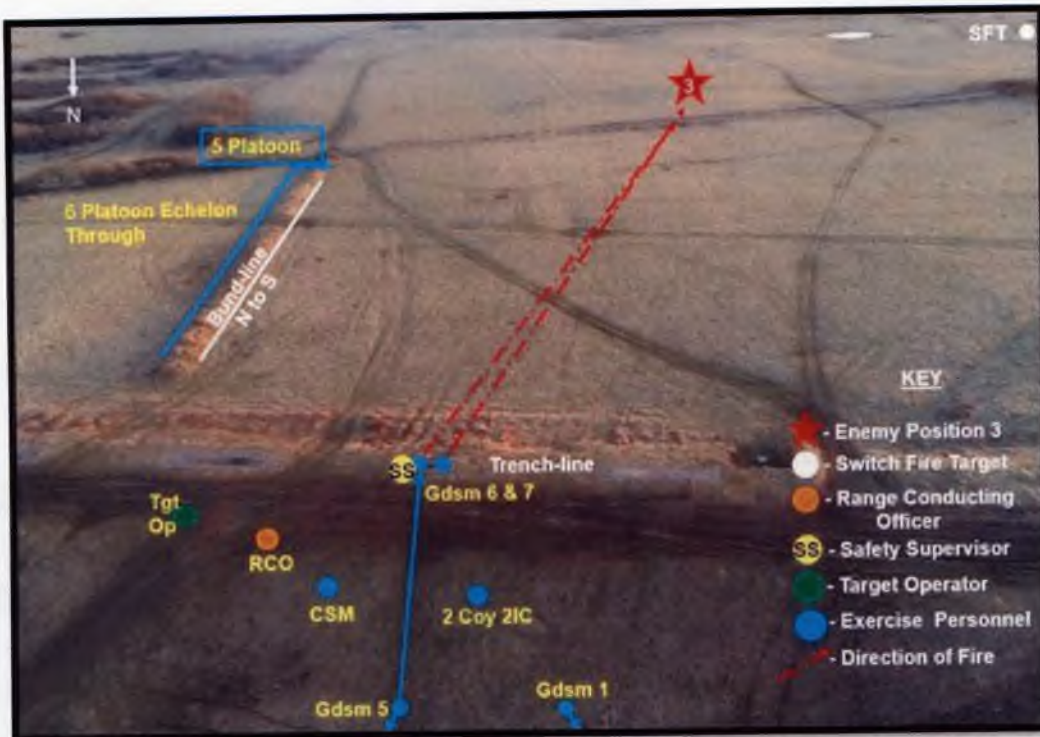


Figure 1.3.16 - Movement on the range leading up to the accident. Gdsm 5 moving onto the Trench Line.

1.3.66. At around 22:25, four members of 6 PI began the approach to move along the ground in single file from the southern end of the North to South bund-line towards the third objective using the East to West bund-line as cover, see Figure 1.3.17. Initially the assaulting fire team ran, then lowered into a crawl. Two Safety Supervisors, including Sgt Hillier, walked along-side the assaulting fire team marking the front and rear man; Sgt Hillier in the front and Safety 3 to the rear.

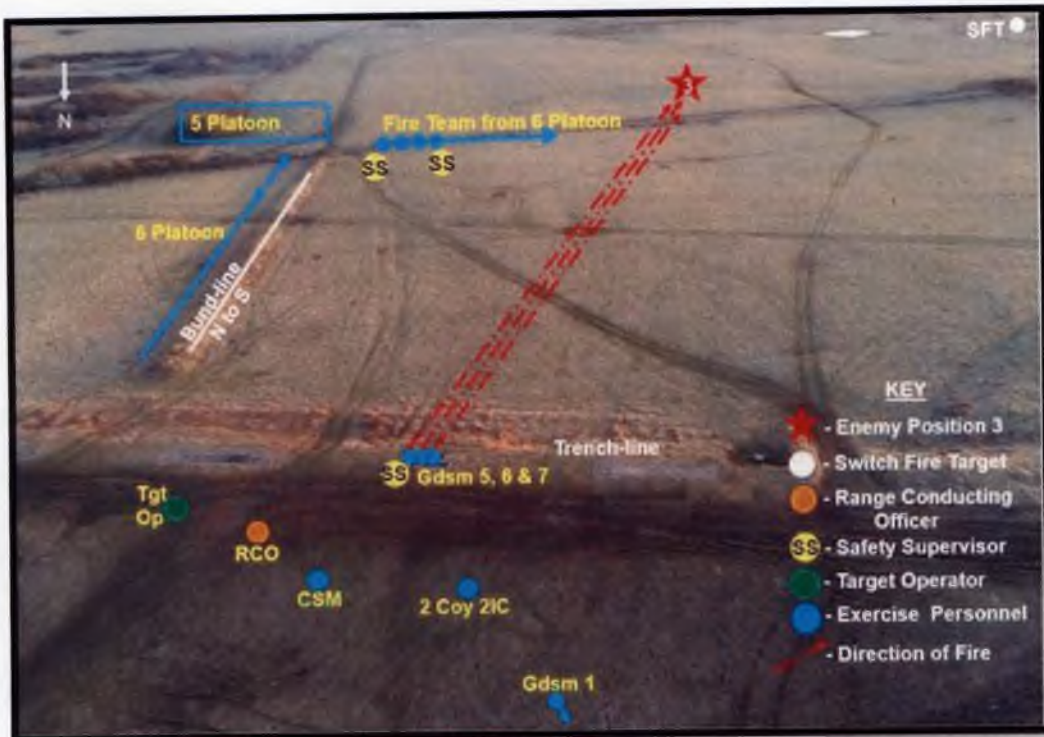


Figure 1.3.17 - 6 PI assaulting position 3.

1.3.67. Under the direction of Safety 2, the GPMG gunners in fire support stopped engaging Target 3 and moved their fire to an SFT, which was further West and South. One GPMG suffered multiple stoppages and could not be cleared, leaving only one GPMG to provide the covering fire.

1.3.68. Concerned that one GPMG wasn't working and that the other may begin to have stoppages, No2 Coy 2IC directed his second Gdsm, Gdsm 1, to move onto the trench-line and engage the enemy positions indicated by the tracer fire from the GPMG, see Figure 1.3.18. Safety 2 recalled hearing one rifle shot to the right of his position; he turned his head to face the firer and shouted "FIRER STOP" but, at the same time, another single shot was fired. Moments later the words "STOP, STOP, STOP", "MAN-DOWN" and "MEDIC" were shouted and repeated over the Safety Supervisor radio. It was immediately recognised that Sgt Hillier had fallen, and it was assumed that he had been shot.

Witness 11
Witness 15



Figure 1.3.18 - Gdsm 1 moving into position to reinforce the fire support.

Immediate action

1.3.69. Safety 4 saw the lead Safety Supervisor, Sgt Hillier, fall and ran to his location to give immediate first aid. The RCO, who also saw Sgt Hillier fall, immediately called for the CMT. The CMT arrived at the scene within 3 mins and took over from Safety 4 who was conducting Cardiopulmonary Resuscitation (CPR).

1.3.70. At approximately 22:28, following the range being stopped, the RCO contacted Range Control and reported a serious accident involving a gunshot wound. Range Control immediately contacted the emergency services.

Witness 40

1.3.71. On arrival the CMT coordinated the medical response and began the application of immediate emergency care. The CMT found the casualty [REDACTED]

Witness 14

[REDACTED] A defibrillator was applied but could not be used as it could not detect a shockable rhythm. The CMT instructed the assisting personnel to continue with CPR whilst they prepared and [REDACTED] devices and awaited the arrival of civilian medical teams.

1.3.72. At 22:56 one ambulance and one police vehicle arrived at the scene, followed by an air ambulance at 23:35. Despite continuous medical treatment Sgt Hillier was pronounced life extinct at the scene at 23:40.

²⁶ Devices designed to [REDACTED] patients.

1.3.73. The remaining members of the Coy were instructed to apply their safety catches and leave their personal equipment, such as webbing, daysack, and helmet in-situ, along with their weapons pointing in the direction they were facing. They were then escorted off the range whilst the Dyfed-Powys Police secured the scene.

Follow-up action / post-accident events

1.3.74. Dyfed-Powys Police began interviewing No2 Coy and the safety staff in the early hours of 5 March 2021 in a Lecture Theatre in the CMR complex. The Next of Kin were informed at approximately 03:00 on the 5 March 2021. The Defence Accident Investigation Branch were informed and arrived to conduct their triage interviews later the same day.

Timeline of events

Ser (a)	Date (b)	Time (c)	Event (d)
1	4 Mar 21	18:30-20:00	PoW's Coy conduct night Coy attack
2	4 Mar 21	20:00-21:00	Lull between two serials, range is readied. PoW's Coy firers cleared from range. No2 Coy moves into movement box.
3	4 Mar 21	21:00	No2 Coy cross line of departure
4	4 Mar 21	c. 21:25	1 Sect, 5 PI comes under simulated enemy fire.
5	4 Mar 21	c. 21:35	Exercise Director consults with RCO regarding possible reset of range
6	4 Mar 21	21:40	Range is reset, firers brought back 100m.
7	4 Mar 21	21:50	Range recommences following reset
8	4 Mar 21	c. 22:15	Assault onto enemy position 2 launched
9	4 Mar 21	c. 22:25	Assault onto enemy position 3 by 1 Sect, 6 PI launched. Fire support group is bolstered with Gdsm 1
10	4 Mar 21	c. 22:28	Sgt Hillier fell having been shot. "Stop, Stop, Stop" and "Man Down" called. All firing stopped. Immediate Emergency Care initiated.

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11	4 Mar 21	c. 22:28	RCO called CMT to attend the scene.
12	4 Mar 21	c. 22:28	RCO informs CMR Range Control of the accident who initiate emergency services response and DAIB notified.
13	4 Mar 21	22:31	CMT arrives on scene.
14	4 Mar 21	22:56	Ambulance and Police arrive at Range 7.
15	4 Mar 21	23:35	Air Ambulance arrives.
16	4 Mar 21	23:40	Sgt Hillier pronounced dead by attending Doctor.
17	4 Mar 21	23:42	Air Ambulance departed.
18	5 Mar 21	00:01	Dyfed-Powys Police interviews.
19	5 Mar 21	03:00	Next of Kin informed

Table 1.3.2 – Timeline of Events.

Cause of death

1.3.75. A post-mortem examination on Sgt Hillier concluded that the cause of death could be adequately explained by [REDACTED] most likely caused by a NATO 5.56 x 45mm bullet.

1.3.76. The wound would have resulted in immediate and rapid [REDACTED] and would have been un-survivable. The examiner noted that nothing else in Sgt Hillier's medical records would have contributed to his death.

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PART 1.4

Analysis and Findings

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PART 1.4 – ANALYSIS AND FINDINGS

Introduction

1.4.1. The Castlemartin SI Panel was convened on 17 March 2021 to investigate the circumstances surrounding the death of Sergeant (Sgt) Gavin Hillier, who was fatally wounded during a night-time, Company (Coy) level Live Fire Tactical Training (LFTT) exercise on Range 7 of Castlemartin Range (CMR) complex, on 4 March 2021. The SI initially focussed on interviewing members of the 1st Battalion Welsh Guards (1WG) to understand the details of the event, before expanding the investigation to look at other Defence organisations and comparing and contrasting events with Defence policy and expert opinion.

Exhibit 265

1.4.2. Table 1.4.1 below is a table of the key events leading up to, during and after the accident:

Exhibit 266
Exhibit 267

Ser (a)	Date (b)	Time (c)	Event (d)
1	Mar 20	N/A	COVID necessitates pan-Defence dispersed working.
2	Jul 20	N/A	1WG returned from dispersed working.
3	7 to 9 Jul 20	N/A	No 2 Coy completes Annual Combat Marksmanship Tests.
4	1 Sep 20	N/A	CO 1WG issues Warning Order with 6-month training plan to all Sub-Units.
5	9 Sep 20	N/A	1WG BHQ issues formal training direction until training year 2021 to all Coy headquarters.
6	10 Sep 20	N/A	OC 2 Coy provides backbrief to 1WG BHQ on plans for Transition to Live Fire Tactical Training (TLFTT) and LFTT.
7	5 Oct 20	N/A	No 2 Coy completes Rifle Long Range Suppression, Fire and Movement assessment on Ash Ranges.
8	12 Oct 20	N/A	No 2 Coy completes TLFTT and LFTT on Castlemartin Ranges.
9	12 Oct 20	N/A	Op SHADER Force Preparation Order (FPrepO) received by 1WG.
10	15 - 28 Nov 20	N/A	Blank firing Bn-Level (CT2+) exercise in Otterburn.
11	4 Dec 20	N/A	SPO tasked with running LFTT in Q1 2021.

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12	16 Dec 20	N/A	Castlemartin Range Complex allocated to 1WG.
13	13 Jan 21	N/A	Ex DRAGON'S REVENGE Initial Planning Conference
14	13-15 Jan 21	N/A	LFTT completed on Salisbury Plain Training Area, Platoon (PI) Attack (Day & Night)
15	18-19 Jan 21	N/A	Range planning team completes range reconnaissance at Castlemartin Ranges. Range Danger Area (RDA) Traces approved.
16	27 Jan 21	N/A	Range Action Safety Plan (RASP) approved.
17	28 Feb 21	Daytime	Range Team arrives at CMR.
18	1 Mar 21	Afternoon	Range build complete, Exercising Troops begin to arrive.
19	2 Mar 21	Daytime	Bayonet Point of Aim Shoots and Sect attacks (Day).
20	2 Mar 21	Daytime	CMR, Range 9, ICQB Range take place.
21	3 Mar 21	Daytime	PI attack ranges on Range 7.
22	3 Mar 21	c. 23:00	OC and CSM No 2 Coy arrive at CMR.
23	4 Mar 21	06:30-07:00	Coy-Level briefing for Coy attack range (OC 2 Coy-led).
24	4 Mar 21	07:30	Coy attack Safety Walkthrough (RCO-led).
25	4 Mar 21	09:30-12:00	No2 Coy attack range.
26	4 Mar 21	12:00	No2 Coy departs range on foot.
27	4 Mar 21	12:00-16:00	Prince of Wales' (PoW's) Coy attack range.
28	4 Mar 21	16:00	Daytime check fire.
29	4 Mar 21	18:00	Night-specific Safety Brief.
30	4 Mar 21	18:30-20:30	PoW'S Coy night attack range.
31	4 Mar 21	21:00	No2 Coy attack begins.
32	4 Mar 21	c 21:00	Gdsm 1 reports broken Helmet Mounted Night Vision System (HMNVS), they are put in Coy 2IC's Party.
33	4 Mar 21	c. 21:30	First firing commences on Range 7.
34	4 Mar 21	c. 21:40	Range is reset by CO 1WG.
35	4 Mar 21	22:25	First and second enemy positions clear.
36	4 Mar 21	22:25	Assault on enemy position 3 begins.
37	4 Mar 21	22:28	Sgt Hillier is fatally wounded.
38	4 Mar 21	22:28	Range is stopped, First Aid commences by Safety Staff.

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39	4 Mar 21	22:56	Civilian medical response vehicles arrive.
40	4 Mar 21	23:35	Air Ambulance arrives.
41	4 Mar 21	23:40	Sgt Hillier is pronounced recognition of life extinct.
42	4 Mar 21	23:59	Police initial investigation begins.
43	5 Mar 21	11:00	DAIB Triage Investigators arrived on scene.
44	17 Mar 21	N/A	Service Inquiry Panel Convened.

Table 1.4.1 – Key Events Prior, During and Post Accident.

Methodology

Accident factors

1.4.3. Once an accident factor had been determined to have been present it was then assigned to one the following categories:

- a. **Causal factor(s).** 'Causal factors' are those factors which, in isolation or in combination with other causal factors and contextual details, led directly to the accident or accident. Therefore, if a causal factor was removed from the accident sequence, the accident would not have occurred.
- b. **Contributory factor(s).** 'Contributory factors' are those factors which made the accident more likely to happen. That is, they did not directly cause the accident. Therefore, if a contributory factor was removed from the accident sequence, the accident may still have occurred.
- c. **Aggravating factor(s).** 'Aggravating factors' are those factors which made the final outcome of the accident worse. However, aggravating factors do not cause or contribute to the accident. That is, in the absence of the aggravating factor, the accident would still have occurred.
- d. **Other factor(s).** 'Other factors' are those factors which, whilst shown to have been present played no part in the accident in question but are noteworthy in that they could contribute to or cause a future accident. Typically, other factors would provide the basis for additional recommendations or observations.
- e. **Observations.** Observations are points or issues identified during the investigation that are worthy of note to improve working practices, but which do not relate to the accident being investigated and which could not contribute to or cause future accidents.

Probabilistic language

1.4.4. The probabilistic terminology detailed below clarifies the terms used in this report to communicate levels of uncertainty within the report. It is based on terms published by the Intergovernmental Panel on Climate Change (IPCC) in their Guidance Note for Consistent Treatment of Uncertainties¹ as well as the Australian Transport Safety Bureau (ATSB) in their paper on Analysis, Causality and Proof in Safety Investigations.²

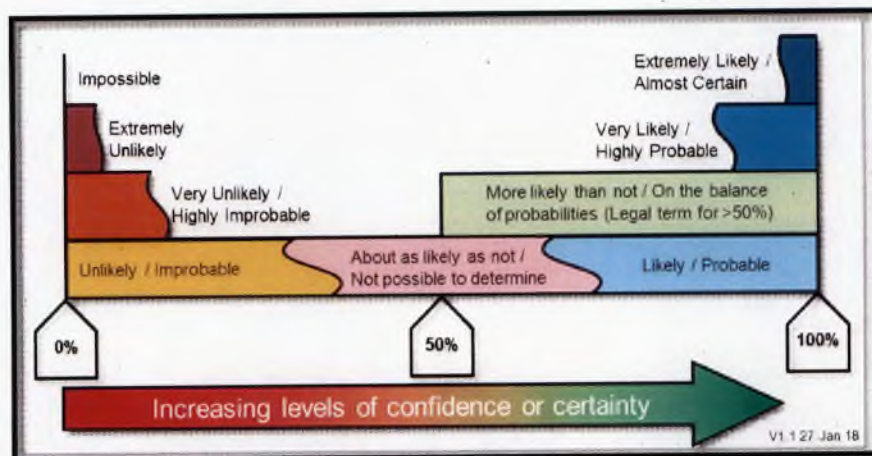


Figure 1.4.1 – Probabilistic terminology.

Human Factors

1.4.5. Psychologists from the Directorate of Personnel Capability (DPers Cap) in Army HQ provided specialist Human Factor (HF) support to the SI. This included participation during interviews, production of the report, discussion and advice to the Panel throughout, as well as assistance in formulating and pursuing certain lines of inquiry. The observations in this Service Inquiry Report have taken into account the HF component and associated factors. A separate HF report has also been produced that adds further specialist analysis to support the factors discussed in this report.

Exhibit 264
Exhibit 268

Available evidence

1.4.6. The Panel had access to the following evidence:

- a. Evidence gathered as part of the initial triage investigation, including:

¹ IPCC (2010), 'Guidance Note for Consistent Treatment of Uncertainties' Accessed at: <https://archive.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf>

² Op Cit., ATSB (2008)

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- (1) Interview audios.
 - (2) Equipment reports.
 - (3) Photographs and videos from ground cameras and Remote Piloted Air Systems.
 - (4) Witness statements.
- b. Initial investigation Triage Report.
 - c. 1WG Learning Account.
 - d. Interviews conducted by the Panel with individuals from:
 - (1) 1WG.
 - (2) CMR Range Control.
 - (3) Subject Matter Experts (SMEs).
 - e. Photography and mapping from several sources.
 - f. HF Report.
 - g. Reports pertaining to individuals, including medical documents, midterm appraisals and Combat Infantryman's Course (CIC) reports.
 - h. Range standing orders for CMR.
 - i. Weapons butt registers³ and operational shooting compendia from the Operational Deployability Record (ODR).
 - j. Policy on conduct of ranges and training, including: Pamphlet 21⁴ (Pam 21), Operational Shooting Policy (OSP) Vols 1-4, Safe System of Training (SST).⁵
 - k. Range documentation produced by 1WG, including Range Action Safety Plan (RASP), Range Danger Area (RDA) trace and Risk Assessment.
 - l. Pathology Report.

³ A butt register is a form containing the details of firers who have completed a given range practice.

⁴ Training Regulations for Armoured Fighting Vehicles, Infantry Weapon Systems And Pyrotechnics.

⁵ Army Safety Centre (Sep 19) 'Managing a Safe System of Training, Commanders Guide'.

- m. Post-Mortem report.
- n. Evidence and media produced from Panel-led range reconstructions in May and September 2021.

Services

1.4.7. The Panel was assisted by the following personnel and agencies:

- a. Defence Accident Investigation Branch (DAIB).
- b. 1WG.
- c. CMR Range Control.
- d. Director Personnel Capability, Army Personnel Research & Consultancy (Human Factors).
- e. Infantry Battle School (IBS), Brecon; Infantry Weapons Division (IWD).
- f. Field Training Unit (FTU), of the Land Warfare Centre (LWC).
- g. Infantry Training Centre (Catterick) (ITC(C)).
- h. Infantry Trials and Development Unit (ITDU).
- i. Occupational Medicine Army.
- j. B Coy, 1st Battalion, The Yorkshire Regiment.
- k. The King's Royal Hussars.
- l. The Army Safety Centre.
- m. Collective Training Group (CTG), LWC.

Analysis framework considered by the Panel

1.4.8. The Panel analysed and considered the following issues:

- a. Organisational factors at Unit level.
- b. Organisational factors at Sub-Unit level.
- c. Impact of COVID.

- d. LFTT progression.
- e. Range planning and Range build.
- f. Range management, conduct and execution.
- g. Target identification and acquisition.
- h. Personnel factors.
- i. Use of specialist equipment.

Determining the cause of death

1.4.9. The post-mortem examination was conducted on 9 March 2021 by a Specialist Registrar (histopathology and forensic pathology) working for the Home Office.

Exhibit 147

1.4.10. The post-mortem report concluded that the death could be adequately explained by a [REDACTED] caused by a NATO 5.56x45mm bullet. Given the location of the wound and mechanism of injury it is likely that this injury would have caused immediate collapse and rapid [REDACTED].

Exhibit 147

1.4.11. The pathologist noted that nothing in Sgt Hillier's records suggested he had any pre-existing conditions of relevance to his death.

Range reconstructions

1.4.12. The Panel undertook to reconstruct critical elements of the range in order to further its analysis, visiting CMR Range 7 twice. A total reconstruction of the range using a Coy of exercising troops to fully recreate the conditions found on the evening of 4 March 2021 was deemed unnecessary to achieve the required analytical effect. Instead, the Panel conducted bespoke smaller reconstructions of elements which it deemed pivotal.

1.4.13. Visit 1 took place between 27 and 28 May 2021 and focussed on reconstructing elements of the fire support, specifically the GPMG fire from Gdsm 7 directed towards enemy position 3's Switch Fire Targets (SFT). The visit sought to analyse the fall of shot of the GPMG's 7.62mm rounds and confirm if the arcs of any tracer rounds would affect other firers' attention or ability to properly acquire targets. This reconstruction was supported by B Coy, 1 YORKS, who provided the firers and the weapon systems, with the range planning and conduct overseen by Panel members and mentors.

1.4.14. Visit 2 to CMR Range 7, 7 to 9 September 2021, took place without live firing, using only pyrotechnics. Its main focuses were to:

- a. Complete a study of the ground, confirming 10 figure grid references⁶ for all key locations and personnel at the time of the accident, as well as re-assessing the effects of ground topography on visibility.
- b. Accurately gauge the effect of visual acuity and light levels on firers' ability to correctly identify targets on enemy position 3 and SFT, and distinguish them from the Safety Supervisors.

Lines of inquiry

1.4.15. The following lines of inquiry were identified for further investigation and analysis by the Panel during the investigation phase, which was undertaken between March and June 2021. These were derived using themes identified in interviews, evidence provided to the Panel, and from specialist input requested by the Panel.

Organisational factors at unit level

Re-subordination of command

1.4.16. Foot Guards Battalions within the Household Division have two primary roles: State Ceremonial Public Duties (SCPD) and light role Infantry. Between March 2019 and February 2021, 1WG were conducting their ceremonial role under the administrative command of London District (LONDIST). On 15 February 2021, 1WG re-subordinated under the command of 11X prior to deploying on a number of operations worldwide. In order to prepare for these operations, 1WG were required to complete individual and collective training before entering Combat Ready training (Ex ASKARI STORM), Mission Ready training and completing the Mission Rehearsal Exercise (MRX), Ex SHADER TEMPEST, all of which were delivered by the Collective Training Group (CTG).

1.4.17. To meet the operational timeline, 1WG began their period of Force Preparation training in late 2020, when the unit was still under the command of LONDIST. At this time, 1WG were Priority 12⁷ for bookings made on the Bidding and Allocation Management System (BAMS).⁹ This meant that their relative priority for training estate was low,¹⁰ and training area bookings could easily be overridden by other units who had a higher priority. Despite the specified requirement to conduct training to meet the prescribed start states for

Witness 7
Witness 10
Witness 12
Witness 33
Exhibit 203

Witness 12
Witness 33
Exhibit 279

⁶ A 10 figure grid is accurate to 1 metre.

⁷ JSP 907 (2017), 'Use of the Defence Training & Evaluation Estate, part 9: The Priority Allocation Table.'

⁸ Priority 12 was defined as: 'Individual Training of trained personnel e.g. MATTs / CCS, on a priority scale of 1 to 17.'

⁹ BAMS was the primary means through which bookings on the Defence Training Estate are managed.

¹⁰ UOTC and MOD sponsored Cadet Forces annual camps were priority 9.

Combat Ready and Mission Ready training,¹¹ 1WG were not able to book Defence Training Estate (DTE) with any certainty in the final quarter of 2020. Government enforced dispersed working due to the COVID pandemic, the cancellation of Ex ASKARI STORM,¹² and the subsequent requirement for a replacement training pipeline to prepare 1WG for MST all placed a greater pressure on 1WG to secure range bookings.

1.4.18. When 1WG returned from dispersed working in July 2020 they found that competition for training estate had reduced due to other units cancelling or limiting their own training as a COVID protection measure. The unforeseen consequence of COVID imposed training restrictions meant that the number of units requesting training resources during this period significantly reduced. Therefore, despite still being priority 12, 1WG managed to secure training areas and ranges to facilitate their own training requirements. The Panel believe that, through liaison with 11X and Land Warfare Centre (LWC), the unit priority was eventually increased, raising 1WG's booking priority to level 3. The Panel were not able to establish whether this was an interim solution or a permanent upgrade to priority for Foot Guards LONDIST units re-subordinating between Brigades and preparing for operations.

1.4.19. In this instance, unintended mitigation through the effects of COVID, and an interim solution implemented by LWC ensured that 1WG's BAMS booking priority was increased and they were able to complete their required training progression. However, it is the Panel's opinion that a formal solution should be implemented to increase Foot Guards' BAMS booking priority as they prepare to transition from LONDIST to their operational commands. If their operational training requirement whilst conducting SCPD is not acknowledged and their BAMS priority is not adjusted accordingly, it could impact other Battalions in the Household Division transitioning between LONDIST and their operational commands, affecting their ability to prepare for operations.

1.4.20. The Panel concluded that the booking priority on BAMS for units commanded by LONDIST adversely affected their ability to meet the training requirements to adequately prepare them for re-subordinating into a deployable Brigade and deployment on operations. This in turn could have led to unforeseen safety issues as units tried to deliver progressively demanding training without adequate resources. The Panel finds BAMS priority for LONDIST units transitioning out of SCPD to be an **other factor**.

1.4.21. Recommendation. Director Land Warfare, in consultation with Directorate of Basing and Infrastructure, should review the booking priority for Defence Training Estate detailed in JSP 907, so that booking priorities are aligned to activity rather than units. This will ensure that Foot Guards Battalions preparing for operations are adequately resourced.

Witness 12
Witness 33

¹¹ 1WG were required to ensure all individuals had completed training progression up to and including night-time Live Fire Tactical Training at Platoon level.

¹² The detail and impact of COVID on Force Preparation is discussed in paragraphs 1.4.41 to 1.4.45.

Organisational factors at sub-unit level

Workforce levels in No2 Coy

1.4.22. In preparation for future operations, and to mitigate the effect of reduced recruiting and retention, the Battalion had re-balanced. This resulted in No2 Coy reducing in size in order to backfill Support Coy (Sp Coy). No2 Coy was left with 58 personnel, organised into two rifle Platoons and a Coy HQ.¹³ Following this restructuring, No2 Coy expected to regain their workforce as new soldiers joined following the completion of their basic training.

Witness 25

1.4.23. The Panel deduced that it was normal and appropriate within a light role Battalion for individuals to spend their first 12-24 months in a standard Rifle Coy before developing additional Infantry skillsets within Support Coy (Sp Coy).¹⁴ The Panel also concluded that it was appropriate to restructure and reduce the number of Pls in a Coy for administrative purposes while in camp. The impact of tactically operating with 2 Pls and reduced workforce levels is discussed in paragraph 1.4.148.

1.4.24. The Panel concluded that the workforce levels being below the normal establishment of a rifle Coy within 1WG did not contribute to the accident. The Panel finds that workforce levels in No 2 Coy were therefore **not a factor**.

Impact of COVID

Infantry Training Centre (Catterick) (ITC(C))

1.4.25. Many of the Gdsm within No2 Coy had completed their basic Infantry training, the CIC¹⁵, during 2020. From March 2020 the Armed Forces had imposed Forces Health Protection Instructions (FHPI) to safeguard Service Personnel during the initial stages of the COVID pandemic. All areas of Defence were affected, including ITC(C).

Witness 9
Witness 15
Witness 17
Witness 18

1.4.26. Training within ITC(C) was governed by the Defence Systems Approach to Training (DSAT).¹⁶ LWC, as the Training Requirements Authority (TRA), owned the Formal Training Statement (FTS) for new entry training for the Infantry. The FTS was composed of the Training Performance Standard (TPS), the Workplace Training Standard (WTS) and the Residual Training Gap Statement (RTGS). ITC(C), as the Training Provider (TP), delivered training to achieve the training objectives detailed in the TPS. An indicative sample of the

Witness 37
Exhibit 264
Exhibit 151

¹³ A standard Rifle Coy would normally consist of around 100 troops, organised into three Platoons and a Coy HQ.

¹⁴ Infantry basic training prepares an individual for the demands of a Dismounted Close Combat Coy. The role of a Sp Coy soldier builds on that experience and provides additional training in a specialist role: reconnaissance, communications, crew served weapons for example.

¹⁵ The CIC is 26 weeks long and designed to develop Infantry soldiers in their ability to administer themselves in camp, in the field and the tactical awareness and skills required to operate as soldiers within a British Army Infantry Battalion.

¹⁶ See paragraphs 1.4.63 to 1.4.79 for more detail on DSAT and the roles of the TRA and TDA.

LWC TPS within the FTS can be found in Figure 1.4.2. The School of Infantry (SCHINF) was the Training Delivery Authority (TDA) for basic Infantry training and they assured the training delivered by ITC(C).

FORMAL TRAINING STATEMENT								
OFFICIAL								
SECTION 1 TRAINING PERFORMANCE STATEMENT								
Role PS/CF	□							
REFERENCE:	□							
DUTY TITLE:	□			DUTY NUMBER:	□			
COURSE TITLE:	Combat Infantry Course (Guards) 18			HRMS/JPA COURSE NUMBER:	CICG 18			
TRA:	TOT INFANTRY			ISSUE STATUS:	□			
TO Number	Training Objective (Performance)	Trg Cat	Conditions	Standards	Reqs			Notes
					C	L	A	
1	Live in the Field	2	(1) In prevailing weather conditions (2) In a CBRN environment (3) By day and night (4) Without the use of light (5) In prevailing weather conditions (6) Under conditions of physical and mental stress (7) As an individual (8) As a part of a section (9) As part of a platoon (10) Access to all relevant tools and equipment held at Section/Platoon Level (11) All relevant reference material (12) As an individual under Section and	(1) Health and Safety at Works Act 1974 (2) JSP 375, Management of Health and Safety in Defence (3) Unit Health and Safety Policy (4) Training Unit SOP's (5) CC – Fieldcraft, Battle Lessons & Exercises (6) DCC – Volume 1 – Infantry Company Group – Infantry Platoon Tactics (7) Current Inf WS GSP's (BAEBB) (8) JSP 925 Counter CBRN Training Manual – JSP 926 Counter CBRN Aide Memoire	X			All JSP, GSP Standards as per the extant version on DEFNET, BAEBB as applicable

Figure 1.4.2 – Land Warfare Centre Formal Training Statement for Phase 2 training.

1.4.27. Receiving units within the Field Army were responsible for delivering additional training to complete the Training Objectives within the WTS as soon as practicable to align the newly arrived soldier to their more experienced peers. The WTS largely focused on the different equipment they would use in a unit that differed from the equipment they initially trained with at ITC(C). The objectives within RTGS looked at specialist training and training specific to operations that an individual may be required to complete during their career, depending on their role or specialisation.

Exhibit 151

1.4.28. The Panel noted that certain equipment types that were basic issue to Infantry soldiers in Field Army units, such as the Lightweight Day Sight (LDS), Future Integrated Soldier Technology and Tactical Hearing Protection Systems were not taught at ITC(C). This increased the burden of training on the receiving unit. Field Army units were not given a formalised training plan to cover the WTS other than integrating new joiners and learning whilst in-role. Not training personnel in these systems could have a detrimental effect on safety.

Witness 37
Exhibit 268

1.4.29. The Panel concluded that differing approaches to teaching the WTS within the Field Army could lead to discrepancies in training standards. The Panel finds that not having a defined WTS training syllabus is an **other factor**.

1.4.30. Recommendation. Commander Field Army should implement a formalised training plan in order to ensure that the Workplace Training Standards are delivered consistently across the Field Army.

1.4.31. If recruits were sent home due to COVID restrictions, ITC(C) would conduct remote training but also pause the affected CIC until recruits were able to return to ITC(C). This impacted the Recruit Allocation Plan¹⁷ but safeguarded the integrity of individual CICs during COVID. This ensured that all recruits completed all the required formative and summative testing.¹⁸

Witness 37

1.4.32. ITC(C) used the Operational Deployability Record (ODR) (See paragraphs 1.4.46 to 1.4.54) to capture all summative tests and training items. This ensured that receiving units had accurate information on individual training progression. Additional information that may be relevant to a receiving unit was included within the recruit's training file that included a copy of the individual's training report. Until April 2021, a hard copy of the training file was passed from ITC(C) to the receiving unit.¹⁹

Witness 37

1.4.33. During the COVID pandemic, ITC(C) set up a deficiency tracker to track elements of individual or group training that had been missed. This was cross-referenced with ODR to confirm that all summative tests had been completed²⁰ before an individual was passed fit for duty.²¹ Any outstanding training objectives would be passed to the receiving unit.

Witness 37

1.4.34. The Panel noted that ITC(C) adopted a robust and methodical approach to safeguarding the quality of the CIC whilst limited by COVID health protection measures. Management of each individual intake of recruits ensured that all troops completed the full CIC package. In some cases, Government imposed dispersed working meant there were periods of time when recruits conducted online theory lessons and individual physical training. In effect this was additional training as the 'clock was paused' until recruit troops returned to ITC(C) and practical training resumed.

1.4.35. In certain cases, where field exercises had to be cancelled, ITC(C) used their COVID training deficiency tracker and amended the training objectives of future field exercises to include the objectives of the cancelled exercise. This was then noted in the Recruit's training file. The Panel identified that there were no training deficiencies present for any of the soldiers involved in the accident who had completed their CIC during the COVID pandemic.

1.4.36. The Panel concluded that ITC(C) were able to maintain the integrity of individual CICs by, in effect, pausing affected courses and delaying follow-on intakes. The Panel finds that the impact caused by COVID on ITC(C) was **not a factor**.

¹⁷ The Recruit Allocation Plan details and sequences the forming of new Platoon intakes into ITC(C).

¹⁸ Formative assessments are used to check the progress of recruit learning against the syllabus, while summative assessments are used to confirm the recruit has met the required standards. An example of a formative assessment is the scoring system used during Live Fire Marksmanship Training, the summative assessment in this example is the criteria Annual Combat Marksmanship Test that must be passed before passing out of training.

¹⁹ Starting from April 2021 electronic training files have been recorded on the Joint Personnel Administrative (JPA) system.

²⁰ Captured in assurance checks by HQ 2 ITB and ITC Support Bn.

²¹ All summative training requirements are detailed in the TPS.

1WG dispersed working

1.4.37. From March 2020 until July 2020, whilst on SCPD, 1WG adopted a dispersed working pattern; individuals were sent home and training was delivered virtually. The training focused on Military Annual Training Tests (MATTs), interest lectures and military lecture periods; individuals were also given time for physical training, in line with Government guidelines.

Witness 7
Witness 15
Witness 17

1.4.38. While dispersed working was not wholly conducive to military training, 1WG used their time productively and managed to set a foundation of understanding before undertaking more complex practical training. Covering basic theory and virtual lessons prepared individuals prior to commencing pre-deployment training.

Witness 15

1.4.39. The unit returned from the period of COVID FHPI 9 months before the unit was expected to start Mission Ready training. This gave 1WG enough time for the unit to complete the progression²² required to meet the start state for Mission Ready training and the Ex SHADER TEMPEST MRX.²³ The reduced competition for training resource (discussed previously in paragraph 1.4.17) also relieved the time pressure as 1WG were able to secure DTE despite their relative low priority.

Exhibit 151
Exhibit 272

1.4.40. The Panel concluded that 1WG used COVID induced dispersed working to good effect. The Panel finds the impact of COVID on 1WG was **not a factor**.

Force Preparation

1.4.41. Prior to the COVID pandemic 1WG were due to start their Force Preparation pathway in Q2 2020, while still serving on SCPD. After Trooping the Colour in June, they had planned to conduct a Battle Camp where they would complete the necessary pre-training required to prepare for further Combat Ready collective training on Ex ASKARI STORM in Kenya between August and October 2020. On completion of Ex ASKARI STORM, 1WG would have conducted further Collective Training Group (CTG) delivered Mission Ready training and a CALFEX in March 2021. On this original Force Preparation pathway 1WG were due to remain on SCPD until February 2021.

Witness 12

1.4.42. The planned Force Preparation pathway was disrupted in March 2020 when 1WG were dispersed and began working from home. In June 2020, CO 1WG was informed that the Battalion would not go on Ex ASKARI STORM. At this point it wasn't clear whether the exercise had been cancelled or postponed until January 2021. When it became apparent that 1WG would not participate in Ex ASKARI STORM, the Battalion began designing the DRAGON series of exercises to meet and exceed the required start standards for the Mission

Exhibit 203

²² The generic progression requirement for units in a 'committed year' was detailed in the OSP, specific detail regarding 1WG's progression requirement was directed in the LWC Force Preparation Order (FPrepO).

²³ Units usually begin Force Preparation 6 to 9 months from validation.

Ready training being delivered by CTG.²⁴ The design, delivery and assurance of the DRAGON series is discussed in paragraphs 1.4.64 to 1.4.80.

1.4.43. Ex ASKARI STORM was Combat Ready Training and was therefore, not a precursor requirement to Mission Ready training or the MRX, Ex SHADER TEMPEST. When the cancellation of Ex ASKARI STORM had been confirmed 1WG designed an alternative progression package that focused on the individual, Fire Team and Sect level training. Whilst the extra CTG-delivered Combat Ready training (ASKARI STORM) would have been useful, it would have focused on collective training at Training Level CHARLIE²⁵, rather than developing individuals, which would have been more beneficial to the unit. The COVID induced curtailing of SCPD and the cancellation of Ex ASKARI STORM allowed 1WG to conduct additional training that they would have otherwise not had the space in the programme to deliver had they carried out their planned ceremonial duties and Combat Ready training.

1.4.44. Government directed dispersed working released 1WG from SCPD. This gave the Coys the time and space to conduct refresher Infantry training, initially dispersed and then as a collective. The CO stated in interview that the situation was beneficial, enabled them to do more training and achieve a better standard due to not being committed to public duties throughout the period. Witness 12

1.4.45. The Panel concluded that the cancellation of Combat Ready training, Ex ASKARI STORM, and the early release from SCPD allowed 1WG to conduct additional low-level collective training. The Panel finds that the impact of COVID on Force Preparation was **not a factor**.

Live Fire Tactical Training Progression

1.4.46. All LFTT followed a set pathway that developed individuals in progressively more complex shoots, as mandated in the OSP. It took firers from static marksmanship, through TLFTT where individuals conducted marksmanship in a tactical context and began to introduce movement, through to LFTT that combined progressively larger tactical formations and manoeuvre during field firing exercises, in both day and night conditions. Shooting progression is electronically tracked via the ODR. It was an Army-wide electronic system, which was sponsored by LWC. It contained information on all troops and allowed administrators to record training items completed on specific days. Exhibit 277

1.4.47. The assurance of firers' training progression was provided by both exercising Coys to the Senior Planning Officer (SPO) before Ex DRAGONS' REVENGE. It was the understanding of the 1WG planning staff that both Coys had completed the requisite progression of training, including training at the Sect level in late 2020, followed by progression up to PI by night in January 2021 on Witness 2
Witness 4
Witness 9
Witness 10
Witness 15

²⁴ The required start state for both the originally planned ASKARI STORM and the replacement exercise, SHADER TEMPEST was Platoon Live Firing by night.

²⁵ Defined in the LWC issued FPrepO as 'Sub-unit special-to-arm training focussing on troops and Pls training alongside each other to master a sub-unit's core role and drills in the context of its role. This will normally be conducted as live training and validation is the responsibility of the unit CO but in the context of Mission Ready is validated by Commander Collective Training Group (CTG).'

Salisbury Plain Training Area (SPTA). The assumption was therefore made that all firers had completed the correct progression of training. No2 Coy's Chain of Command (CoC) were aware that some individuals may have missed some stages of the progression, but a full and comprehensive audit of firers' progression was only completed after the accident had occurred.

Witness 25

1.4.48. A full ODR audit of No2 Coy, as it was organised on 4 March 2021, found that, of the 58 total members of 2 Coy who attended the range package, all had met the requisite daytime progression for live fire Coy attacks. However, 14 firers had not completed the requisite progression for Coy night attacks.²⁶ These 14 firers comprised 3 individuals from the Coy's CoC, as well as 11 Gdsm. The Panel concluded that these firers, owing to a lack of training currency and suitable experience, could not be classed as 'safe persons' as defined by the Safe System of Training, see Figure 1.4.3.

Exhibits 155-202

2. Safe Person.

Appointment	Qualified & Competent?	Suitable Experience?	Supervision/Guidance Given:
Planning Officer	Competent to plan the exercise? Yes / No	If not appoint experienced Planning Officer Mentor. Yes / No	Must consider: • Planning time • Activity objectives • Manpower • Supervisor/finer ratio
RCO/ECO	Competent to conduct the exercise? Yes/No	If not appoint experienced RCO/ECO Mentor. Yes / No	Must consider: • Recce • Target Triangulation • Exercise Walkthrough • Trace Work • Battle Inoculation
Note: The SPO must be satisfied whether the RCO/ECO is suitability experienced in order to assess if mentoring is required and at what level. This can be achieved through observation by himself or others.			
Safety Supervisors	Qualified/competent on weapons used? Yes/No For LFTT, completed Practical LFTT Refresher trg? Yes/No	Completed requisite pre-training?	If not complete WHT and Practical LFTT Refresher training
Exercising Troops	Qualified/competent on weapons and NVDs being used? Yes/No Competent for planned activity? Yes / No	Completed requisite pre-training including the training progression within the OSP.	

Figure 1.4.3 – Safe Persons element of the SPO checklist.

1.4.49. The majority of the Gdsm missing stages of night LFTT had joined the Battalion in the first quarter of 2021 (7 of 11), having missed the exercises in the 1WG-planned training pathway in October 2020 and January 2021 that would have filled in gaps in their progression. The Ex DRAGON'S REVENGE sequence of shoots repeated the daytime serials for Sect (2 March 2021) and PI (3 March 2021) attacks by day but there were no opportunities for additional

²⁶ As a result of not having previously completed a night Platoon attack within the past 12 months, or at all.

night training during the exercise to allow those with gaps in progression to catch up. Notably, if all firers who had not completed the correct progression were not allowed to participate in the Coy attacks then No2 Coy would have had fewer than 40 firers. The Panel discerned that having so few firers would have invalidated the possibility of completing a Coy attack with any meaningful training benefit or adherence to doctrine.

1.4.50. The OC and Coy Sergeant Major (CSM) from No2 Coy had entries on ODR from 2 March and 3 March 2021 of having participated in the Sect and PI attacks in CMR without having been present on the complex, instead arriving on the evening of 3 March 2021. The Panel finds this inconsistency in recording progression of the OC and CSM of No2 Coy on ODR is noted as an **observation**. The Panel found no evidence to suggest that the entries were deliberately manipulated, and the OC and CSM were identified prior to the Coy night attack as not having completed the progression and therefore did not carry live ammunition for the activity. While not in date at the time of the accident, these individuals had completed live firing up to Coy level previously in their careers.

Exhibit 155
Exhibit 158

1.4.51. OC 5 PI had not previously participated in a PI-level LFTT night attack, as they had joined the Battalion after the previous live firing package on Salisbury Plain in January 2021. This level of night LFTT was not completed during Infantry Officer training. Therefore, OC 5 PI made the jump from Sect level night attacks conducted in training, straight to Coy-level night actions. This marked a significant increase in complexity whilst missing a key stage in the progression, especially for a PI Commander of relative inexperience at the time.

Exhibit 154

1.4.52. The Panel established that tracking and recording of live firing progression, via the ODR, of commissioned officers in training was notably less rigorous than that of Infantry soldiers in training. Progression completed whilst a student at IWD, Brecon was not recorded on the ODR, and there was no record of live firing completed whilst at the Royal Military Academy Sandhurst (RMAS) for any Officer in No2 Coy. Consequently, OC 5 PI took part in the exercise without any recorded proof of previous LFTT participation. The Panel opined this scant use of the ODR by RMAS and IWD could lead to confusion over live firing progression of newly trained officers, potentially affecting their ability to safely align themselves to the levels of training being conducted in the Battalion after their arrival.

Witness 38

1.4.53. Of the 58 individuals participating in the No2 Coy night attack, 25% had not met the progression requirements. Having this many inexperienced troops impacted Command and Control (C2), which is discussed in paragraphs 1.4.159 to 1.4.160. Prior to the night attack the SPO and RCO erroneously believed, based on ODR checks for a previous exercise in January 2021, that all individuals within No2 Coy had met the required progression.

Witness 4

1.4.54. The Panel concluded that inaccuracies in ODR recording and assurance checks led to un-safe persons participating in the Coy night attack. The Panel

finds that inaccuracies in ODR recording and assurance checks were a **contributory factor**.

1.4.55. **Recommendation. General Officer Commanding Army Recruitment and initial Training Command should direct that all Phase 1 Training establishments use the Operational Deployability Record (ODR) to record the completion of rifle live firing practices during basic training and Infantry Initial Trade Training, in order to ensure that the ODR provides an accurate and comprehensive record of individual training standards.**

1.4.56. **Recommendation. Director Land Warfare should direct all Initial Trade Training (Phase 2) Schools to record Live Firing on Operational Deployability Record (ODR), in order to ensure that the ODR provides an accurate and comprehensive record of individual training standards.**

1.4.57. **Recommendation. Head of Military Capability Plans should introduce a mechanism to ensure the Chain of Command exercise their duty of care to confirm that the mandated SPO checklist in Pam 21 is completed in order to ensure that only safe persons take part in live fire training.**

1.4.58. It was noted during interviews with all those in the Coy familiar with the use of ODR that running an audit of operational shooting progression was difficult and non-intuitive, and this was compounded by the fact that there was little formal education immediately available on how to check or record operational shooting progression via the program. Notably, it was far harder to check individuals' operational shooting progression than their currency with their MATTs, even though individuals still needed to complete elements of both annually. Indeed, to conduct a check of live firing, the criteria had to be manually selected from a large list of training items, see Figures 1.4.4 to 1.4.5.

Witness 9
Witness 15
Witness 37



Figure 1.4.4 – Options on the ODR for differing types of reports.

1.4.59. In a rifle Coy the Coy 2IC was generally responsible for management of individual training progression and uploading data to ODR. ODR offered a significant improvement compared to logging LFTT progression using paper butt registers. This benefit, however, hinged on the system being used effectively. ODR was complex and tracking LFTT for example, required the user to create a bespoke database by selecting each element from an exhaustive drop-down menu, see Figures 1.4.4 & 1.4.5. There was no formal training package that taught individuals how to use the ODR. Limited understanding of the system and unintuitive data entry could have explained some of the inconsistencies in data entries pertaining to the exercise.

Witness 15
Witness 16
Witness 25

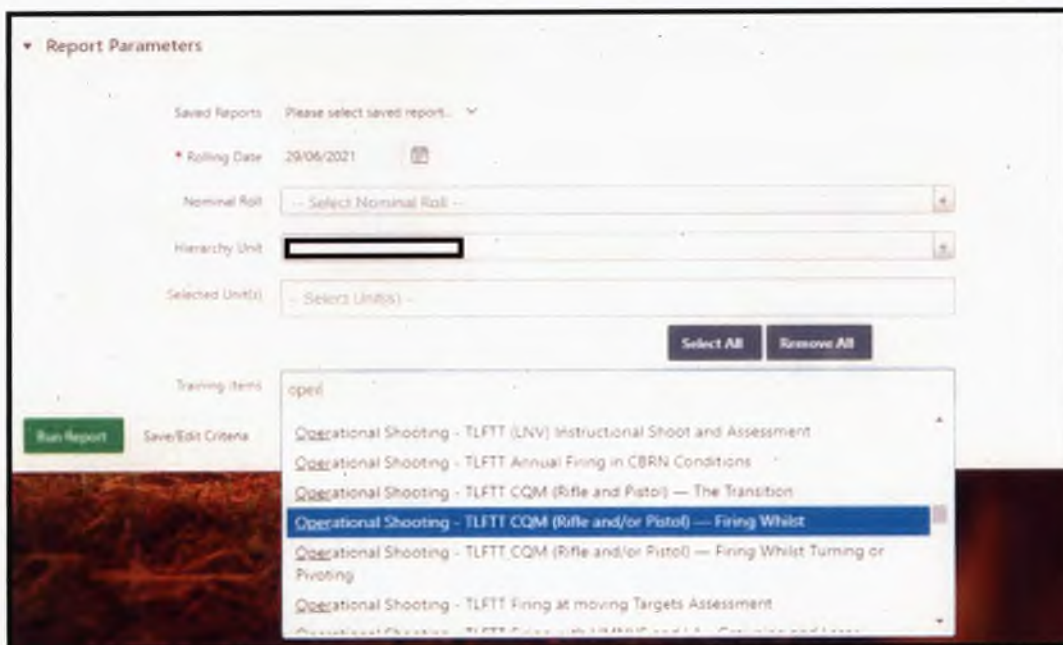


Figure 1.4.5 – ODR Bespoke Rolling Currency needed for tracking LF progression.

1.4.60. The Panel concluded that ODR was a complex application that was not intuitive for tracking live firing progression. Introduction of a pre-populated report, similar to recording and viewing MATTs in the ODR, would simplify the way operational shooting data was recorded and managed. The Panel finds the complexity of interrogating ODR when used as a reference to track live fire progression was an **other factor**.

1.4.61. Recommendation. Director Land Warfare should simplify how operational shooting progression is recorded and tracked on the Operational Deployability Record (ODR). This will enhance the utility of ODR to be used as a tool to track and record operational shooting progression and therefore increase safety by better enabling assurance checks.

1.4.62. Recommendation. Director Land Warfare should examine the training design and delivery available for individuals expected to use the

OFFICIAL—SENSITIVE

Operational Deployability Record tool to improve understanding and access to the system.

OFFICIAL—SENSITIVE

Range Planning and Build

1.4.63. Following the issuing of initial direction from 1WG HQ to the SPO in December 2020, Ex DRAGON'S REVENGE was planned by its respective three planning officers²⁷ over a period of 6 and a half weeks. The requirements for planning a range package were detailed in Pam 21; the key steps were as follows:

Exhibit 205
Exhibit 204

- a. Training is Directed. Prior to planning, the Exercise Director must determine the Training Objectives to be achieved and the number of soldiers to be exercised.
- b. Allocate Appointments. This involves the nomination of competent and current staff, including SPO, RCO(s), and Safety Supervisor.
- c. Confirm Resources and Facilities. This is done between the SPO and the Planning Officer.
- d. Conduct Range Recce.
- e. Produce a Written Instruction. For LFTT this must also include a sketch map and Range Danger Area (RDA) Trace.

Training is Directed

1.4.64. DSAT was the process that had to be used by those who were involved in the design, delivery and assurance, of all training across Defence. It was designed to generate a Training System that empowered trainers to deliver safe, risk-focussed, appropriate, effective, efficient, and accountable training to the training audience.²⁸

Exhibit 264

1.4.65. Through the DSAT process Training Objectives were written to ensure the Training Provider (TP) has a clear understanding of what the training audience are required to learn and what they should be able to achieve at the end of the lesson/event. Training Objectives (TO) were split into three parts: the performance required, the conditions under which the trainee had to perform, and the standard to which they had to perform. Enabling Objectives (EO) and Key Learning Points (KLP) were subordinate to Training Objectives and therefore provide a sequenced framework to help develop the training activity, see Figure 1.4.6.

²⁷ Each component range was planned by one of three RCOs of the range package: RCO, Safety 7, Safety 8.

²⁸ JSP 822 (May 2021), 'Defence Direction and Guidance for Training and Education', part 1, Para 19.

Task 1.1				
	TO/CTO 1.1 ¹¹²			
	EO 1.1.1			1 st EO to be achieved
		KLP 1.1.1.1		Taught 1 st
		KLP 1.1.1.2		Taught 2 nd
		KLP 1.1.1.3		Taught 3 rd
	EO 1.1.2			2 nd EO to be achieved
		KLP 1.1.2.1		Taught 4 th
		KLP 1.1.2.2		Taught 5 th
		KLP 1.1.2.3		Taught 6 th

Figure 1.4.6 - Example of Collective Training Objective Framework.

1.4.66. The TRA was responsible for designing the Collective Training Objectives (CTOs), derived from the Operational or Role Performance Statement. The TDA was responsible for designing Collective Training to meet CTOs, as specified by the TRA. This included designing EOs and KLPs. The TP was responsible for delivering training to meet the requirements against the respective TOs (Performance, Conditions and Standards). If the TP wished to exceed the training objectives, they could only do so in discussion with the TRA and TDA.

1.4.67. The TRA for 1WG preparing for Op SHADER was the LWC. The TDA for both Combat Ready training (ASKARI STORM) and Mission Ready training (culminating with MRX, Ex SHADER TEMPEST) was CTG. In order to prepare 1WG for operations, the LWC FPrepO directed CTG to:

- a. *'(D)esigning, enabling and validating sub-unit manoeuvre and live fire training and delivering a Mission Rehearsal Exercise (MRX)',*
- b. *'(D)esign a Mission Ready training pathway with the co-ordinating authority²⁹, that meets the required standard and enables the GOC³⁰ to certify to Commander Field Army that the unit is ready to deploy.'*
- c. *'In accordance with JSP 822, conduct a training design review, to ensure the collective training will generate the outputs necessary to deliver a successful training activity, based upon the training need.'*

1.4.68. 1WG, with direction from their Division and CTG, were directed to;

- a. *'(E)nsure all force elements conduct all individual training contained in the Op SHADER training directive and their own special-to-arm battlecraft syllabus training prior to deployment.'*

²⁹ GOC 1 (UK) Div

³⁰ General Officer Commanding.

1.4.69. While not specified in the LWC FPrepO, given the direction in the Field Army Training Directive (FATD), the Panel were satisfied that the TDA for individual and collective training prior to Mission Ready training was SCHINF.³¹

Exhibit 272

1.4.70. Within the LWC FPrepO there were links to the OSP and the Op SHADER Training Directive. The latter document was written to support the Op SHADER Mission Task List and the required Operational Performance Statement; it therefore included the CTOs for units like 1WG deploying on Op SHADER. The OSP listed the shooting practices progression but does not detail how that training should be delivered for any grouping beyond Fire Team. The LWC FPrepO directed Dismounted Close Combat troops (in this instance 1WG) to achieve LFTT PI Attack (Night) as the required start state for Mission Ready training.

1.4.71. The LWC FPrepO referred to but did not signpost the Special-to-Arm Battlecraft Syllabus (BCS) applicable to 1WG. The BCS focused on team and collective training up to special-to-arms sub-unit level (CHARLIE³²). It was a syllabus of training designed by capability, to meet the annual Special-to-Arm training requirements needed to maintain Sub-unit competence.³³ The BCS appropriate to 1WG was the BCS Dismounted Close Combat (BCS DCC) – Light Role³⁴, which was hosted on the Army Knowledge Exchange. This webpage included BCS handbooks and assessment records for all potential groupings, from specialist attachments to the Coy group.

Exhibit 274

1.4.72. Each handbook contained the CTOs and expanded training objectives that included the performance, conditions and standards for the particular grouping. Figure 1.4.7 was an example CTO from the Light Role Infantry Coy Handbook. Figure 1.4.8 was the corresponding assessment checklist from the same document.

Exhibit 275

³¹ Field Army Training Directive 2020 – Annex to Ch 9 - Summary of back to basics roles and responsibilities.

³² See footnote 22.

³³ Field Army Training Directive 2019 Edition, para 9-02 d.

³⁴ [DCC BCS - Light Role \(mil.uk\)](#)

Light Role Infantry
Level CHARLIE – Company

Conduct Company offensive actions CTO 11

Implement Company hasty and deliberate attack
Conduct raid
Conduct ambush
Conduct urban assault and clearance
Conduct Fighting in Woods and Forests (FIWAF)

Standards	Criteria	Delivery method
<ul style="list-style-type: none"> AC 71882 Capability Directorate Combat Dismounted Close Combat Doctrine - Volume I Infantry Company Group, Infantry Platoon Tactics AFM Warfighting 5R Mech & Lt Inf Subunit Tactics Close Combat - Survivability Fieldcraft, Battle Lessons & Exercises AC 71770 All Arms Tactical Aide Memoire AC 71757 Infantry Pocketbook Brecon Battlebook AFM Vol 2 Pt 5: Urban Operations DN 15/13 Operations in the Urban Environment The Essentials Operations in the Urban Environment DN 19/03 Operations in Forests Part A: Combined Arms Operations Urban Tactical Handbook 	<ul style="list-style-type: none"> Surprise must be achieved by the speed, timing or direction of the attack Concentration of fire must be achieved Maintenance of momentum must be achieved Security must be maintained There must be a simple and rehearsed plan that is understood at all levels There must be an understanding of the complexity, characteristics and social dynamics faced Mission command should be encouraged at all levels Command and control must be achieved at all levels Covering fire must be used to support and assist movement Balance must be maintained throughout The Company must conduct a thorough clearance of the woodstreets The Company must conduct an effective reorganisation 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Live <input type="checkbox"/> Virtual <input checked="" type="checkbox"/> Constructive
		Resource requirement Live: Suitable training area, exercise scenario and Op Order, model pit Virtual: VBS Constructive: N/A

Figure 1.4.7 - Light Role Infantry Coy Handbook - CTO 11

Light Role Infantry
Level CHARLIE – Company

Training objective	Achieved (✓ or ✗)
Manage Company patrol matrix CTO 7	
Plan and manage patrol matrix 7.1	
Plan and manage urban patrol matrix 7.2	
Employ Watchkeeper (WKPR) 7.3	
Disseminate intelligence and information 7.4	
Establish Company hides and harbours 7.5	
Establish urban operating base 7.6	
Conduct Company Casualty Evacuation (CASEVAC) CTO 8	
Site the Company Aid Post (CAP) 8.1	
Control the casualty exchange point 8.2	
Implement Casualty Evacuation (CASEVAC) plan 8.3	
Implement combat Identification (ID) CTO 9	
Maintain Situational awareness 9.1	
Implement combat Identification (ID) tactics, techniques and procedures 9.2	
Conduct target Identification 9.3	
Manage Captured Persons (CPERS) and Displaced Persons (DP) handling CTO 10	
Control platoon exchange of Captured Persons (CPERS) and Displaced Persons (DP) 10.1	
Organise the handoff of Captured Persons (CPERS) 10.2	
Conduct Company offensive actions CTO 11	
Implement Company hasty and deliberate attack 11.1	
Conduct raid 11.2	
Conduct ambush 11.3	
Conduct urban assault and clearance 11.4	
Conduct Fighting in Woods and Forests (FIWAF) 11.5	
Conduct Company defensive actions CTO 12	
Conduct mobile defence 12.1	

Figure 1.4.8 - Light Role Infantry Coy - Assessment Checklist

1.4.73. The CO produced a training directive that detailed the training required to exceed the start state for Mission Ready training. The objectives for Ex DRAGON'S REVENGE were extrapolated from this guidance and were designed to satisfy the progression requirements of the OSP. Many of those interviewed felt completing the progression detailed in the OSP was the singular focus, with the RCO stating that they were not aware of any directed TOs beyond achieving the required progression. The Panel noted that the TOs were conceptual in nature and not derived from the guidance within the BCS DCC-Light Role. The Panel assessed that individuals were generally unaware of the supporting guidance available in the BCS Handbooks that would have aided the RCO in developing doctrinal TOs.

Witness 2
Witness 4
Exhibit 101
Exhibit 204

1.4.74. The stated TOs within the 1WG Range Action Safety Plan (RASP) for the Coy night attack were 'Command and Control' and 'momentum'. No mention was made of supporting activity to achieve these objectives nor the required performance standards. The Panel therefore deemed these TOs to be incomplete. Using these conceptual TOs as a handrail, the planning team used their military judgement and collective experience to design activity that they thought best fitted the requirement. The conceptual TOs for the Coy night attack were therefore broad and open to individual interpretation.

Witness 2
Witness 4

1.4.75. The OSP listed marksmanship and LFTT practices from individual to Coy level. It guided the commander on the required progression; for anything beyond Fire Team it did not guide how the practice should be delivered. The BCS DCC-Light Role did offer guidance on the training objectives that could be used to achieve the higher-level CTOs. It offered the conditions, standards and resources for those objectives and it offered an execution checklist to ensure that the training objectives were being met.

1.4.76. In the Panel's opinion, not having a training objective framework, like the examples detailed in the BCS DCC-Light Role handbook, exposed the training activity to individual interpretation of the requirement. The higher-level CTOs were purposefully broad and the BCS handbooks then focussed planners on how to design activity to meet the requirement (appropriate training being a fundamental principle of DSAT). The impact of individual interpretation was demonstrated when, during the No2 Coy night attack, exercise Observer / Mentors (OMs) began to introduce unplanned exercise casualties, discussed in detail in paragraphs 1.4.134 to 1.4.143.

1.4.77. The lack of a CTO framework for Ex DRAGON'S REVENGE also increased the risk of individuals progressing beyond their ability and created a situation where unplanned TOs added further risk. The Panel determined that In addition to Pam 21 and the OSP, the exercise should have been designed in accordance with the guidance given in the relevant BCS handbook, in this case DCC – Light Role Infantry Coy.

Exhibit 275

1.4.78. If 1WG had used the BCS DCC – Light Role handbook they would have had a metric to understand performance (one of the three elements of a Training

Objective).³⁵ Adherence to the assessment criteria checklists within BCS DCC – Light Role could have prevented individuals and groupings progressing too fast and would have identified where additional training resource should have been focussed.

1.4.79. A primary purpose of the DSAT Training System was to empower commanders to deliver safe training. 1WG used the OSP and Pam 21 to design their training but were not aware of the guidance in the BCS Handbooks. Using the full suite of guidance available could decrease the likelihood of training not achieving the principles of the DSAT: safe, risk-focussed, appropriate, effective, efficient, and accountable.

1.4.80. As a consequence, the Panel concluded that Ex DRAGON'S REVENGE did not have a fully DSAT compliant training objective framework. The Panel finds not having a fully DSAT compliant training objective framework to be **an other factor**.

1.4.81. Recommendation. Director Land Warfare should educate training designers and providers on the available resources, particularly the BCS Handbooks, in order to ensure compliance with the Defence Systems Approach to Training.

1.4.82. The FPrepO stated that all Dismounted Close Combat personnel are to have completed all live firing progression up to and including PI attack by night. 1WG designed a training pathway to exceed the required start standard for Ex SHADER TEMPEST. However, 1WG were also given the specified task of completing the requirements of their own Special-to-Arm BCS, that in accordance with the FATD included sub-unit training to level CHARLIE.³⁶ The CO was empowered to validate up to training level CHARLIE,³⁷ therefore, the Panel concluded that exceeding the required start state for Mission Ready training was **not a factor**. Further, the CO should be commended for setting the conditions to enable Sub-unit training at the unit level, which was a policy priority for the Field Army.

Exhibit 203

Allocate Appointments

1.4.83. Pam 21 provided direction on the qualifications needed to plan and run live fire ranges. Figure 1.4.9 is an extract from that document.³⁸ The qualifications pertinent to Ex DRAGONS' REVENGE were:

- a. SA(A) 18 or legacy SA(A) 90 (if awarded prior to May 2018). This qualification enabled the holder to plan, conduct and supervise all live or

³⁵ Performance required, the conditions under which the trainee must perform, and the standard to which they must perform.

³⁶ See footnote 22.

³⁷ Stated in the BCS DCC – Light Role, LWC FPrepO and the FATD (Table 10A-02. Roles and responsibilities).

³⁸ Pam 21 (2020, Amdt 2).

blank firing with Infantry Weapon Systems (except Light Mortar) and pyrotechnics.

b. SA(E) 18 or legacy SA(E) 90 (if awarded prior to May 2018). This qualified individuals to act as a Safety Supervisor during TLFTT and LFTT exercises on LFTT areas using shoulder-controlled weapons and pistols.

a. Regular Forces.				
Serial	Qualification Course	Rank	Qualification Categories	Remarks
1a	Live Firing Tactical Training Platoon Commanders Battle Course (PCBC)		A, C, D	1. Cpls can not plan or conduct LFTT or dispose of blinds or misfires or supervise multiple firing of the CDM until they hold the rank of Sgt (not LSgt).
1b	Live Firing Tactical Training Platoon Sergeants Battle Course (PSBC)	Oftrs WOs SSgts Sgts Cpls	A, C, D	2. With effect from April 1988 PCBC and PSBC students of the rank of Sgt and above are also qualified in the preparation of explosive charges for:
1c	All Arms Live Firing Tactical Training		A, C, D	a Explosive trench digging. Students who attended PCBC/PSBC after Dec 2011 are not qualified due to its removal from the course syllabus b Setting up and operating target retaliatory devices on Inf SA radio controlled targets.
2	Range Management Qualification (RMQ)	Oftrs WOs SSgts Sgts Cpls LCpls	B	
3	Section Commanders Battle Course (SCBC) (from Sep 1988)	Cpls LCpls	B, E, F, I, M	The M Qualification was removed from the SCBC course in Apr 13 and made a prerequisite for attendance.
4	All Arms Safety Supervisors Course	WOs LCpls	E, K	

Figure 1.4.9 - Chapter 1, Section 2 of Pam 21, listing small arms range qualifications

1.4.84. The individuals selected to play a pivotal role (SPO and RCOs) in the planning and conduct of Ex DRAGON'S REVENGE were identified and informed of their role prior to the Initial Planning Conference (IPC). The Training Officer (Trg Oftr) confirmed, via a check of competences, that all individuals held the requisite SA (A) 90/18 qualification prior to their selection.

Exhibit 204
Exhibit 205
Witness 10
Witness 4
Witness 2

1.4.85. The SPO was experienced in planning and running Coy level range packages. The RCO nominated for the Coy attack range was qualified and had previous experience in the role but never at Coy level. To mitigate this, the RCO

was mentored by the Trg Offr, a Late Entry Officer with 12 years' experience with the SASC. Assurance was conducted to ensure that all Safety Supervisors held the SA (E) 90/18 qualification. The Trg Offr provided refresher training prior to, and during, Ex DRAGON'S REVENGE for all Safety Supervisors. This mitigated the risk of skill fade for individuals who had not recently used their qualifications.

1.4.86. It was noted by the Panel that where individuals lacked experience, suitable mitigation measures were put in place, in this case: mentorship, clear direction and guidance and the provision of additional training. The direction to limit the complexity of the Coy level range (discussed in paragraph 1.4.91 to 1.4.94), was also an opportunity for the less experienced Safety Supervisor to gain experience in a controlled manner. The Panel concluded that all individuals involved in planning and safety on the range package were competent and qualified in their role. Where there were questions on currency or experience the nominated individual was suitably mentored. The Panel therefore finds that appointment of safe persons into positions of responsibility in the range planning process was **not a factor**.

Confirm resources and facilities

1.4.87. **Accommodation.** The bid on BAMS (number B83675) was provisionally allocated to 1WG on 16 December 2020, and included ranges 7, 9 & 10. This provided the Unit enough real estate to conduct all their planned activities for the week.

Witness 10
Witness 33
Witness 35

1.4.88. Shortly before arrival at the range complex, 1WG identified that the accommodation at CMR had been double booked as the complex was also being used by the King's Royal Hussars (KRH) the same week as Ex DRAGON'S REVENGE. To ensure that the exercise went ahead as planned, 1WG erected tents for the exercising troops for the duration.

Witness 33

1.4.89. While not ideal, the Panel determined through witness interviews that the erected tents provided shelter and a comfortable living environment for 1WG. All ranks living in the tents stated that they had the time and space to administer themselves and were able to sleep relatively well; no one felt unduly fatigued as the week went on.

Witnesses ##
to

1.4.90. The Panel concluded that the tented accommodation provided was an appropriate solution. The Panel finds that living in tented accommodation was **not a factor**.

1.4.91. **Range Allocation.** CMR Range Standing Orders (RSOs) stated that, due to its relatively small size, Range 7 'suits dismounted LFTT up to PI level'. Range 10, also available to 1WG, was larger and more appropriate for Coy attacks. However, Range 10 was limited by the encroaching danger area of a nearby range being used by the KRH and, therefore, was not a valid option for Coy attacks. Given the direction from the CO to make the Coy attack range

Witness 2
Witness 4
Exhibit 110

simple to demonstrate the mechanics of a Coy attack, the SPO concluded that Range 7 was fit for the purpose they intended.

1.4.92. The recommendations on the use of Range 7 were largely based on the size of the range. CMR staff determined the range to be large enough to fit a PI of dismounted troops in tactical formation, to allow them to manoeuvre and to assault enemy positions. The guidance in CMR RSOs conflicted with 1WG's decision to use it for Coy level actions. A Coy attack normally involved around three times more exercising troops and Safety Supervisors than a PI attack, and therefore required proportionately more real estate. No2 Coy only had 58 exercising troops, roughly half a full strength Coy, but 1WG did use Range 7 for full-scale Coy attacks during PoW's Coy day and night attacks.

Exhibit 110

1.4.93. When reviewing the terrain of Range 7 using mapping, satellite imagery and in-person walkthroughs, the Panel discerned that the topography and size of Range 7 would naturally lead to exercising troops bunching up in areas of cover. In the Panel's opinion this would be an expected consequence of using a smaller range than recommended. The effect of bunching, and the reactions that it prompted amongst observers and Safety Supervisors, is discussed further in paragraphs 1.4.134 to 1.4.143.

1.4.94. The Panel concluded that Range 7 was suitable for simple Coy attacks. The Panel finds that the use of Range 7 was **not a factor**.

Conduct range reconnaissance

1.4.95. A range reconnaissance is required before planning starts and is the opportunity for planners to read the relevant orders, including: Range Standing Orders, individual Range Orders, MOD Form 904 – Land Range Authorisation Certificate, MOD Form 905 – Land Range Safety Certificate and Unit Standing Orders. This would provide the planner with the knowledge of the range complex, the specific ranges, the weapon system limitations, and other factors that may influence their planning.

Exhibit 276

1.4.96. The initial range reconnaissance was conducted between 18 and 19 January 2021 and was attended by the SPO, RCOs, and Trg WO. During this reconnaissance, all three RCOs received a range safety brief given by the CMR Deputy Training Safety Officer (DTSO), a member of Range Control, as mandated by standing orders. All ranges to be used were visited by their planning officers, with preliminary plans made to produce the required range documentation.

Witness 2
Witness 3
Witness 4
Witness 19
Witness 33

1.4.97. The Panel discovered that the planning staff used the expertise of the CMR permanent staff to complete some of the documentation during the range reconnaissance, discussed in detail below. CMR permanent staff commented that the range reconnaissance was attended by more planning staff than units would usually send, notably the SPO and the Trg WO; in their opinion this added value to the visit and they would recommend units to do this in future. The Panel concluded that the conduct of the range reconnaissance, the participants and

Witness 1
Witness 35
Witness 40

the use of time and available SMEs to produce the written instructions, was an example of best practice.

1.4.98. The Panel concluded that the Range Reconnaissance was conducted in accordance with policy and indeed best practice. The Panel finds the conduct of the Range Reconnaissance was **not a Factor**.

Produce a written instruction

1.4.99. **Documentation.** Pam 21 mandated certain documentation had to be produced to support and plan any LFTT activity.³⁹ This included a RASP, which had to include a sketch map, an RDA Trace and a Risk Assessment.

Exhibit 276

1.4.100. Policy guided that all LFTT should be conducted and planned using the Safe System of Training model: safe persons, safe place, safe practice and safe equipment.⁴⁰ Using this model as a handrail allowed the SPO and RCO to assure that they had gone through the correct planning processes and to demonstrate that the correct procedures had been adhered to. The essential documents produced were by-products of this process and acted as assurance that the correct process had been followed. The following documents were produced:

Exhibit 276

a. **Range Action Safety Plan.** A RASP for the Coy attack serial was produced by the RCO, making use of a templated light-role LFTT RASP, which had been produced by the Quartermaster Sergeant Instructor (QMSI) at CMR Range Control and made available for use by exercising units. It used the accepted RASP format and had all necessary safety briefs and sketch maps as annexes.

Witness 2
Witness 35
Exhibit 209

b. **Range Danger Area Trace.** An RDA Trace was a supporting document that set the geographical limits of the range including safe movement boxes, allowed firing arcs of all weapon systems, firing boundaries, and locations for the use of certain pyrotechnics, such as grenades. The trace showed the limits of the potential fall of shot of any weapon on the range. These traces were generally constructed by hand, on tracing paper using fixed templates that depended on the calibre of ammunition being used, the nature of the ground near expected targets, and the likely elevation of the barrels of weapon systems being fired. These traces, for dismounted firing, had to be produced by someone with the SA (A) 90/18 qualification.

Exhibit 276

c. **Risk Assessment.** The Risk Assessment was produced and countersigned on 21 January 2021, following the initial planning conference and the completion of the range reconnaissance. The Risk

Witness 2
Exhibit 24

³⁹ Pam 21 (February 2021, Amdt 2).

⁴⁰ The extant guidance at the time was the Army Safety Centre (Sep 19) 'Managing a Safe system of training, Commander's Guide'.

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Assessment was completed and counter-signed before the RASP was produced by the RCO, which was the encouraged order of completion.

1.4.101. For Ex DRAGON'S REVENGE, the RDA traces were completed by all three RCOs during the initial range recce using the support of the CMR Range Control Staff. All traces were approved, without errors, before the end of the 1WG range reconnaissance.

Witness 2
Witness 35

1.4.102. The Panel concluded that the RDA trace and RASP for the Coy night attack on 4 March 2021 were of sufficient quality and had no effect on the accident. The Panel found that the RDA trace and the RASP were **not a factor**.

1.4.103. The Panel noted that CMR Range Control conducted gross error checks on the required documents supporting the activity. They checked the RASP and RDA trace in detail, and they checked for the presence of a Risk Assessment. At the time of the accident, they were not tasked with checking the quality or content of Risk Assessments.

Witness 35

1.4.104. The Risk Assessment for Ex DRAGON'S REVENGE was produced using a MOD Form 5010, Figure 1.4.10, as opposed to an Army Form (AF) 5010, Figure 1.4.11 which was the approved template mandated for use by Army Command Standing Order (ACSO) 1200. AF5010 superseded the MOD Form 5010 in 2019.⁴¹ The Panel identified that the MOD Form 5010 was a legacy form more appropriate for office and workplace Risk Assessment, not for use when assessing the complex risks associated with military training or LFTT. It used a 3x3 matrix for expressing risk levels, as well as an oversimplified document format which inhibited the articulation of hazards, existing and additional control measures. This contrasted with the 5x5 matrix provided by the AF5010, with a significantly more detailed table format. The Panel's opinion was that using the old MOD Form 5010 constrained the author and limited their ability to complete a detailed assessment of all risks associated with the exercise as required by ACSO 1200.

Exhibit 260
Exhibit 259
Exhibit 148

⁴¹ Army Command Standing Order 1200 (January 2021) 'The Army's Safety and Environmental Management System.'

separate 'leader' qualification being required for all Warrant Officers, and Officers at the rank of Captain or above.

1.4.106. Since an amendment in February 2021, Pam 21 had also mandated that Senior Planning Officers undertook the training package designed by the Army Safety Centre (ASCen) described above if countersigning the corresponding Risk Assessment to the activity being conducted. The Panel found no evidence that anyone involved in the planning process of Ex DRAGON'S REVENGE had completed this training or were aware of the new SRM process at the time of the accident.

Exhibit 276

1.4.107. The Panel assessed the reasons for this to be two-fold:

a. Given the timing of the planning of the range package in relation to when new direction was promulgated, there was simply insufficient time for the new policy to be received, understood, and for training to be delivered.

b. The need for Planning Officers (POs) and SPOs to have received the ASCen-designed training package was outlined in Pam 21 in an amendment in February 2021, with the text added in paragraph 2-28.⁴³ Whilst added here as an amendment, corresponding parts in the remainder of the Pamphlet had not been updated to reflect this additional training need and, therefore the Pamphlet was not as explicit as it could have been to reflect this additional training need for POs and SPOs.

1.4.108. When considering the overall effect of Risk Assessment documentation, the presence of the document in isolation does not lower the risk of the activity; it is the risk management thought processes carried out, and consequent measures implemented, that actively lowers the risk. Although not recorded, the Panel found evidence to suggest that additional measures were implemented dynamically during the exercise. These included elements of the range walkthrough, as directed within the RASP and taught on range management courses. However, these control measures were not sufficiently articulated on the risk assessment.

Witness 2
Witness 10
Exhibit 101
Exhibit 259
Exhibit 276

1.4.109. Existing Government regulations on health and safety management state that all risk assessments produced should be 'sufficient and suitable.'⁴⁴ In order to analyse the efficacy of the Risk Assessment documentation produced to support Ex DRAGON'S REVENGE, it was contrasted with a Risk Assessment produced in April 2021 by CTG for Coy-level LFTT exercise in Germany. The Panel observed the following differences:

Exhibit 152
Exhibit 153
Exhibit 108

a. The Risk Assessment for Ex DRAGON'S REVENGE identified eight total hazards, with only one pertaining to LFTT. In comparison,

⁴³ Op. Cit., Pam 21 (2021), p 2-28.

⁴⁴ The Management of Health and Safety at Work Regulations (1999)

CTG's Risk Assessment for a similar coy attack articulated 47 total hazards.

b. The Ex DRAGON'S REVENGE Risk Assessment articulated the hazards and implemented control measures which pertained to hazards associated with live firing in 81 words, whereas CTG outlined the hazards and additional control measures over 671 words. Notably, the additional control measures implemented by the risk assessor of Ex DRAGON'S REVENGE were solely names of publications relevant to the conduct of ranges, the fact that firers would be in date with weapon handling tests, and that Safety Supervisors were all safe persons. These should be in place for all live fire activity, and do not sufficiently count as additional control measures. Whilst an increased word count does not necessarily equate to a "good" risk assessment, it is reasonable to say that risk assessments that contain more narrative, rather than links to references, tend to be more analytical and effective.

1.4.110. The Risk Assessment process undertaken by 1WG was not policy-compliant⁴⁵ and in isolation, the Risk Assessment documentation produced was not 'sufficient and suitable.' This derived principally from the lack of up-to-date SRM training on the part of the range planning team. Correctly following Defence SRM policy and producing a more detailed risk assessment, including more detailed mitigation measures, would reduce the risk of training activities in future. In practice though, additional measures were implemented in concert with the RASP and they served to mitigate some risks effectively.

1.4.111. The Panel concluded that 1WG's adherence to risk management policy was not fully compliant. The Panel finds that adherence to risk management policy was an **other factor**.

1.4.112. **Recommendation. Head of Military Capability Plans should amend Pamphlet 21 in order to ensure clarity of the requirement for Senior Planning Officers to hold appropriate and up-to-date Safety Risk Management training in line with Army Command Standing Order 1200.**

1.4.113. **Recommendation. The Chief Safety (Army) should ensure Safety Risk Management (SRM) training is included in Phase 2 training and relevant career courses. SRM training levels should be aligned to Skill At Arms and Range Management qualifications to ensure it is progressive. The required SRM training for each individual running and assisting in the delivery of Live Fire Tactical Training should be captured in Pamphlet 21 and the Operational Shooting Policy.**

1.4.114. **Recommendation. Director Land Warfare should include risk management training on range management qualification courses in order**

⁴⁵ ACSO 1200

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to ensure that individuals planning and running ranges can adequately manage the associated risk.

1.4 - 34

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Range build

1.4.115. The advance party, including the RCOs, the Trg Offr and the Tgt Op, arrived at CMR on 28 February 2021. The following two days were allocated to range building and preparation. The RCO for each range led a team to check the range for obstacles, dig enemy positions, place targets and ensure that the electronic Small Arms Range Target System (SARTS) was functional.

1.4.116. The Panel discerned that sufficient resource was allocated from 28 February to 2 March 2021 to complete the build of the Coy range. Range 7 was well-built, with targets simulating enemy positions triangulated appropriately and safely, and all grenade cover was built to provide enough protection. Witness 2
Witness 4
Witness 10

1.4.117. The Panel concluded that enough time and resource was allocated to the range build. The Panel finds that the range build was completed appropriately and was therefore **not a factor**.

Range preparation

1.4.118. **Walkthroughs.** The Panel assessed that the walkthrough for the Coy attack range covered all aspects of the attack and left out no detail needed to safely conduct the range. The daytime walkthrough took place at 07:30 on the morning of the activity, with a supplementary night-specific safety brief delivered to Safety Supervisors taking place at 18:15, just before the start of the PoW's Coy night attack range. Witness 2
Witness 10

1.4.119. The Panel concluded that the range walkthroughs and briefs delivered to Safety Supervisors were sufficiently detailed and finds that this was **not a factor**.

1.4.120. **Safety Briefs.** The safety briefs for the Coy attacks were conducted on 3 March 2021, on Range 7.⁴⁶ A generic Range 7 brief was given by the RCO at 07:30, prior to the PI Attacks, with a supplementary brief for the Coy attacks given at 20:30. It was discerned by the Panel that these briefs were comprehensive and contained the detail needed for a Coy night attack. Witness 2

1.4.121. The Panel concluded that the safety brief for the Coy night attack was timely and included all relevant information. The Panel finds the safety brief was **not a factor**.

⁴⁶ Range 7 was also being used for the PI attacks.

Range Management, Conduct and Execution

Positioning of Safety Supervisors

1.4.122. Pam 21 guidance gave the minimum numbers of Safety Supervisors are required during night firing on LFTT as:

Exhibit 276

- a. 'Combat Infantry Course/Inexperienced Trained Soldiers. One Safety Supervisor must be provided per pair of soldiers.
- b. Experienced Trained Soldiers. The number of Safety Supervisors may be reduced provided the Senior Planning Officer is satisfied that the safety and control is maintained.
- c. Independent weapons physically detached/separated from a fire unit are to have a dedicated Safety Supervisor.'

1.4.123. The Panel assessed No2 Coy to be primarily 'Inexperienced Trained Soldiers'. No2 Coy was largely made up of junior Gdsm, as discussed in paragraph 1.4.22 to 1.4.24, most of whom had never conducted LFTT at the Coy level previously. This general lack of seniority and the fact the Coy attack was at night should have been factors considered when confirming Safety Supervisor ratios. Although 58 exercising troops and 10 dedicated Safety Supervisors,⁴⁷ did not meet the 1:2 requirement the Safety Supervisors were controlling individuals who were actively moving or engaging targets. The assaulting Fire Team from 6 Pl had two Safety Supervisors, one of whom was Sgt Hillier.

1.4.124. At the time of the accident, all but two of the Safety Supervisors had moved forward of the trench line, see Figure 1.4.12. Safety 5 was escorting an injured person off the range and was not playing an active role. Safety 2 remained to the rear controlling the GPMGs and the rifle of Gdsm 5 in the fire trench. No2 Coy 2IC, Gdsm 1 and the CSM's party did not have a dedicated Safety Supervisor.

Witness 2

⁴⁷ Not including observers and the RCO.



Figure 1.4.12 - Locations of Safety Supervisors at the time of the accident.

1.4.125. The Panel deduced that, due to their location and responsibility of controlling three individuals (including 2 GPMGs), Safety 2 could not have been reasonably expected to take control of additional firers not located in the fire trench. This included those in the CSM's and Coy 2IC's groupings.

1.4.126. All members of the Coy 2IC's grouping had ammunition and an individual weapon system, and they were inside the movement box. The Panel were satisfied that the 2IC's grouping met the definition of a fire unit and, therefore, should have had a dedicated Safety Supervisor. It was a reasonable expectation that they could have engaged the enemy positions if the tactical situation required it. At the time of the incident there were no Safety Supervisors in a position to react to any exercising troops engaging the enemy positions from the trench line, other than those in the fire trench.

1.4.127. The Panel conclude that the positioning of the available Safety Supervisors did not provide sufficient supervision to all fire units. The Panel finds the positioning of Safety Supervisors among exercising troops was a **contributory factor**.

1.4.128. **Recommendation. Head of Military Capability Plans should amplify the Pamphlet 21 definitions of inexperienced firers and what constitutes a fire unit during Live Fire Tactical Training in order to ensure appropriate ratios of safety supervision.**

1.4.129. **Recommendation. Head of Military Capability Plans should amend the Senior Planning Officer checklist to include a verification of Safety Supervisor to exercising troop ratios in order to assure the correct ratios are being used.**

Resetting No2 Coy attack

1.4.130. Over the course of the Panel's investigation, it was discovered that the Coy level ranges were visited by members of 1WG's HQ to observe and assure the training being delivered. This included the presence of the CO and RSM, who had arrived on the evening of 3 March 2021. Once in place, they took an active role in the conduct of the Coy range serials as observers providing tactical guidance to exercising troops and issuing exercise-play casualties. They had observed the Safety Supervisor range walkthrough on 4 March 2021 but had not formally attended.

Witness 7
Witness 12

1.4.131. During No2 Coy's night attack, the CO was unhappy with the tactical conduct and speed of action of forward elements of 5 PI following initial contact. He spoke with the RCO about the prospect of halting the run-through and resetting the exercising troops so that they could re-attempt their approach and reaction to enemy contact. The RCO confirmed that they had the time, illumination rockets (known in the military as Paralume) and ammunition to start again so the decision was made to reset the range. All firers were pulled back to the edge of the movements box, the targets were reset and on the RCO's orders, the serial began again.

Witness 2
Witness 12

1.4.132. Witness statements from Safety Supervisors and exercising troops confirmed the resetting of No2 Coy attack was an opportunity to address tactical shortcomings and was seen by all as a chance for further development.

Witness 2
Witness 20

1.4.133. The Panel concluded that the CO, as Exercise Director, held the prerogative to conduct this reset and that the reset was done in the correct manner and via proper consultation with the RCO. The Panel finds that the unplanned resetting of the Coy attack was **not a factor**.

Exercise Casualties

1.4.134. Following the reset of the range, the attack continued as normal. OMs were to the rear of No2 Coy during the approach, but gradually became centred around enemy position one, which became the focal point of the Coy attack. During the attack, they critiqued firers on their individual tactical acumen, namely, selection of cover and movement between shots.

Witness 2
Witness 7
Witness 10

1.4.135. As a mechanism to enforce previous learning points, the Safety Supervisor and OMs began introducing exercise-play casualties. If they witnessed an individual not taking appropriate cover, bunching up or not moving between shots they would make that individual a casualty. Exercise casualty extraction created additional movement and, as with all movement within the

Witness 7
Witness 8
Witness 10
Witness 16
Witness 20
Exhibit 276

OFFICIAL—SENSITIVE

movement box required the supervision of a Safety Supervisor.⁴⁸ The inclusion of exercise casualties was not included on the RASP and was not discussed in the Safety Supervisor walkthrough prior to the range.

1.4.136. Pam 21 stated that Safety Supervisors for LFTT were to be dedicated to this task and were not to hold any other appointment during the exercise. They could note points for the after action review, but this must not detract from their primary safety role.⁴⁹

Exhibit 276

1.4.137. The Panel identified that the issuing of tactical guidance and unplanned exercise-play casualties injected by observers had a negative effect on the tactical conduct of the serial. Of note, one exercising NCO had tried to exercise tactical control and move the GPMG gunners from the fire support location, only to be told by an observer to leave them in place at the trench line under the control of Safety Supervisors, as they were well positioned to provide fire support for enemy positions in depth. If the NCO, who had a radio, had been able to link up with the GPMGs at the fire support location, who didn't have a radio, they would have been able to provide updates of the plan, increasing situational awareness on the fire support location. An NCO on the fire support position could have also acted as the de facto fire support commander and the focal point for Gdsm 1 when they reinforced fire support; a factor discussed in paragraphs 1.4.154 to 1.4.158. After being told to return to their original position, the NCO was made an exercise play casualty by an observer.

Witness 28

1.4.138. Up to five exercise casualties, including at least one commander, were inflicted upon 5 PI with the intention of inducing pressure, reinforcing lessons and to maximise the training benefit of the No2 Coy night attack. The Panel concluded that dealing with and extracting exercise casualties added complexity to what was originally supposed to be a simple attack. Exercise casualties further reduced the number of exercising troops and distracted commanders' attention away from organising and controlling the attack. Commanders were not prepared for the problem and some were made casualties themselves, compounding the issue by increasing the numbers of unqualified and inexperienced individuals in command roles. Indeed, due to the inflicted exercise casualties, one Gdsm ended up in role as a PI Sgt.

Witness 20
Witness 31

1.4.139. The additional command dilemma presented by the increase in complexity stressed an already inexperienced cohort of commanders. This compounded existing issues with Command and Control⁵⁰ and made it difficult to maintain momentum. In the Panel's opinion, this made it more difficult for No2 Coy to achieve their specified training objectives. As a result of focusing the commanders' attentions toward casualties, due attention was not afforded to control of the battle. It was not recognised that the fire support location did not have a means of communicating with the commanders and, therefore,

Witness 28

⁴⁸ Pam 21 stipulates that weapons separated from a fire-unit must have a dedicated safety supervisor.

⁴⁹ Op Cit Pam 21: 2-4

⁵⁰ Seniority, manning levels, lack of orders and increased complexity through the addition of unplanned exercise casualties are all factors that contributed to a reduced level of command and control. These factors are discussed individually in this report.

appropriate updated night-time Fire Support Control Measures (FSCM) control measures did not reach the fire support location.

1.4.140. Whilst there was nothing written in Pam 21 regarding the issuing of exercise-play casualties, it was taught on range management courses that dealing with exercise casualties during a live fire exercise should be planned and should be included in the RCO brief to range staff. The additional movement of extracting casualties on the battlefield placed an increased demand on Safety Supervisors as they needed to escort moving troops.

Exhibit 22

1.4.141. Field Training Unit (FTU), the organisation specialising in delivering higher-level collective training and validation, had developed an informed approach on how to inflict exercise casualties. Generally, FTU did not include exercise casualties during Coy level live fire unless specifically requested by the unit. In their opinion it over-complicated an already complex activity and prevented individuals achieving the primary objectives of live firing as each casualty no longer received training benefit and required up to four individuals to extract them. Their experience had found a better way to induce pressure and maximise training benefit was to ask a commander questions about how they would respond in certain tactical situations. Infantry Weapons Division (IWD) felt that unplanned exercise casualties would significantly increase the risk to live firing. Without robust planning and briefings, Safety Supervisors were likely to get overwhelmed by the change in activity.

Witness 36

1.4.142. The issuing of exercise-play casualties by observers and Safety Supervisors as a training objective had not been included in the planning process. The Panel assessed that it effectively hampered the exercising commanders' ability to give due focus to the control and accounting of dispersed troops at night. Including it in the planning process would have ensured tactical moves were planned and briefed with the requisite control measures.

Witness 2
Witness 4
Witness 12

1.4.143. The Panel concluded that the OMs inserting unplanned training serials increased the complexity for commanders and exercising troops. The Panel finds that OMs inserting unplanned training serials was a **contributory factor**.

1.4.144. **Recommendation. Head of Military Capability Plans should amend the definition and responsibilities of range Observer Mentors (OMs) and visitors in order to ensure that they do not disrupt planned activity and inadvertently introduce safety risks during Live Fire Tactical Training.**

Range Safety Angles

1.4.145. During the Panel's final range reconstruction in September 2021, a specific review was conducted of the safety angles from the fire support location to the SFTs. This review, using a prismatic compass, found the bearing to be 3500 mils (magnetic) from the fire support location to the location of the assaulting Fire Team at the time of the accident. The GPMG gunners in the trench were engaging a switch fire target at a bearing of 4000 mils (magnetic).

As a consequence, the assaulting Fire Team was 90 mils inside the required safety angle of 590 mils for dismounted live firing⁵¹, therefore 90 mils inside the danger area, see Figure 1.4.13.

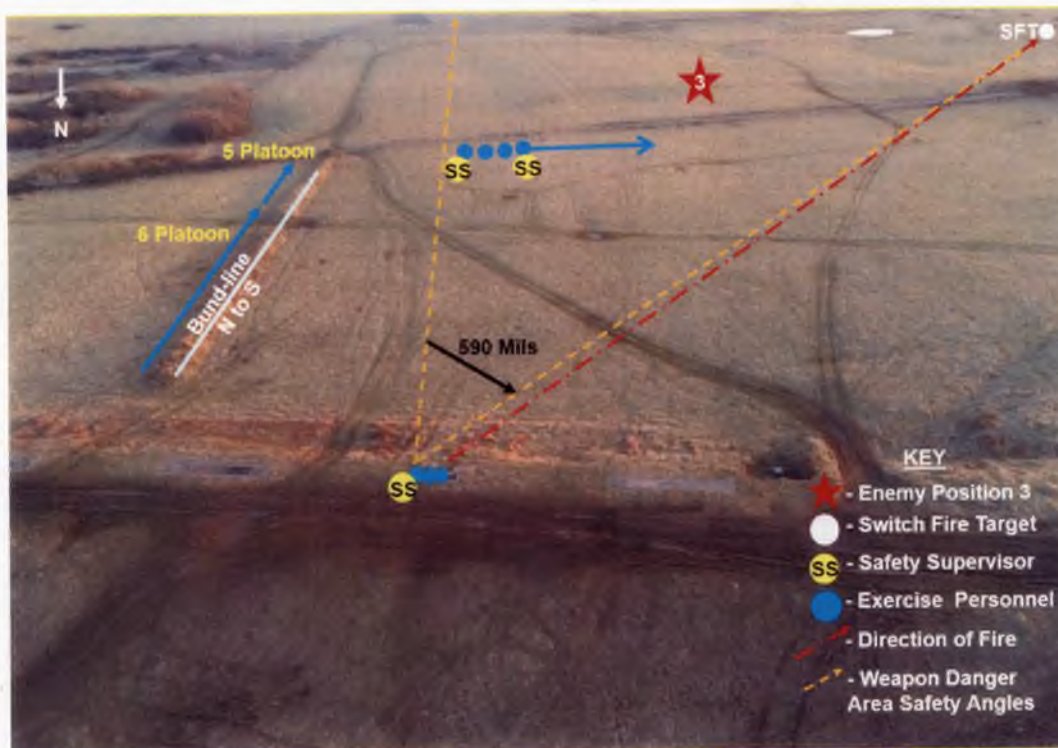


Figure 1.4.13 – 590 mil Weapons Danger Area as measured from the firers in the trench to the SFT.

1.4.146. The reason for this was assessed to be the difference between hand angles, used by safety as a shortcut to gauge the 590 mil safety angle, and the accuracy provided by a prismatic compass. This was compounded by the extra difficulties in visibility when operating at night.

1.4.147. The Panel concluded that the assaulting Fire Team and Safety Supervisors were within the weapons danger area template where ricochets of rounds fired by the fire support could have landed. The Panel will discuss this further in paragraph 1.4.169 where the Panel will make their finding.

Command and Control

1.4.148. No2 Coy OC and CSM arrived on the evening of 3 March 2021, at approximately 23:00. On arrival they received a Range brief from the Coy 2IC, as they unintentionally missed the main safety brief given by the RCO earlier in the day. OC No2 Coy gave orders at 07:00 the next morning, attended by all from Sect Comd level and above. Confirmatory orders were given to the same

Witness 2
Witness 7
Witness 9
Witness 25

⁵¹ The purpose of the 590 mils required safety angle is to prevent troops being in the danger area of ricochets for that weapons system.

audience prior to the night attack. In the break between day and night attacks the OC was resting as they were not feeling well.

1.4.149. As detailed in paragraphs 1.4.22 to 1.4.24, No2 Coy had reduced workforce levels and had been restructured into two Platoons and a Coy HQ. British military doctrine outlined the general principles of how a Coy should operate in an offensive action. It detailed the potential groupings of a Coy: a security element to secure the forming-up point and/or provide flank protection; a fire support element to provide direct fire support to the assault force; an assault force to conduct the break-in and fight through; and an echelon/reserve force to continue the fight through if the assault force required reinforcing. These groupings were flexible depending on the sub-unit task and the wider Battle Group plan. However, a Coy should expect, and commanders are taught, to maintain the general principle of assault, suppress, reserve, and therefore would normally be structured into three distinct manoeuvre elements each with its own commander. The OC made the conscious decision to remain structured as two PIs after considering the range layout, the already undermanned PIs and the limited number of commanders available. The OC also considered the training value of having a PI in reserve and decided that rotating two PIs through assault and fire support would be more beneficial.

Witness 15
Exhibit 135

1.4.150. After reacting to coming under enemy fire, 1 Sect, 5 PI provided covering fire from the trench line for 2 Sect, 5 PI's clearance of the first enemy position; see Figure 1.4.14 for the laydown of positions. After initially using a Sect to provide fire support, 5 PI left two GPMGs, one from 2 Sect and one from 3 Sect, in the trench line and moved down the North – South bund line to re-join their lead assaulting Sect. 6 PI followed in preparation to echelon through and begin assaulting depth positions. However, at this point 1 Sect, 5 PI had begun the clearance of enemy position 2. The remainder of 5 PI and 6 PI were waiting in the limited space behind the North – South Bund line, where they were vulnerable to the enemy.

Witness 13
Witness 18
Witness 29
Witness 27

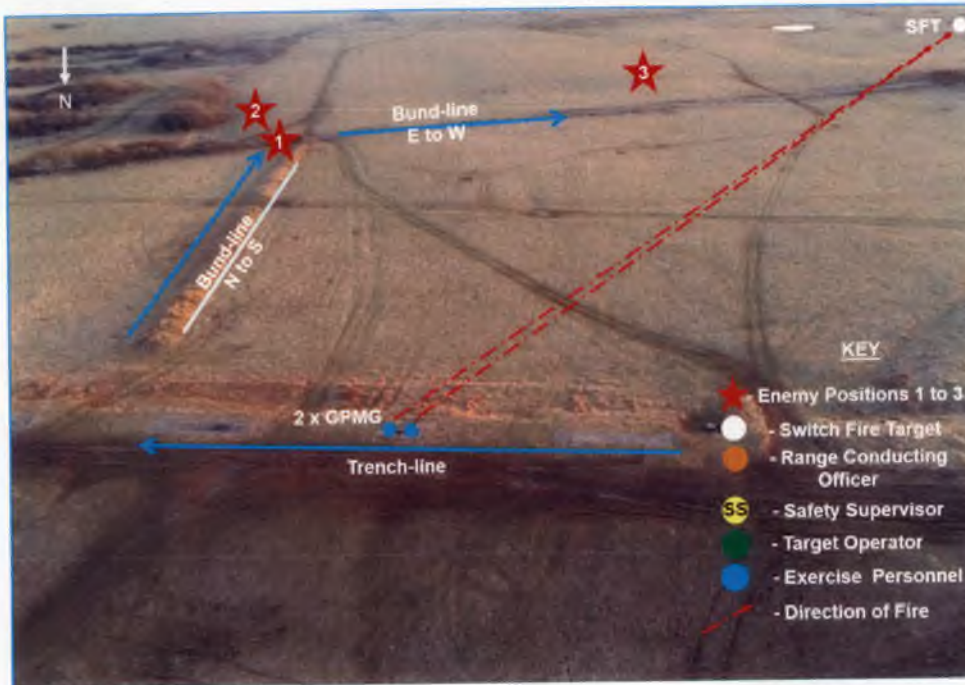


Figure 1.4.14 - Range 7 during the No2 Coy night attack.

1.4.151. At this point there was a delay while the OC waited for the Flanking Fire Gun (FFG) to open fire. This was an effects gun that was used during the day to simulate fire support. Several times the OC requested confirmation from the Safety Supervisors in their vicinity of the status of the FFG but did not receive a clear answer. During the Safety Brief the exercising troops were informed by the RCO that the FFG would only be used during the day attack and would not be used during the night attack. When confirmation was received that the FFG would not be used the OC issued Quick Battle Orders to initiate 6 Pl's assault on position 3 using the East to West bund line as cover.

Witness 2
Witness 25

1.4.152. During this longer than expected wait, the GPMGs providing fire support began to run low on ammunition and started to have stoppages. One of the guns suffered a significant stoppage that neither the gunner nor Safety 2 could clear and was rendered out of action for the remainder of the attack. The CSM made the decision to send Gdsm 5 to the trench with a resupply of ammunition and told him to remain in the trench and support the GPMG gunners. Now down to one GPMG, the Coy 2IC was worried that the remaining GPMG would have stoppages and so sent Gdsm 1 to the trench line, see Figure 1.4.15, with the orders to fire at the target if the GPMG stopped; this order is analysed in paragraphs 1.4.162 to 1.4.166.

Witness 11
Witness 15
Witness 22



Figure 1.4.15 – Gdsm 5 and Gdsm 1 moving to reinforce the fire support location.

1.4.153. It was mandatory for the RCO to conduct a brief to all range staff involved in the activity, including exercising troops.⁵² The Panel were provided evidence to confirm that the RCO safety brief for the No2 Coy attack was comprehensive. In the opinion of the Panel the brief was given in a timely manner, was conducted on the range to be used and it allowed time for troops to prepare.

Witness 2
Witness 4
Exhibit 276

1.4.154. Had the OC attended the main safety brief they would have been made aware of the plan not to use the FFG during the night attack and, therefore, the delay before assaulting enemy position 3 would have been less likely. Without the delay the GPMGs would have been less likely to run out of ammunition and suffer stoppages and the Coy 2IC would have been less likely to commit troops to support the flagging fire support location. The delay in the assault therefore contributed to the decision to move Gdsm 1 to the fire support location in order to provide additional fire support.

1.4.155. The OC gave their Coy orders to Sect commanders and above for both the daytime attack and the night-time attacks at 07:00 and the daytime attack started at 09:30. This left little time for the Sect Comds who received the OC's orders to brief the troops under their command. The Panel identified that subordinate commanders had not had time to hold their own orders groups and, consequently, those not attending the Coy orders went into the range with either a superficial or no understanding of the plan. The Panel were unable to clarify the content of the OC's orders but those in the Coy who did not attend the

Witness 2
Witness 15
Witness 25
Exhibit 135

⁵² Op Cit: Pam 21 4-10

orders had no understanding of the FSCM; the instructions that provided safeguards for friendly forces and, at the same time, facilitated rapid engagement of targets. The orders didn't include amendments to the Task Organisation that could have addressed the shortage of manoeuvre elements (caused by lack of combat power, discussed in paragraphs 1.4.149) by re-organising the Coy into three Pls or by dedicating and resourcing a Fire Support Group.

1.4.156. The under-resourced fire support element, which in the opinion of the Panel was most likely caused by the limited manoeuvre elements and the limited understanding of the control measures, led to a communications disconnect between the fire support position and the assaulting troops. This inherently unsafe tactical practice was mitigated by the intervention of the Safety Supervisors. Maintaining two manoeuvre elements also inhibited the ability of the Coy to conform to taught doctrine: assault, suppress, reserve. It is possible to conduct a Coy attack with only two manoeuvre elements, but it was not taught doctrine; deviation from understood norms required individuals to understand, in detail, their role at all times.

1.4.157. It was the Panel's opinion that the limited understanding of those who did not attend Coy orders probably resulted in the ad-hoc grouping of the fire support element. The Coy attack relied on two GPMGs, both operated by individuals, neither of whom were a nominated commander nor had a tactical radio other than their Sect Personal Role Radio. When interviewed Gdsm 6 and Gdsm 7 both stated that they only knew the Coy plan because of updates given by their Safety Supervisor (Safety 2) based on information through the safety PTT radios. In the opinion of the Panel, having to rely upon Safety 2 relaying information to them in this way, amounted to a breakdown in the Command and Control process which introduced further risk.

1.4.158. Prior to releasing the assaulting Sect onto enemy position 3, a hasty estimate and Quick Battle Orders (QBOs) were conducted to establish control measures and ensure situational awareness among the Coy. The control measures established Limits of Exploitation (LOE),⁵³ FSCM and boundaries. The OC gave these orders over the Coy radio network and, all Sect 2ICs and above had a radio, they would have heard these orders. None of the Gdsm in the fire support location were in a command position and therefore did not have a radio and did not receive these orders. The QBOs process should have ended with an acknowledgment procedure to ensure all responsibilities have been understood. AFM Part 5B specified the importance of final confirmation of fire support coordination. In the opinion of the Panel, it was likely that this acknowledgement procedure was not conducted; if it was conducted it may have become apparent that the fire support element did not have a dedicated commander or any radios to communicate the plan.

Witness 18
Witness 27

Exhibit 134

⁵³ The LOE is a control measure given by the commander to identify boundaries left, right and forward. Establishment of LOE assists control and prevents fratricide against own troops.

1.4.159. The Panel noted that, of the 19 command positions⁵⁴ in No2 Coy for the night attack, 11 were filled by someone holding a lesser than expected rank for someone in that position, and who were not course-qualified⁵⁵ to fill this role. None of the Sect 2IC positions were filled by a course-qualified LCpl. The CoC were aware of this and were content that the individuals selected for command positions would be capable of effectively carrying out the responsibilities of their position.

Witness 10
Exhibit 106

1.4.160. It was not against policy to have non-course qualified individuals in positions of command, and it was the Panel's opinion that giving individuals this opportunity was an example of best practice. However, the Panel opined that, where individuals were acting in command positions, they should have been mentored and given the opportunity to learn. The conduct of the attack, specifically the introduction of exercise casualties, detracted from this opportunity. One example was when a Gdsm, who had acted as a Sect 2IC in the preceding serials, went into the attack as a Sect Commander and ended up as a PI Sgt when the standing PI Sgt (also an individual acting in higher rank) was made an exercise casualty. This rapid transitioning of commanders made maintaining Command and Control significantly harder.

Witness 31
Exhibit 140

1.4.161. The Panel concluded that, for a number of reasons, Command and Control was difficult. The compound effect of reduced manpower, seniority of troops, limited planning and briefing time and communication of co-ordinations measures had an adverse impact on Command and Control. The Panel finds that the compound effect of reduced manpower, seniority of troops, limited planning and briefing time and communication of co-ordinations measures on Command and Control was a **contributory factor**.

Target Indication and Fire Control Order

1.4.162. During the latter stages of the attack, No2 Coy 2IC instructed Gdsm 1 to move onto the bund line to provide additional fire support in case the remaining GPMG stopped firing. Gdsm 1 was instructed to 'identify the tracer fire and engage the target when the GPMG has a stoppage'. When interviewed Gdsm 1 indicated that they did not remember being given a Fire Control Order but did identify the tracer and engaged the target.

Witness 11
Witness 15

1.4.163. Given Gdsm 1's statement and the lack of evidence to the contrary, the Panel assessed Gdsm 1 applied the fundamental principle of night firing⁵⁶ and took an aimed shot at what they discerned to be the target.

1.4.164. Infantry doctrine⁵⁷ detailed the information required in a target indication using the acronym GRIT:

Exhibit 274

⁵⁴ OC, 2IC, CSM, 2 x PI Comds, 2 x PI Sgts, 6 x Sect Commanders, 6 x Sect 2IC.

⁵⁵ JNCO Cadre for Sect 2IC, SCBC for Sect Comd, and PSBC for PI Sgt.

⁵⁶ 'the firer can only engage if they can clearly identify the target. Under no circumstances can they fire in the general direction of a target.'

⁵⁷ DCC Tactical Doctrine Volume 1 - The Infantry Company Group, Pamphlet No.3 Infantry Platoon Tactics.

- a. Group. The fire unit or person the order is given to.
- b. Range. How far is the target from the element firing.
- c. Indication. Where is the target. Doctrine details the use of tracer to identify a target - 'to indicate an extremely difficult target or when speed is vital, tracer ammunition is extremely useful. In battle, this is likely to be the most used method although there is potential for confusion if tracer fire is widespread.'
- d. Type of Fire. Rapid or deliberate rate of fire, or a delayed fire control order.

1.4.165. As Gdsm 1 was a trained soldier, capable of both delivering and receiving a target indication, the Panel considered it reasonable for the 2IC to assume that Gdsm 1 understood their instruction. The 'group' was sufficiently obvious as it was a direct conversation between the 2IC and Gdsm 1. Tracer was the 'indication' and as there was only one weapon system firing it would not have been confusing. The range of the target was the only element missing in the target indication, but the Panel opined that this would have not significantly changed the quality of the instruction. The Fire Control Order was 'delayed' as Gdsm 1 was told to 'engage the target when the GPMGs stopped'. In line with doctrine, Gdsm 1 would have been taught to ask for confirmation if they did not understand; and no response would be assumed by the giver of the order as positive confirmation that the individual had seen the target. In the Panel's experience it was not uncommon for Fire Control Orders to be given in a more narrative form that differed from doctrine, but which still contained the required information.

Exhibit 274

1.4.166. The Panel concluded that, while No2 Coy 2IC did not give a doctrinally pure Fire Control Order, they did give sufficient information for Gdsm 1 to engage the correct target. The Panel finds the Target Indication and Fire Control Order was **not a factor**.

The Fatal Shot

Possible sources

1.4.167. The Panel considered the possibility of the fatal shot coming from anywhere on the range. All witnesses interviewed stated that the only fire at the time of the accident came from the fire support location. The Panel asked the assaulting Fire Team and Safety 3 if it was possible that a round was inadvertently fired during the approach to enemy position 3; they all confirmed that this did not happen.

Witness

1.4.168. As discussed in paragraphs 1.4.145 to 1.4.147, Sgt Hillier and the assaulting Fire Team were within the 590 mil safety angle of the troops firing at enemy position 3 from the fire support location. This meant that they were within the recognised danger area for ricochets. The post-mortem report concluded

Exhibit 147

that the fatal wound was caused by a NATO 5.56x45mm bullet that entered 'cleanly' which is suggestive of a direct shot. The Panel assessed that a bullet that had ricocheted would have been tumbling as it flew and that it is highly unlikely for a ricochet to enter cleanly. However, the post-mortem examiner suggested that further ballistic tests would be required to completely rule out the possibility of a ricochet. At the time of writing these tests had not been conducted. Furthermore, the bullet that caused the fatal wound was not recovered and therefore could not be examined.

1.4.169. The Panel concluded that the fatal shot was unlikely to have been a ricochet. However, the Panel had previously concluded that the assaulting Fire Team and Safety Supervisors were within the ricochet danger area (paragraph 1.4.147). The Panel finds the assaulting Fire Team and Safety Supervisors being within the fire support weapons danger area was an **other factor**.

1.4.170. In the moments leading up to the accident the only weapon systems firing were those in the fire support position. These individuals were Gdsm 5, Gdsm 6 and Gdsm 7 who were all inside a fire trench and supervised by Safety 2. Approximately 10m to the right flank was Gdsm 1. Safety 2 did not have a weapon and Gdsm 6 and Gdsm 7 were operating a single 7.62mm GMPG. As the Pathology reports stated the wound was likely caused by a NATO 5.56x45mm, it is highly improbable that Gdsm 6 or Gdsm 7 fired the fatal shot. Of the five people in this location only two had 5.56mm calibre weapons; Gdsm 1 and Gdsm 5.

1.4.171. Gdsm 5 had placed their weapon to the side of the fire trench and was not firing while they prepared to assist the GPMG. It was therefore very unlikely that Gdsm 5 fired the fatal shot. Witnesses stated that Gdsm 1 did fire 'one or two' rounds at the time of the accident and was not under the supervision of a Safety Supervisor which is why Safety 2 gave the order 'firer, stop' after the first round was fired. A second shot was fired and almost simultaneously the RCO saw Sgt Hillier fall and called 'stop, stop, stop'. The Panel assessed that it was more likely than not that the fatal shot was fired by Gdsm 1 from the fire support position. The Panel found no evidence that Gdsm 1 deliberately aimed or fired at Sgt Hillier.

1.4.172. The Panel concluded that it was more likely than not that Gdsm 1 fired the fatal shot. The Panel finds that a shot fired by Gdsm 1 was the **Causal Factor**.

Target Acquisition

1.4.173. The exercising troops wore issued VIRTUS Helmet, body armour and belt kit in accordance with Pam 21 and the OSP. Individuals were reminded of this requirement during the range safety brief and commanders inspected their troops before conducting any serials.

Witness SS2
Witness CO

Witness 2
Witness 4
Exhibit 276
Exhibit 112

1.4.174. The fundamental principle of night firing⁵⁸ was taught to all recruits on their CIC and members of 1WG involved in night firing on Ex DRAGON'S REVENGE were reminded of this principle during the safety brief. If this principle had been adhered to the Panel assessed that the only way a shot could have hit Sgt Hillier was if he had been in close proximity to a target (or in the line between the target and the shooter) or if he had been mistaken for a target. Safeguards, such as the 590 rule,⁵⁹ provided by the Safety Supervisors should have prevented the former from happening.

Exhibit 276

1.4.175. The schematic in Figure 1.4.16 was produced using known locations of firers, targets, Sgt Hillier and bearings taken from weapon systems immediately following the accident.⁶⁰ At this point all individuals should have been engaging the SFT (off the schematic top right, approximately 150m further following the yellow fire support position GPMG line). The only raised target was the SFT, the target being assaulted and the ones not in play were remotely laid down by the Tgt Op⁶¹ and concealed within a target pit. The Panel deduced that Sgt Hillier was neither near a raised target nor on a line between a target and a firer.

Exhibit 31
Exhibit 32
Exhibit 33

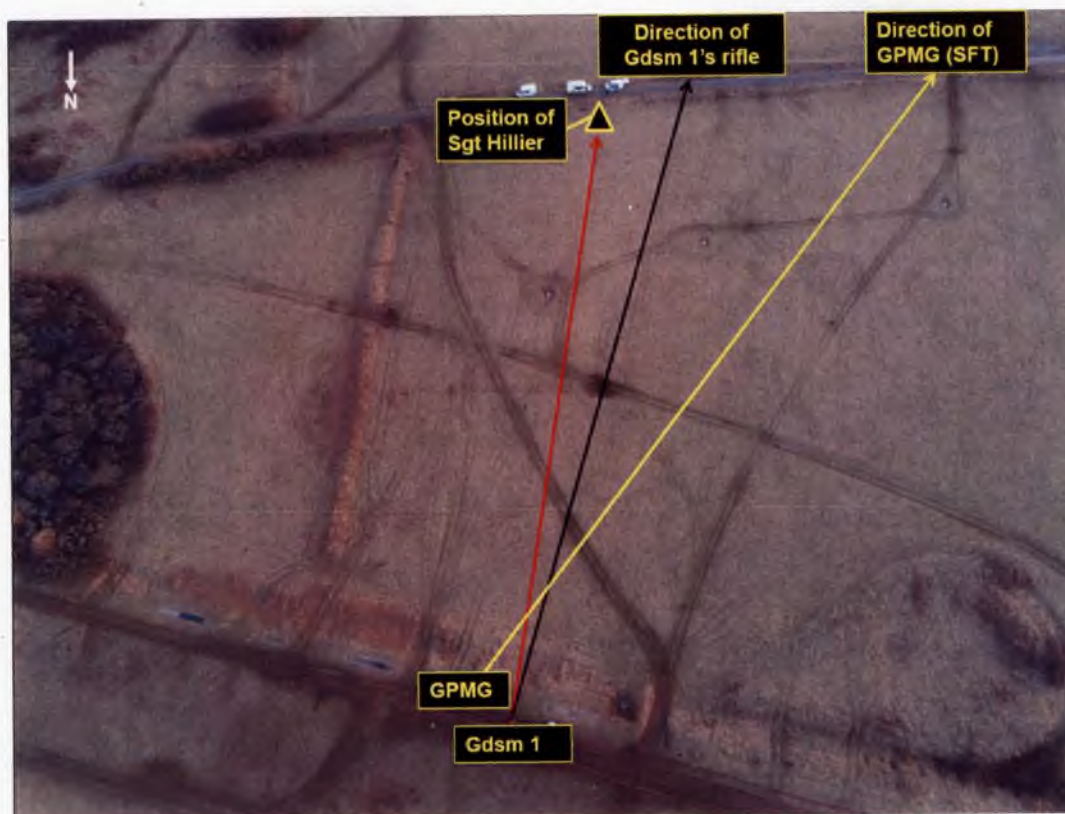


Figure 1.4.16 – Weapon system orientation at the time of the accident.

⁵⁸ 'the firer can only engage if they can clearly identify the target. Under no circumstances can they fire in the general direction of a target.'

⁵⁹ Safety Supervisors will ensure that firers do not engage a target if a person is within 590 m of the target.

⁶⁰ Individuals were given instruction to place their weapons down on the bearing they were shooting or observing at the time of the accident.

⁶¹ Targets on SARTS can be raised or lowered remotely by the Tgt Op.

1.4.176. The fire support position can be seen at the bottom of the schematic along with the location of Gdsm 1. The lines show the bearings of the weapons⁶² from the fire support location pointing down range (towards the top of the picture).

1.4.177. During interview Gdsm 1 stated that he was firing towards the right, with the tracer and then indicated the SFT on the schematic being used by the Panel. Given the analysis above, the Panel determined it likely that Gdsm 1 misidentified something that drew their attention left. In order to determine what could have confused Gdsm 1 the Panel conducted several reconstruction exercises on Range 7, CMR. Under the same conditions⁶³, the first exercise replicated the GPMG firing to understand whether the Cyalume could have been mistaken for tracer bullets or whether the tracer fire could have gone into dead ground and therefore looked as though it was hitting the target earlier and therefore further to the left.

1.4.178. Figure 1.4.17 shows the reconstruction from the view of Gdsm 1 at the time of the accident. The image indicates the tracer ignition point at around 150m⁶⁴ to the right of Gdsm 1's point of aim. The tracer ignited only just before the SFT, therefore the closest visible tracer would have drawn attention right and towards the SFT. The Panel observed occasional ricochets, all of which remained within the designated cone of fire detailed on the RDA trace. The line of tracer rounds continued further to the right of Gdsm 1's point of aim. From this reconstruction the Panel concluded that the tracer fire would have orientated firers onto the SFT. As the SFT, and therefore the tracer, was clearly geographically separated from Sgt Hillier, the Panel concluded that his Cyalume could not have been mistaken for tracer. A lone red Cyalume created a very different signature to GPMG 7.62mm tracer rounds.

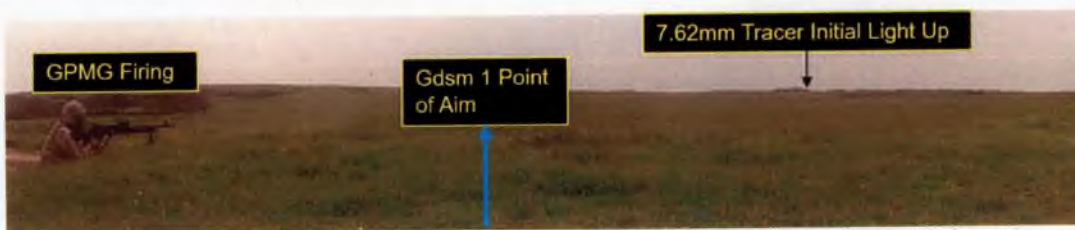


Figure 1.4.17 - GPMG recreation photo.

1.4.179. The Panel concluded that the tracer fire clearly indicated the SFT and did not provide a false indication of the target location to Gdsm 1. The Panel finds that the tracer fire was **not a factor**.

Night Vision Devices (NVDs)

⁶² Angles taken from the weapon systems as they were left by individuals after being told to place their weapons after the accident.

⁶³ At night using white light illumination.

⁶⁴ This is consistent with the planning range of 140m given in the Nato Ammunition Handbook.

1.4.180. The Coy attack night range planned for exercising troops to conduct an insertion march under the cover of darkness. All firers and Safety Supervisors wore the Helmet-Mounted Night Vision System (HMNVS), which was cleared for use during LFTT. No other NVDs were used during the attack. However, once contact was initiated, white-light Paralume was fired and all firers and Safety Supervisors ceased to use their NVDs.

Witness 2
Exhibit 271

1.4.181. Upon departing the assembly area, Gdsm 1's HMNVS became unserviceable. They were therefore removed from their original role in the leading rifle Sect and placed in the Coy 2IC's party.

Witness 9

1.4.182. Despite examples of faulty HMNVS the Panel opined that this was not a safety-critical piece of equipment during the live fire element of the range; it was merely an aid to enable tactical movement during the insertion.

1.4.183. The panel concluded that HMNVS was used as an aide for the initial approach and was not used when firing. The Panel finds that HMNVS was not a **factor**.

Target preparation

1.4.184. The targets being used during the night attack were the Figure 11 and the SFT. Both types of targets were prepared for firing in accordance with Pam 21, sect 7-66 and CMR Standing Orders. The CMR Range Staff had prepared the Figure 11 targets for night firing by painting a 100mm white outline around the edge. The SFTs were blank Figure 11 targets so to be unique and distinguishable from other targets. Examples of the targets used are shown in Figures 1.4.18 to 1.4.20.

Exhibit 276
Exhibit 110



Figure 1.4.18 - Figure 11 Target used during all live fire progression.



Figure 1.4.19 - A Figure 11 SARTS Target prepared for night firing with a 100mm white outline.



Figure 1.4.20 - An example of the Switch Fire Target used.

1.4.185. 1WG's adherence to policy and guidance ensured that the targets were identifiable and distinguishable from Safety Supervisors or exercising troops.

1.4.186. The Panel concluded that the targets were prepared and used in accordance with the policy laid down in Pam 21. The Panel finds the preparation and use of targets was **not a factor**.

Distinguishing Safety Supervisors

1.4.187. Safety Supervisors and observers were dressed in accordance with Pam 21 and the OSP. They were wearing issued VIRTUS body armour (soft inserts) and VIRTUS helmets with an attached red Cyalume.⁶⁵ All Safety Supervisors wore yellow high visibility jackets and some wore yellow high visibility helmet covers, where available; this is consistent with the direction in Pam 21.⁶⁶ Sgt Hillier was not wearing a high visibility helmet cover.

Exhibit 112
Exhibit 276

1.4.188. Pam 21, Amdt 2, Nov 20 Para 7-20 stated for LFTT at night that all participants were to wear an Infra-Red (IR) Cyalume on the top of the helmet, which allowed the individual to be viewed from 360 degrees. If NVDs were not available, IR Cyalumes were to be replaced with coloured Cyalumes. Safety Supervisors were to wear a coloured Cyalume on the rear of the helmet to distinguish them from the firers when viewed with the naked eye. Planning Officers / RCOs were to ensure that Cyalumes were fully exposed so that sufficient light was emitted to ensure that exercising troops and Safety Supervisors could be seen at all times.

Exhibit 276

1.4.189. Experiments conducted by the Panel concluded that Cyalumes worn on the back of the Safety Supervisor's helmets, see figure 1.4.21, including Sgt Hillier, were only visible from certain angles. From Gdsm 1's position it was likely that the Cyalume was only visible when Sgt Hillier was facing away and to the south, i.e. down the range. It would have been less obvious from the sides and not visible from the front. As a Safety Supervisor, Sgt Hillier would have been constantly moving his head and scanning his surroundings to ensure the safety of himself and others.

⁶⁵ Issued brand of glow sticks.

⁶⁶ Pam 21, 7-19 'The wearing of high visibility helmet covers or vests is a mandatory safety precaution that allows exercising troops to identify safety staff and also allows all staff to be identifiable to one another'

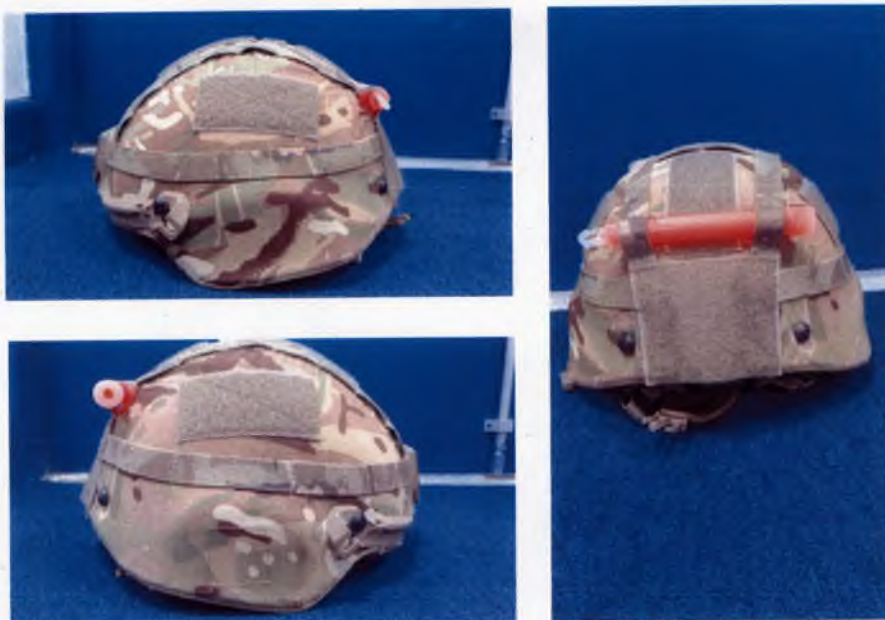


Figure 1.4.21 – Red Cyalume in the back of a Safety Supervisor's helmet.

1.4.190. The standard issue High Visibility vest, as worn by Sgt Hillier and the Safety Supervisors, was yellow, sleeveless with Velcro fastening at the front, see Figures 1.4.22 and 1.4.23. This type of vest had been in use for many years and had not been reviewed as ballistic PPE had evolved. When used with VIRTUS body armour some vests did not fasten at the front and others had worn Velcro. The vest could, therefore, fall to the sides and offer limited high-visibility contrast when the Safety Supervisor was viewed head on. The RCO carried a daysack,⁶⁷ which covered the back of the vest and further reduced the efficacy of the vest.

Witness 17

⁶⁷ The RCO used a daysack to carry radios, additional safety and personal equipment.



Figure 1.4.22 – High Visibility vest.



Figure 1.4.23 - High-Visibility vest with VIRTUS (all angles).

1.4.191. The Panel compared a Figure 11 target to the SFT and a Safety Supervisor. This comparison took place on Range 7, by day and night with Paralume as used by 1WG. Figure 1.4.24 shows Figure 11 targets and a Safety Supervisor as viewed from Gdsm 1's position in daylight. Although hard to replicate in the image, the Panel observed that under these conditions the individual and targets were easily distinguishable, and each could be positively identified. The individual in the picture was a similar build to Sgt Hillier and was significantly bigger than the target.

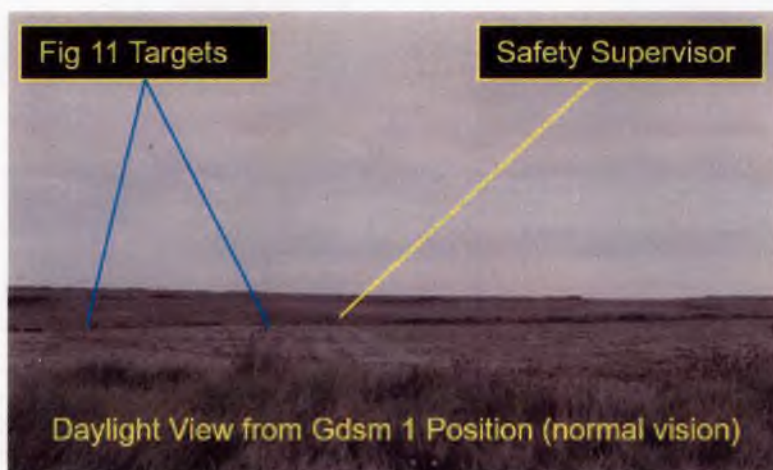


Figure 1.4.24 - Figure 11 targets and a Safety Supervisor at a range of approximately 150m (using the Naked eye).

1.4.192. During the night comparison the Panel observed the targets and the Safety Supervisor to be much more difficult to distinguish. If the Safety Supervisor stood still the Panel assessed that they could easily be mistaken for a target. The equipment provided to Safety Supervisors, including Sgt Hillier, to identify them as Safety Supervisors did not significantly contrast them from their surroundings. From certain angles potentially neither the high-visibility jacket nor a Cyalume could have been seen. The Multi-Terrain Pattern (MTP) clothing worn underneath the high-visibility vest was designed to blend into the surroundings and would have made it difficult for Safety Supervisors to be distinguished by the exercising troops. During the comparison the Panel also noted that the yellow jacket and the yellow hue of the Paralume were similar.

1.4.193. The Panel concluded that the identifying PPE worn by Safety Supervisors did not adequately distinguish them from targets at night. The Panel finds that the equipment used to identify Safety Supervisors at night was a **contributory factor**.

1.4.194. **Recommendation. Head of Military Capability Plans should revise the dress requirements for Safety Supervisors in order to ensure that Safety Supervisors are easily distinguishable from targets.**

Individual medical conditions

1.4.195. During the investigation, the Panel became aware that Gdsm 1 had "poor eyesight" but was confident that they didn't need glasses and so corrective lenses were not being worn at the time of the accident. A review of Gdsm 1's medical records identified that they were [redacted] with an uncorrected Visual Acuity (VA) of [redacted] in their right eye and [redacted] in their left eye. With corrective lenses their VA increased to [redacted] (right eye) and [redacted] (left eye). When using both eyes (binocular vision) the strongest eye dominates and they see with that definition, in Gdsm 1's case, their binocular uncorrected VA was [redacted].

Witness 11
Exhibit 210
Exhibit 211

1.4.196. The VA fractions, referred to as Snellen fractions – see Figure 1.4.25, are an indication of how well a person can see compared to a 'normal sighted person' of 6/6. Simply put, a person with 6/36 sees the same detail at 6m that a normally sighted person can see at 36m. An individual with a score of 6/60 is legally blind.

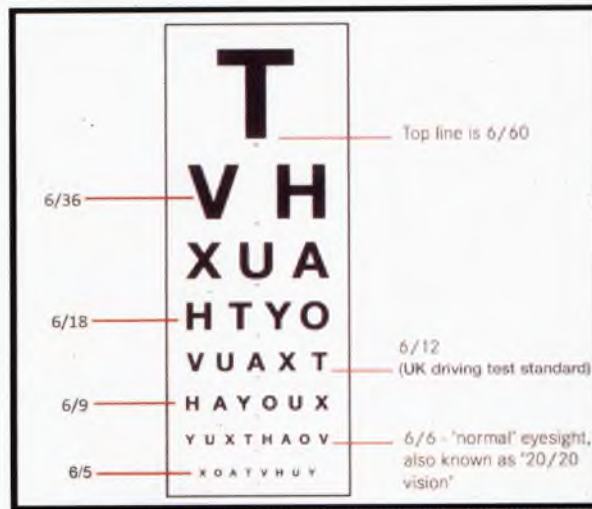


Figure 1.4.25 - The Snellen Fractions.

1.4.197. Minimum Medical Standards for entry to the Foot Guards (and all Infantry units) was vision that was correctable to 6/12 in the right (firing) eye and 6/36 in the left eye.

Exhibit 239
Exhibit 255

1.4.198. Gdsm 1 attended an Initial Medical Assessment (IMA) for entry into the Army in August 2019. They were informed that day, in writing, of their ineligibility to join the Army due to their VA and it was recommended that they visit an optician. Gdsm 1 was given a corrected VA Snellen score at their local optician later that month. Following this assessment Gdsm 1's correctable Snellen score was recorded as [redacted] (Right), [redacted] (Left) and they were subsequently declared fit to join the Army. The Panel were unable to establish with any degree of certainty whether Gdsm 1 wore corrective lenses from this point onwards.

Witness 11
Witness 38
Exhibit 239
Exhibit 255

1.4.199. Given the entries in Gdsm 1's medical records, including hand delivered letters, the Panel were content that Gdsm 1 was aware that they needed corrective lenses to meet the entry standards of the Foot Guards. The Panel therefore deduced it was highly likely that Gdsm 1 understood the requirement to wear corrective lenses.

Exhibit 262

1.4.200. At the Panel's request Gdsm 1 attended an appointment with the Defence Consultant Ophthalmologist in June 2021. The Ophthalmologist confirmed Gdsm 1's Initial Medical Assessment (IMA) uncorrected VA to be accurate and informed the Panel that Gdsm 1 did not have any other ocular defects that were likely to have been a factor.

Witness 38

1.4.201. The Panel concluded that Gdsm 1, with vision correction, met the minimum medical entry standards for recruitment into the Foot Guards. The Panel finds that the recruitment process for Gdsm 1 was **not a factor**.

1.4.202. The Regional Clinical Director at ITC told the Panel that Medical Officers at ITC(C) routinely informed individuals of the requirement to wear corrective lenses should they need them.⁶⁸ On arriving at ITC(C) individuals were given the appropriate paperwork for issue of Service funded corrective eyewear, including corrective lenses for the General Service Respirator (GSR), ballistic goggles and a pair of spectacles. When these items were issued to individuals, their medical records were updated on the Defence Medical Information Capability Programme (DMICP). From that point, it became an individual's responsibility to ensure that they wore their corrective lenses. An entry on DMICP should have highlighted the individual's eyesight to the receiving unit's Medical Centre.

Exhibit 255

1.4.203. The Panel was able to determine, through Defence Primary Health Care (DPHC), that Gdsm 1 did not have Service issued spectacles, corrective ballistic eyewear protection or GSR lenses and, therefore, their records were not updated through DMICP. Their medical records did show the requirement for the individual to wear corrective lenses, however there was no way of relaying this information to the CoC within the bound of medical confidence. It was the responsibility of the individual to inform their CoC, however this was a discretionary requirement.

Witness 39

1.4.204. The Panel concluded that the current policy for managing individuals requiring corrective lenses did not provide the CoC with adequate information to manage individuals with corrective lens requirements. The Panel finds the policy for the management of individuals with corrective lens requirements to be a **contributory factor**.

1.4.205. Gdsm 1 met the minimum entry standards when wearing corrective lenses, although their uncorrected VA did not meet the minimum entry or the retention standards. Gdsm 1's uncorrected [REDACTED] VA meant that, to see the same level of detail as a normally sighted person, they would need to be three

⁶⁸ Medical notes reviewed by the Regional Clinical Director confirmed this in the case of Gdsm 1.

times closer if using both eyes (binocular vision), or six times closer using just their right eye.⁶⁹ On the night of 4 March 2021, Gdsm 1 was not wearing his corrective lenses and so his binocular vision would have seen Sgt Hillier, who was 143m away, in the same level of detail as someone with normal vision would have seen him at 429m. With their right eye (the eye used to aim and fire the rifle) this would have increase to 858m.

1.4.206. On the evening of the 4 March 2021, Gdsm 1's position was approximately 290m from the SFT where they should have been aiming their rifle. Given their uncorrected VA they would have seen this target in the same detail as someone with normal vision would have seen it at 1740m.

Witness 38

1.4.207. The Panel, with support from the Defence Consultant Ophthalmologist, deduced that Gdsm 1 would not have been able to see the SFT in the low light conditions of the night attack. The Panel determined that it was highly probable that Gdsm 1 would not have been able to see the SFT. The Defence Consultant Ophthalmologist, who was present during the second reconstruction, explained to the Panel the visual factors that would have affected Gdsm 1's vision. If the ambient light levels that Gdsm 1 was subjected to were photopic (bright light, i.e., can see fine detail and colours) Gdsm 1's eyes would have employed the cone photoreceptors, which can re-focus onto a new object in seconds. If the ambient light levels that Gdsm 1 was subjected to were scotopic (low light, no colour perception, no fine detail in central vision), their eyes would have employed rod photoreceptors. After exposure to bright light the rod photoreceptors can take between 10 and 40 minutes to recover night vision. Due to the nature of the light from Paralume, it was likely Gdsm 1 was subjected to both conditions in the moments leading up to the accident.

Witness 38

1.4.208. In the opinion of the Ophthalmologist, Gdsm 1's blurred vision, caused by the low light conditions, with added glare from the Paralume, would have caused significant disorientation, further exacerbated by the featureless landscape. The Ophthalmologist felt that fatigue or stress, if being experienced by Gdsm 1, were unlikely to have affected their vision.

Witness 38

1.4.209. Assuming Gdsm 1 had visually acquired a target with their uncorrected binocular vision (both eyes), they would have needed to switch to their (uncorrected [REDACTED]) right eye using their LDS, Figure 1.4.26, to take an aimed shot.

⁶⁹ The in-service Individual Weapon, the L1A3, can only be fired right handed, therefore the right eye is always the firing eye.



Figure 1.4.26 - Lightweight Day Sight.

1.4.210. The LDS provided the user with a 4x magnified sight with a field-of-view of 6°. ⁷⁰ This magnification allowed for long-range target identification and precision marksmanship capability out to 600m range. The 4x magnification at 143m would have generated an image that was theoretically the same blurred image that Gdsm 1 normally have seen in their uncorrected right eye but 4 times larger. The LDS did not act as a corrective lens.

Exhibit 228
Witness 38

1.4.211. The Ophthalmologist advised the Panel that an inverse prescription could be made to give an indication of what Gdsm 1 would have been able to see. This prescription, when made into lenses, would give a normally sighted (individual, the same vision as Gdsm 1 would have had without their corrective lenses.

Witness 38

1.4.212. The Panel visited Range 7 and attempted to recreate the conditions (light levels, target and Safety Supervisor) as closely as possible in order to use the inverse prescription lenses to understand what Gdsm 1 may have seen. Photographs were taken during the day as a control and during the night with Paralume, with and without the inverse prescription lenses. The Panel and the Defence Consultant Ophthalmologist observed the target area and noted the effect of the prescription and their ability to positively identify features during the experiment. The representative Safety Supervisor was also placed 3 and 4.5 times the distance that Sgt Hillier was from Gdsm 1 at the time of the incident (6 times the distance wasn't achievable within the limits of the range) to give the Panel members an indication of the detail theoretically similar to what would have been viewed by Gdsm 1. The individual notes were collated, reviewed and used to inform the analysis below.

1.4.213. It was noted that, in daylight conditions, using the lenses simulating Gdsm 1's vision, the contrast between a person and the background diminished at 143 meters and it became much more difficult to distinguish the camouflaged elements of the person from the background (consistent with the designed effect of MTP camouflage). The prominent element became the high visibility vest,

⁷⁰ The Lightweight Day Sight AESP 1240-L-261-201, 3rd edition, Oct 2016, Chapter 1, Page 2, Paragraph 3.

because of its colour which contrasted against the background. Additionally, the colour made it recognisable as a piece of PPE. Using the LDS provided similar results; despite being 4 times larger the image was still blurred, and the only distinguishing feature was the high-visibility vest.

1.4.214. At night, with the inverse prescription lenses and Paralume, the object at the target area was blurred, pale coloured, with no identifiable features. It was not possible (with [REDACTED] binocular VA) to positively identify whether it was a target or a Safety Supervisor. The Panel noted that the glare of the Paralume, when directly overhead, made objects impossible to see at 143 meters with Gdsm 1's binocular vision. It only became possible to see some form of object when the Paralume was to the left or right of the centre of view. The colour of the high-visibility jacket was less obvious when viewed under Paralume in night conditions. Also, under the glare from the Paralume, the Panel found it was very difficult (if not impossible) to see the red Cyalume, with their normal vision.

1.4.215. These factors would have made it very difficult for Gdsm 1 to orientate themselves. This, combined with the short period in which an object becomes visible within the Paralume window, would have exaggerated the effect of their limited vision and reduced their ability to positively identify a target and fire at it. The time required to subsequently acquire the object in the LDS would have further reduced the ability to positively identify the target.

Witness 38

1.4.216. The images that follow, Figures 1.4.27 to 1.4.33, provide a representation of how an object would have appeared to Gdsm 1 during the day and under Paralume at night. The images, taken from the same location, are of Figure 11 targets and an individual, dressed representatively and stood in Sgt Hillier's location, as viewed from Gdsm 1's position.



Figure 1.4.27 - 6/6 (Normal Vision) view of Figure 11 Targets and during the day.



Figure 1.4.28 – Gdsm 1's uncorrected binocular () view of Figure 11 targets and a Safety Supervisor during the day.



Figure 1.4.29 - Gdsm 1's uncorrected binocular () vision under a Single Paralume.



Figure 1.4.30 - Gdsm 1's uncorrected binocular () vision under two Paralume, left of centre.



Figure 1.4.31 - Gdsm 1's uncorrected binocular () vision under two Paralume, centre.



Figure 1.4.32 - Gdsm 1's uncorrected binocular () vision under two Paralume, right of centre.



Figure 1.4.33 – Left image: x4 magnification 6/6 vision. Centre image: x4 magnification view of a Safety Supervisor. Right image: x4 magnification view of a Figure 11 target.

1.4.217. Taking into account the factors discussed above, the challenging conditions and the previous finding relating to distinguishing Safety Supervisors at night, the Panel assessed it likely that Gdsm 1 mistook Sgt Hillier for the SFT.

1.4.218. The Panel concluded that not wearing their prescribed corrective lenses significantly impacted Gdsm 1's ability to identify, acquire and

subsequently engage the correct target. The Panel finds that Gdsm 1 not wearing their prescribed corrective lenses was a **Contributory Factor**.

1.4.219. **Recommendation. The Chief Operating Officer should revise JSP 375 to ensure Service Persons requiring corrective lenses to meet the retention standards know of their responsibility to wear said corrective lenses for all safety critical duties.**

1.4.220. **Recommendation. Director Land Warfare should establish an assurance mechanism to ensure that relevant individuals are wearing corrective lenses prior to Live Firing.**

Medical plan and response

1.4.221. The medical plan and actions on real casualties were articulated in the RASP and reinforced during the safety briefs. The Trg Offr also physically rehearsed the Safety Supervisor role during the Safety Supervisor walkthroughs earlier in the week.

Witness 2
Witness 10

1.4.222. The planned safety vehicle⁷¹ used an adjacent track to follow the battle, moving forward with the advancing troops, its bounds controlled by the RCO. The safety vehicle was selected due to its reliability and ability to cross uneven terrain. The CMT moved a selection of medical equipment to the safety vehicle, so they were positioned to respond as quickly as possible.

Witness 2
Witness 14

1.4.223. The Panel identified planned actions for real time casualties was well-briefed and rehearsed. Intelligent placing of the CMT and their equipment ensured that Sgt Hillier was attended to within 3 minutes of the RCO requesting medical support.

1.4.224. The medical plan formulated was detailed, sufficient and effectively briefed. The RCO should be commended for their efforts in controlling the safety vehicle as the range progressed forwards. The response to the accident was rapid, and the CMT and Safety Supervisors who rushed to Sgt Hillier to provide immediate first aid were well prepared to deal with a casualty.

1.4.225. The Panel concluded that the medical plan was robust, well-rehearsed and implemented. The Panel finds the medical plan and the reaction of the first responders was **not a factor**.

⁷¹ Transit Van.

Use of Specialist Equipment

Hearing protection

1.4.226. Tactical Hearing Protection System (THPS) was the name given to the suite of hearing protection available to Service personnel. Depending on their role, individuals would be issued the most appropriate system that would give the required levels of hearing protection while offering varying levels of situational awareness.

Exhibit 229

1.4.227. THPS Basic User (BU) was the primary system issued within Defence and comprised of several elements, see Figure 1.4.34. They provided the same level of hearing defence as the more traditional earmuff style ear defence, with the added benefit of improved situational awareness when used in the 'open' position. In 'open' mode hearing would be protected from impulse noises such as gun shots, were as 'closed' mode offered better protection from continuous noises such as machinery or aircraft and therefore reduced the level of normal surrounding noises, such as words of command. To maximise situational awareness during live firing, THPS BU should have been used in the 'open' position.



Figure 1.4.34 - Examples of THPS BU.

1.4.228. THPS Dismounted Close Combat User (DCCU), Figure 1.4.35, was a more advanced system and the system primarily used by combat units. The in-ear system used digital signal processing to identify and filter potentially damaging sounds while maintaining natural hearing. THPS DCCU could be connected to in-service radio systems and was designed to be worn for long periods of time.



Figure 1.4.35 - THPS DCCU.

1.4.229. THPS Specialist User (SU), Figure 1.4.36, provided a higher level of hearing protection and the option to dual layer with General Service (GS) ear defence⁷² It used an electrical microphone to filter background noise and an internal microphone to amplify non-harmful sound thereby increasing the situational awareness of the user. Connectors were available to ensure compatibility with in-service communications equipment.



Figure 1.4.36 - THPS SU - ComTac XP Peltor.

1.4.230. Pam 21 directed what hearing protection was required for all individuals on the ranges. During the No2 Coy night attack the majority of exercising troops were wearing THPS DCCU, with most of the Safety Supervisors choosing to wear THPS SU. A small proportion of the exercising

Witness 3
Witness 17
Witness 19
Witness 22

⁷² Foam yellow ear inserts.

troops who had unserviceable THPS DCCU chose to wear THPS BU, or the GS Ear Plug. Witness 28
Exhibit 276

1.4.231. It was the consensus opinion of 1WG that the THPS DCCU system was unsuitable for Infantry use. Examples were given of the earpiece falling from the ear when the connecting wire caught and, when the wire was tucked away, any movement of the head pulled the earpiece out. Many Gdsm commented they had missing or broken pieces preventing them from correctly fitting the earpiece. If the soldiers encountered any issues with their hearing protection during live firing they were told to stop and inform a member of the Safety Supervisor. One Sect Comd had to yield control of their Sect to another NCO during No 2 Coy's night attack for a number of minutes whilst they corrected issues with their THPS DCCU. Witness 17
Witness 28
Witness 31

1.4.232. The Panel engaged with other Infantry units and training organisations that had experience with THPS DCCU and received positive feedback. The general impression of THPS DCCU outside of 1WG was of a good system due to the increased situational awareness, and ability to interface with communications systems. It offered significant advantage over THPS BU if used correctly.

1.4.233. The THPS DCCU system was issued with six sizes of ear inserts and three sizes of retaining spring. The retaining spring could be trimmed to suit the user to ensure the best possible fit. The THPS DCCU User Manual (Aide Memoire), issued with each THPS DCCU, described how to fit, use and maintain the system. The IBS supplement this with a 40-minute lesson given to each user as they were issued THPS DCCU. The Military Annual Training Test 1 (MATT 1) – Personal Weapons, included a 5-minute video that introduced Noise-Induced Hearing Loss (NIHL) and described the THPS and when it should be used. To ensure best performance the key themes in all the reference documentation where correct fitting, maintenance and headset acclimatisation. Exhibit 229

1.4.234. The Panel determined that the suite of THPS, including DCCU, was fit for Infantry use but needed to be properly understood and used, with users receiving the requisite pre-training for care and use. The reference material on the use of THPS was suitably detailed and the policy guidance was robust, without constraining the user or removing personal preference.

1.4.235. The Panel concluded that the THPS suite of hearing protection was fit for purpose but needed to be used correctly. The Panel finds the incorrect use of THPS DCCU to be an **other factor**.

1.4.236. **Recommendation. Head of Military Capability Plans should ensure that the Chain of Command makes certain where Tactical Hearing Protection System Dismounted Close Combat is issued, the user is trained to the required standard in order to ensure its correct use.**

1.4.237. **Recommendation. Commander Field Army should ensure that Tactical Hearing Protection System (THPS) training, including headset**

acclimatisation, is captured and recorded annually through Military Annual Training Test 1.

Summary of Findings

1.4.238. The following was found to be the Casual factor in the accident:

- a. The Panel finds that a shot fired by Gdsm 1 was the **Causal Factor**.

1.4.239. The following were Contributory factors in the accident:

- a. The Panel finds that inaccuracies in ODR recording and assurance checks were a **contributory factor**.
- b. The Panel finds the positioning of Safety Supervisors among exercising troops was a **contributory factor**.
- c. The Panel finds that OMs inserting unplanned training serials was a **contributory factor**.
- d. The Panel finds that the compound effect of reduced manpower, seniority of troops, limited planning and briefing time and communication of co-ordinations measures on Command and Control was a **contributory factor**.
- e. The Panel finds that the equipment used to identify Safety Supervisors at night was a **contributory factor**.
- f. The Panel finds the policy for the management of individuals with corrective lens requirements to be a **contributory factor**.
- g. The Panel finds that Gdsm 1 not wearing their prescribed corrective lenses was a **contributory Factor**.

1.4.240. The following factors were other factors in the incident;

- a. The Panel finds BAMS priority for LONDIST units transitioning out of SCPD to be an **other factor**.
- b. The Panel finds that not having a defined WTS training syllabus is an **other factor**.
- c. The Panel finds the complexity of interrogating ODR when used as a reference to track live fire progression was an **other factor**.
- d. The Panel finds not having a fully DSAT compliant training objective framework to be an **other factor**.

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- e. The Panel finds that adherence to risk management policy was an **other factor**.
- f. The Panel finds the assaulting Fire Team and Safety Supervisors being within the fire support weapons danger area was an **other factor**.
- g. The Panel finds the incorrect use of THPS DCCU to be an **other factor**.

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PART 1.5

Recommendations

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PART 1.5 – RECOMMENDATIONS

1.5.1. Director Land Warfare:

- a. Director Land Warfare, in consultation with Directorate of Basing and Infrastructure, should review the booking priority for Defence Training Estate detailed in JSP 907, so that booking priorities are aligned to activity rather than units. This will ensure that Foot Guards Battalions preparing for operations are adequately resourced. 1.4.21
- b. Director Land Warfare should direct all Initial Trade Training (Phase 2) Schools to record Live Firing on Operational Deployability Record (ODR), in order to ensure that the ODR provides an accurate and comprehensive record of individual training standards 1.4.56
- c. Director Land Warfare should simplify how operational shooting progression is recorded and tracked on the Operational Deployability Record (ODR). This will enhance the utility of ODR to be used as a tool to track and record operational shooting progression and therefore increase safety by better enabling assurance checks. 1.4.61
- d. Director Land Warfare should examine the training design and delivery available for individuals expected to use the Operational Deployability Record tool to improve understanding and access to the system. 1.4.62
- e. Director Land Warfare should educate training designers and providers on the available resources, particularly the BCS Handbooks, in order to ensure compliance with the Defence Systems Approach to Training. 1.4.81
- f. Director Land Warfare should include risk management training on range management qualification courses in order to ensure that individuals planning and running ranges can adequately manage the associated risk. 1.4.114
- g. Director Land Warfare should establish an assurance mechanism to ensure that relevant individuals are wearing corrective lenses prior to Live Firing. 1.4.220

1.5.2. Commander Field Army should:

- a. Commander Field Army should implement a formalised training plan in order to ensure that the Workplace Training Standards (WTS) are delivered consistently across the Field Army. 1.4.30

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- b. Commander Field Army should ensure that Tactical Hearing Protection System (THPS) training, including headset acclimatisation, is captured and recorded annually through Military Annual Training Test 1. 1.4.237
- 1.5.3. General Officer Commanding Army Recruitment and Initial Training Command should:**
- a. General Officer Commanding Army Recruitment and initial Training Command should direct that all Phase 1 Training establishments use the Operational Deployability Record (ODR) to record the completion of rifle live firing practices during basic training and Infantry Initial Trade Training, in order to ensure that the ODR provides an accurate and comprehensive record of individual training standards. 1.4.55
- 1.5.4. Head of Military Capability Plans should:**
- a. Head of Military Capability Plans should introduce a mechanism to ensure the Chain of Command exercise their duty of care to confirm that the mandated SPO checklist in Pam 21 is completed in order to ensure that only safe persons take part in live fire training. 1.4.57
- b. Head of Military Capability Plans should amend Pamphlet 21 in order to ensure clarity of the requirement for Senior Planning Officers to hold appropriate and up-to-date Safety Risk Management training in line with Army Command Standing Order 1200. 1.4.112
- c. Head of Military Capability Plans should amplify the Pamphlet 21 definitions of inexperienced firers and what constitutes a fire unit during Live Fire Tactical Training in order to ensure appropriate ratios of safety supervision. 1.4.128
- d. Head of Military Capability Plans should amend the Senior Planning Officer checklist to include a verification of Safety Supervisor to exercising troop ratios in order to assure the correct ratios are being used. 1.4.129
- e. Head of Military Capability Plans should amend the definition and responsibilities of range Observer Mentors (OMs) and visitors in order to ensure that they do not disrupt planned activity and inadvertently introduce safety risks during Live Fire Tactical Training. 1.4.144
- f. Head of Military Capability Plans should revise the dress requirements for Safety Supervisors in order to ensure that Safety Supervisors are easily distinguishable from targets. 1.4.194
- g. Head of Military Capability Plans should ensure that the Chain of Command makes certain where Tactical Hearing Protection System 1.4.236

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Dismounted Close Combat is issued, the user is trained to the required standard in order to ensure its correct use.

1.5.5. Chief Safety (Army) should:

a. The Chief Safety (Army) should ensure Safety Risk Management (SRM) training is included in Phase 2 training and relevant career courses. SRM training levels should be aligned to Skill At Arms and Range Management qualifications to ensure it is progressive. The required SRM training for each individual running and assisting in the delivery of Live Fire Tactical Training should be captured in Pamphlet 21 and the Operational Shooting Policy.

1.4.113

1.5.6. Chief Operating Officer:

a. The Chief Operating Officer should revise JSP 375 to ensure Service Persons requiring corrective lenses to meet the retention standards know their responsibility to wear said corrective lenses for all safety critical duties.

1.4.219

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PART 1.6

Convening Authority Comments

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PART 1.6 – CONVENING AUTHORITY COMMENTS

Introduction

1.6.1 This Service Inquiry (SI) was convened on 17 March 2021 to investigate the circumstances surrounding the tragic death of Sergeant (Sgt) Gavin Hillier, 1st Battalion the Welsh Guards (1WG), during a live fire training package as part of Exercise (Ex) DRAGON'S REVENGE. The incident took place on the Castlemartin Range complex on 4 March 2021. Sgt Hillier died of injuries sustained while providing safety supervision for Number 2 Company's (No2 Coy) live fire night attack.

1.6.2 The SI Panel has submitted its report to me after 8 months of detailed evidence gathering, interviews and analysis. The report identifies that, rather than a single action, the cause of the accident was an accumulation of minor deviations from policy and actions that in isolation would be innocuous, but when combined had fatal consequences. The Panel's recommendations, therefore, focus on reviewing existing policy and implementing the necessary assurance mechanisms to prevent reoccurrence. Having reviewed the report, I agree with the Panel's findings and recommendations and offer the following observations.

Ex DRAGON'S REVENGE

Planning

1.6.3 Planning for Ex DRAGON'S REVENGE was conducted in an appropriate and professional manner, with 1WG being well supported by the chain of command. Nevertheless, areas where improvements could be made were identified.

1.6.4 Of the 58 exercising troops involved in the No2 Coy night attack, 14 had not met the progression requirements to conduct company level night-time offensive operations as directed in the Operational Shooting Policy. This deficiency was due to insufficient interrogation of the Operational Deployability Record (ODR) tool which, the Panel determined, was due to a lack of formal training and a non-intuitive user interface. The number of unqualified individuals made command and control / safety supervision difficult; both of which were significant factors in the accident. The Panel has recommended a common approach to the ODR across Defence. All organisations delivering Live Fire Tactical Training should capture live fire progression on the ODR, thus removing any ambiguity by accurately reflecting an individual's progression in preceding units and on previously attended courses.

Design

1.6.5 The design of Ex DRAGON'S REVENGE aimed to achieve the higher-level Collective Training Objectives (CTO) required to deploy on Operations. Training guides were available to help design deliverable training objectives from the directed CTO. 1WG did not use these supporting training guides and therefore the training objectives did not meet the principles of the Defence Systems Approach to Training; namely safe, risk-focussed, appropriate, effective, efficient, and accountable. The recommendations made within the report aim to ensure that individuals involved in the design of unit-delivered training will be educated on the use of supporting training guides.

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1.6.6 1WG completed several complex live fire training packages during its preparation for operations. The report from the externally validated Mission Ready validation exercise, Ex SHADER TEMPEST, described a 'strong and cohesive force that demanded high standards across all ranks.'

Supervision

1.6.7 However, recent reduced workforce levels, seniority of the soldiers and commanders, the lack of an all-informed brief and the introduction of unplanned training serials all increased the command and control challenge of the No2 Coy night-time attack. When exercising with junior soldiers and commanders, measures must be taken to mitigate risk, especially when live firing. Observers introducing unplanned exercise casualties further increased the complexity of what was meant to be a simple introduction to the mechanics of a company attack.

1.6.8 Those involved in live fire activity, either as exercising troops, safety staff or observers, must understand their responsibilities and the limits of their role. There can be no overlap of responsibility when it comes to those providing safety supervision. Supervisors must not intervene in tactical decision-making (except where safety is compromised) and must not be burdened by observers introducing or changing training objectives during the event. Clear definitions of each role published within Pamphlet 21, the guide for planning infantry live firing, will ensure those involved in the planning or execution of live firing know and understand their responsibilities.

1.6.9 As No2 Coy was formed of trained soldiers, 1WG chose to use the safety supervisor ratios required for experienced troops. The Panel recommends an update to Pamphlet 21 to provide a clear definition of inexperienced and experienced trained soldiers to guide planning staff in determining appropriate safety supervisor ratios.

1.6.10 All safety supervisors were dressed in accordance with the regulations. However, the provided high-visibility equipment has not evolved in line with uniform and equipment changes and the compatibility and efficacy of the currently provided high-visibility equipment when used with issued VIRTUS body armour is questionable. This must be addressed to ensure that the safety equipment used to identify individuals on the range is compatible with in-service personal protective equipment, appropriate to the conditions, and exploits the technology available.

Medical response

1.6.11 The medical plan and response were examples of best practice; both the Range Control Officer and the Combat Medical Technician should be commended for their plan and response.

Visual acuity standards

1.6.12 The absence of a mechanism for the chain of command to exercise duty of care over those requiring corrective lenses is a concern. The 1WG hierarchy had no way of knowing that one of their Guardsmen did not meet the required entry or retention standards to safely conduct their duties without corrective lenses.

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1.6.13 Placing the responsibility on individuals to ensure that they are medically fit to conduct safety critical duties is an avoidable risk. The chain of command must be afforded more awareness, within the bounds of medical confidentiality, to manage those under their command who need corrective lenses.

Conclusion

1.6.14 Having read the report, I am content that this tragic accident has been investigated, analysed, and reported thoroughly, accurately, and rigorously. I have been assured from discussions with Deputy Chief of General Staff that the recommendations contained within this report have or will be actioned to reduce the likelihood of a future reoccurrence.

1.6.15 On behalf of the Defence Safety Authority, I offer my sincere condolences to Sgt Gavin Hillier's family, friends and loved ones.

**S J Shell CB OBE MA
Air Marshal
Director General Defence Safety Authority**