



**ARMY**

**BOARD OF INQUIRY REPORT  
INTO THE DEATH OF THE LATE**

**25035018 LANCE CORPORAL OF HORSE  
MATTHEW RICHARD HULL**

**THE BLUES AND ROYALS  
(ROYAL HORSE GUARDS AND 1<sup>ST</sup> DRAGOONS)  
HOUSEHOLD CAVALRY REGIMENT**

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## **List of Contents - US Board of Inquiry (Unclassified).**

- 1. Final Report, Investigation, Findings, and Recommendation**

**(Note: Presented in two separate documents)**

## GLOSSARY OF TERMS<sup>5</sup>

AA	Air Assault
AAC	Army Air Corps
ACC	Air Combat Command
ACO	Airspace Coordination Order
AD	Air Defence
AEW	Air Expeditionary Wing
AFB	Air Force Base
AFV	Armoured Fighting Vehicle
AFTO	Air Force Technical Officer
ALO	Air Liaison Officer
ANGLICO	Air Naval Gunfire Liaison Company
AOO	Area of Operations
AOR	Area of Responsibility
APC	Armoured Personnel Carrier
ARTY	Artillery
ASE	Air Support Element
ASO	Air Support Organisation
ASOC	Air Support Operations Centre
ASP	Ammunition Supply Point
ATC	Air Traffic Control
AVM	Air Vice Marshal
BCD	Battlefield Coordination Detachment
BALO	Bde Air Liaison Officer
BOI	Board of Inquiry
C2	Command and Control
CAOC	Combined Air Operations Centre
CAS	Close Air Support
CASEX	Close Air Support Exercise
CDE	Collateral Damage Estimate
CEC	Combined Effects Cell
CFACC	Coalition Forces Air Component Commander
CFL	Coordinated Firing Line
CFLCC	Coalition Forces Land Component Commander
CID	Combat Identification
CIPS	Combat Identification Panels
CJTF – KU	Coalition Joint Task Force - Kuwait
CLS	Combat Lifesaver
CONOPS	Concept of Operations
CRC	Control and Reporting Centre
CRE	Control and Reporting Element
CRM	Crew Resources Management
CSAR	Combat Search and Rescue
CVR(T)	Combat Vehicle Reconnaissance (Tracked)
DALO	Div Air Liaison Officer
DASC	Direct Air Support Centre
DCO	Director of Combat Operations
EASOS	Expeditionary Air Support Operations Squadron

<sup>5</sup> This is an amalgam of UK and US abbreviations found in the report.

EFS	Expeditionary Fighter Squadron
EOD	Explosive Ordnance Disposal
EQA	Engineer Qualification Area
ETAC	Enlisted Terminal Attack Controller
FAC	Forward Air Controller
FAC(A)	Airborne Forward Air Controller
FAC-A	Forward Air Controller – Airborne
FCIF	Flight Crew Information File
FCT	Firepower Control Team
FDC	Fire Direction Centre
FDO	Fire Direction Officer
FFIB	Friendly Fire Investigation Board
FIST	Fire Support Team
FLOT	Forward Line of Own Troops
FO	Forward Observer
FPC	Fire Planning Cell
FS	Fighter Squadron
GAU	Gun Aircraft Unit
GFAC	Ground Forward Air Controller
GOB	Ground Order of Battle
GOSP	Gas Oil Separation Plant
GPS	Global Position System
GTAC	Ground Terminal Attack Controller
HCR	Household Cavalry Regiment
HE	High Explosive
HUD	Head Up Display
IAW	In Accordance With
ID	Identity/Identify
IVO	In Vicinity Of
JAAT	Joint Air Attack Team
JDAM	Joint Direct Attack Munition
JHC	Joint Helicopter Command
JTAC	Joint Tactical Air Centre / Joint Terminal Attack Controller
JTF/SWA	Joint Task Force/Southwest Asia
KAF	Kuwait Air Force
KDOT	Kuwait Director of Training
KMD	Kuwait Medical Detachment
KMOD	Kuwait Ministry of Defence
L	Local Time
LOE	Limit of Exploitation
MAW	Marine Air Wing
MEDEVAC	Medical Evacuation
MEF	Marine Expeditionary Force
MOA	Military Operating Area
MPC	Mission Planning Cell
MRE	Meal Ready to Eat
MSL	Mean Sea Level
NCO	Non-Commissioned Officer
NCOIC	Non-Commissioned Officer in Charge
NIBS	Near Infra-Red Beacon

NIB(V)	Near Infra-Red Beacon (Vehicle)
NLT	No Later Than
NOTAM	Notice to Airmen
NVG	Night Vision Goggles
OAS	Offensive Air Support
OIC	Officer in Charge
OIF	Operation IRAQI FREEDOM
ONW	Operation NORTHERN WATCH
OP	Observation Post
ORBAT	Order of Battle
ORM	Operational Risk Management
OSW	Operation SOUTHERN WATCH
OTIS	Observation Thermal Imaging Sight
PA	Position Area
PC-K	Project CONNINGHAM-KEYES
PGM	Precision Guided Munition
PIC	Person in Command
PLN	Platoon
POC	Point Of Contact
QRL	Queen's Royal Lancers
RAF	Royal Air Force
RCO	Range Control Officer
RE	Royal Engineers
RHA	Royal Horse Artillery
ROE	Rules of Engagement
ROI	Round Out of Impact
RSO	Range Safety Officer
RWR	Radar Warning Receiver
SA	Situational Awareness
SAD	Senior Air Director
SALT	Supporting Arms Liaison Team
SDZ	Surface Danger Zone
SIB	Special Investigations Branch
SME	Subject Matter Expert
SO	Safety Officer
SOI	Signal Operating Instructions
SOP	Standing Operating Procedure
SOTAC	Special Operations Terminal Attack Controller
SPINS	Special Instructions
SSN	Social Security Number
STC	Strike Command
TACOM	Tactical Command
TACON	Tactical Control
TACP	Tactical Air Control Party
TAOC	Tactical Air Operations Centre
TASC	Training Aid Support Centre
TCTO	Time Compliance Technical Order
TIP	Thermal Identification Panel
TNG	Training
TOT	Time On Target

[REDACTED]

UK	United Kingdom
UNIKOM	United Nations Iraq-Kuwait Observation Mission
UOR	Urgent Operational Requirement
USAF	United States Air Force
USLOK	United States Liaison Office Kuwait
USMC	United States Marine Corps
UAV	Unmanned Aerial Vehicle
UXO	Unexploded Ordnance
WP	White Phosphorus
XO	Executive Officer
Z	ZULU or Greenwich Mean Time (GMT)

**A-10 FRATRICIDE INCIDENT**  
**BOARD OF INQUIRY DIARY OF EVENTS**

Ser	Date	Time	Event
1	24 Feb 04	1000hrs	Board convenes Room F12 JHC. Reading of evidence produced to date. Determination of further reports and documentary evidence required – list produced. Requests put out.
2		1700hrs	Board adjourned.
3	25 Feb 04	0900hrs	Board meets. Analysis of Terms of Reference, further “chasing” of docs/evidence required, Consideration and listing of SMEs and witnesses to be called.
4		1700hrs	Board adjourned.
5	26 Feb 04	0900hrs	Board meets. Analysis of Terms of Reference & US BOI Reports, further “chasing” of docs/evidence required, Consideration and listing of SMEs and witnesses to be called.
6		1700hrs	Board adjourned.
7	27 Feb 04	0900hrs	Chasing of documents required. Preparation for SME discussion at STC on Mon 1 Mar 04.
8		1630hrs	Board adjourned.
9	1 Mar 04	0800 – 1630hrs	Depart for STC. SME discussions with [REDACTED] (CAS) and [REDACTED] (OC FAC Training). Return to JHC.
10	2 Mar 04	0900hrs	Op GRANBY BOI and SIB Op TELIC reports arrive – reading in. Request for further documentation from US CENTAF passed to G1 LAND, thence to PS4.
11		1700hrs	Board adjourned.
12	3 Mar 04	0830hrs	Board meets. Reading of reports. Initial list of witnesses to be called next week. President’s back brief to, and guidance from [REDACTED]
13		1700hrs	Board adjourned.
14	4 Mar 04	0830hrs	Board meets. Continue tracking & call forward of witnesses for next week (Wed/Thu).
15		1700hrs	Board adjourned.
16	5 Mar 05	0830hrs	Board meets. Develop lines of questioning for witnesses. SO1 to Upavon – informal discussions with [REDACTED] (UK Member of US BOI).
17		1400hrs	Board adjourned.

18	8 Mar 04	0845hrs	Board meets. Review transcript of (unofficial copy of) US pilots tape. Arrange discussion with [REDACTED] for next week (UK Member of US BOI.).
19		1700hrs	Board adjourned.
20	9 Mar 04	0845hrs	Board meets. Preparation for tomorrow's witness interviews. Call forward of additional witnesses for next week. Chase up CENTAF evidence required (PS4/PJHQ J1).
		1700hrs	Board adjourned.
21	10 Mar 04	0830hrs	Board meets. Interviews with Witness # [REDACTED] (OC 615 TACP FAC – 3 Para), Witness #2 [REDACTED] (HCR – FAC) & Witness #3 [REDACTED] (HCR – Comd C/S 22).
22		1645hrs	Board adjourned.
23	11 Mar 04	0845hrs	Board meets. Call forward of additional witnesses. Interviews with Witness #4 [REDACTED] (HCR GW Tp Ldr) and Witness #5 [REDACTED] (ATDU Bovington)
24		1730hrs	Board adjourned.
25	12 Mar 04	0845hrs	Board meets. Development of consolidated ground/air event timelines. Transcript, correction and review of Witness #1 interview.
26		1245hrs	Board adjourned.
27	15 Mar 04	0930hrs	Board meets. Development of consolidated ground/air event timelines. Transcript, correction and review of Witness #2 interview. Development of lines of questioning for Witnesses #6 & #7 tomorrow.
28		1645hrs	Board adjourned.
29	16 Mar 04	0845hrs	Board meets. Interview Witness #6 ([REDACTED] – SO2 J3 Air, HQ 16 AA Bde). Witness #1 interview statement approved and dispatched for signature. Interview with [REDACTED] cancelled (no longer required). Transcript, review and correction of witness interviews.
30		1645hrs	Board adjourned.
31	17 Mar 04	0845hrs	Board meets. Review, correction and dispatch of Witness#2 & #3 statements for signature. Informal discussion/interview with [REDACTED] (UK Member of initial US BOI.) – Jaguar Pilot.
32		1645hrs	Board adjourned.



33	18 Mar 04	0845hrs	Board meets. Witness #4 interview review & correction. Event summary/narrative of events.
34		1645hrs	Board adjourned.
35	19 Mar 04	0845hrs	Event summary/narrative of events. Dispatch witness #4 statement for signature. Correction/transcript of Witness #5 statement. Interview with Witness #6 - ██████████ (SO3 J3 Air OS, HQ 16 Air Asslt Bde).
36		1400hrs	Board adjourned.
37	22 Mar 04	0900hrs	Board meets. Event summary/narrative of events. Interview transcript/correction.
38		1645hrs	Board adjourned.
39	23 Mar 04	0830hrs	Board Meets. Interviews with Witness #8 - ██████████ (SO1 J3 Air, HQ 1 (UK) Div) & Witness #9 - ██████████ (Ops Offr 3 Para Tac HQ). Report construction. Interview transcript/correction.
40		1645hrs	Board adjourned.
41	24 Mar 04	0845hrs	Board meets, Report construction. Transcript, correction and review of witness interviews. Chase/follow up on US docs/material requested.
42		1630hrs	Board adjourned.
43	25 Mar 04	0845hrs	Board meets. Report construction. Consideration of Interim Report. Development of lines of questioning for Witness #10 ██████████ (COS 16 Air Asslt Bde). Feedback from UK POLAD CENTCOM (positive) on US material requested. Preparation for aerial photo "shoot" of HCR Scimitar with TIPS & local manufacture marker panels.
44		1645hrs	Board adjourned.
45	26 Mar 04	0830hrs	Board meets. Interview with Witness #10 ██████████ (COS 16 Air Asslt Bde). Preparation for aerial (Lx) photo "shoot" of HCR Scimitar with marker panels – next Thurs. Transcript, correction and review of Witness #9 & #10 interviews.
46		1400hrs	Board adjourned.
47	29 Mar 04	0830hrs	Board meets. Interview with Witness #11 ██████████ (BC 7 RHA, HQ 3 Para Bn). Transcript, correction and review of Witness #10 interview.
48		1645hrs	Board adjourned.
49	30 Mar 04	0845hrs	Board meets. Transcript, correction and

			review of Witness #11 interview. Report construction (Diagnosis of Causes).
50		1645hrs	Board adjourned.
51	31 Mar 04	0845hrs	Board meets. Transcript, correction and review of witness interviews. Report construction (Diagnosis of Causes & Findings). Submission of 6 week progress Report to LAND/PS4.
52		1400hrs	Board adjourned.
53	1 Apr 04	0830hrs	Photo shoot day (Lx/HCR Scimitar). Transcript, correction and review of witness interviews. Report construction (Diagnosis of Causes & Findings).
54		1645hrs	Board adjourned.
55	2 Apr 04	0845hrs	Board meets. Transcript, correction and review of witness interviews. Report construction (Diagnosis of Causes & Findings). Review photos from yesterday.
56		1400hrs	Board adjourned.
57	5 Apr 04	0845hrs	Board meets. Interview with Witness #12 – [REDACTED] (OC D Sqn HCR). Transcript, correction and review of Witness #11 interview. UK POLAD CENTCOM secures requested US material.
58		1645hrs	Board adjourned.
59	6 Apr 04	0845hrs	Board meets. Arrange fax/courier for US material (via PJHQ J1). Report construction.
60		1645hrs	Board adjourned.
61	7 Apr 04	0845hrs	Board meets. Report construction. Interview Witness#13 – [REDACTED] (3 PARA BG FDC).
62		1630hrs	Board adjourned.
63	13 Apr 04	0845hrs	Board Meets. Report construction. Transcript, correction of Witness #13 interview. UK POLAD CENTCOM obtains guncam/comms CD (for courier).
64		1645hrs	Board adjourned.
65	14 Apr 04	0845hrs	Board meets. Report construction/Diagnosis of Causes.
66		1635hrs	Board adjourned.
67	15 Apr 04	0845hrs	Board meets. Report construction. Presentation development.
68		1650hrs	Board adjourned.
69	16 Apr 04	0845hrs	Board meets. Arrival of additional material from CENTCOM – reading in. (Guncam/comms CD en route)

70		1645hrs	Board adjourned.
71	19 Apr 04	0845hrs	Board meets. Report construction.
72		1645hrs	Board adjourned.
73	20 Apr 04	0830hrs	Board meets. Report construction. Presentation construction.
74		1630hrs	Board adjourned.
75	21 Apr 04	0830hrs	Board meets. Report/Presentation construction.
76		1630hrs	Board adjourned.
77	22 Apr 04	0830hrs	Board meets. Report/Presentation construction. Still awaiting Guncam/comms CD from USA.
78		1615hrs	Board adjourned.
79	23 Apr 04	0825hrs	Board meets. Guncam/comms CD from USA arrives.
80		1245hrs	Board adjourned.
81	26 Apr 04	0830hrs	Board meets. Review/transcription of HUD/Comms CD. Internal review of Draft Report.
82		1645hrs	Board adjourned.
83	27 Apr 04	0830hrs	Board meets. Review/transcription of HUD/Comms CD. Internal review (and redrafting) of Draft Report.
84		1645hrs	Board adjourned.
85	28 Apr 04	0835hrs	Board meets. Review/transcription of HUD/Comms CD. Internal review (and redrafting) of Draft Report.
86		1630hrs	Board adjourned.
87	29 Apr 04	0845hrs	Board meets. Review/transcription of HUD/Comms CD. Internal review (and redrafting of) of Draft Report. Discussion with [REDACTED] and (RAF BOI Advisors) re' Avn Psychologist review of HUD/Comms CD.
88		1615hrs	Board adjourned.
89	5 May 04	0830hrs	Board meets. Discussion/initial brief Aviation Psychologist - [REDACTED] (QinetiQ). Draft 4 Weekly Progress Report to Comd JHC.
90		1645hrs	Board adjourned.
91	6 May 04	0835hrs	Board meets. Correction/proof of HUD/Comms transcript.
92		1630hrs	Board adjourned.
93	7 May 04	0900hrs	Board meets. 4 Weekly Progress Report dispatched to LAND/PS4. Guidance received from Comd JHC on Draft Report.
94		1650hrs	Board adjourned.
95	10 May 04	0915hrs	Board meets. Redrafting of Report &

			Presentation. Chase up remaining witness statements/signatures.
96		1630hrs	Board adjourned.
97	11 May 04	0900hrs	Board meets. Report compilation. Presentation prep.
98		1630hrs	Board adjourned.
99	12 May 04	0850hrs	Board meets. Report compilation. Presentation prep.
100		1630hrs	Board adjourned.
101	13 May 04	0830hrs	Board meets. Report compilation. Presentation prep. Draft report by Principal Psychologist, Centre for Human Sciences Farnborough received.
102		1600hrs	Board adjourned.
103	17 May 04	1000hrs	Board meets. Final report by Principal Psychologist, Centre for Human Sciences Farnborough received – incorporation in Main Report. Prep for Presentation to Comd JHC.
104		1630hrs	Board adjourned.
105	18 May 04	0830hrs	Board meets. Prep for Presentation to Comd JHC.
106		1630hrs	Board adjourned.
107	19 May 04	0830hrs	Board meets. Verbal presentation of Findings & Recommendations to Convening Officer et al.
108		1400hrs	Board adjourned.
109	20 May 04	0845hrs	Board meets.
200		1400hrs	Board adjourned.
201	21 May 04	0830hrs	Board meets. Final Report Preparation.
		1645hrs	Board adjourned.
200	22 May 04	0830hrs	Board meets. Final Report Preparation.
201		1700hrs	Board final adjournment.

[REDACTED]

## PART 1

### SUMMARY OF INCIDENT

#### Background

1. Prior to and during Op TELIC, 16 Air Assault Brigade (16 Air Asslt Bde) sought to integrate the 3rd (US) Air Naval Gunfire Liaison Company (3rd ANGLICO) as part of its Order of Battle (ORBAT) in order to better coordinate OAS and in particular US aircraft. The 3rd ANGLICO (a US reserve unit) was divided into Supporting Arms Liaison Teams (SALT), and Firepower Control Teams (FCT) which could be allocated down to battlegroup/company level. The ANGLICOs utilised their own communication systems for tasking of aircraft and liaison. This is a system not too dissimilar from that in the employment of artillery and the use of Forward Observation Officers. It was understood to be an effective method of requesting and employing Offensive Air Support, in particular Close air Support (CAS), and was to complement the Air Support Organisation in use by the British Army. At the same time, the UK adopted Coalition CAS procedures that mirror those of the US, but differ slightly from Allied Tactical Publication 63 (AJP 3.3.2.1).<sup>1</sup>

2. At the time of the incident 16 Air Asslt Bde had been fighting for 48 hours and elements were operating in the Ad Dayr Region in Southern Iraq. The Brigade was advancing Northeast from the Ramaylah Oilfields to interdict the Shatt Al Arab movement corridor between Basrah and Al Qurnah. They had conducted a number of successful CAS engagements and several of these had been coordinated through 3rd ANGLICO.

3. The 190<sup>th</sup> Expeditionary Fighter Squadron (190 EFS) from the US Air Force was present in the Theatre and was flying A10 multi-role aircraft. The Coalition Air Operations Centre could task 190 EFS as required to support ground forces as requested.

#### The Sortie

4. On 28 March 2003 POPOFF 35 and 36, a flight of 2 United States Air Force A10 aircraft was tasked to conduct missions against Iraqi military vehicles, artillery and rocket launchers. As part of the routine airborne procedures they spoke to Callsign TWINACT, the Air Support Element collocated with HQ 1 (UK) Armoured Division. Initially tasked to work to TWINACT they were to attack 3 x Al Hussein missiles at grid QV 36872451 (Refer to Illustration 1). This was then changed and they were then tasked by TWINACT to operate for MANILA 34, a US Ground Forward Air Controller (FAC) with 3<sup>rd</sup> ANGLICO who was attached to D Squadron, Household Cavalry Regiment (HCR), 16 Air Asslt Bde.

5. At that time D Sqn HCR was carrying out its mission as Force Recce and was conducting reconnaissance along Route SPEAR which was also their Limit

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<sup>1</sup> Tactics, Techniques and Procedures for Close Air Support Operations.

of Exploitation. Their patrols were predominantly equipped with Combat Vehicle Reconnaissance (Tracked) (CVR(T) Scimitar and CVR(T) Spartan<sup>2</sup>. Situational Awareness was maintained by the use of an 'all informed' VHF net over which the vehicles would pass regular reports providing the necessary information.

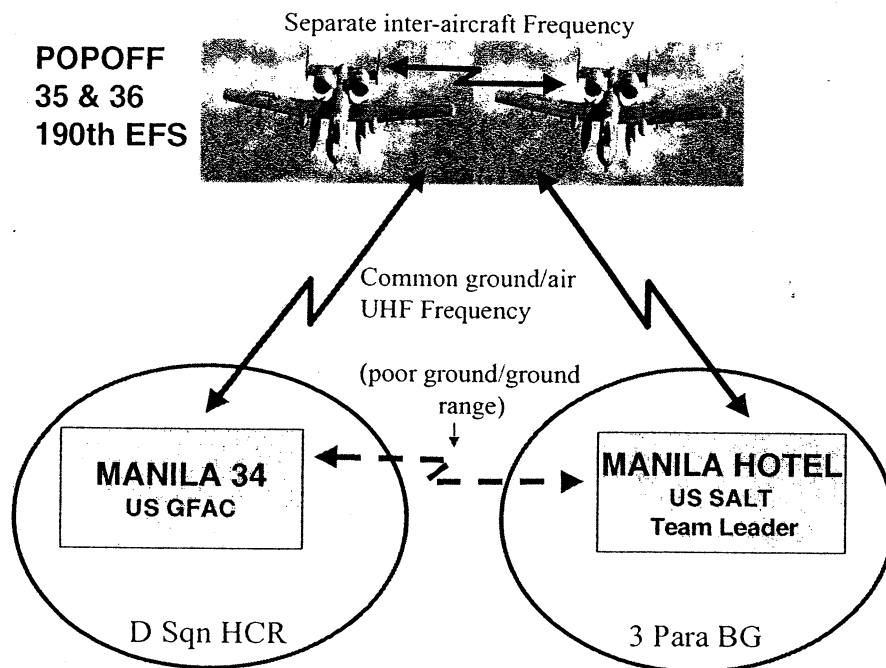


Diagram 1: Clarification of the main parties involved in the incident

### Engagement 1

6. MANILA 34 and POPOFF Section then carried out an extended talk-on (Task 1 on Illustration 1) lasting 49 minutes with the aim being to engage and destroy a number of Iraqi targets, the primary being Iraqi artillery approximately 1 kilometre south-east of the original target. At this stage the battlefield could have been described as porous, or less contiguous, with numerous small groupings of enemy vehicles operating in a 'shoot and scoot'<sup>3</sup> mode of operation.

### Engagement 2

7. To the south, MANILA HOTEL, the US GFAC with 3 Battalion, The Parachute Regiment Battlegroup (3 Para BG) and MANILA 34's controlling authority, had received reports of enemy artillery pieces (QV 40591824). He spoke to POPOFF 35 and requested the Section's support him and this was agreed. MANILA HOTEL then successfully coordinated the aircraft in conjunction with a fire mission from I Battery, 7 Royal Horse Artillery (RHA) and 3 enemy vehicles were destroyed (A10 Task 2 on Illustration 1).

<sup>2</sup> The 2 CVR(T) Spartans in the patrol were Royal Engineer vehicles attached for the purpose of route recce.

<sup>3</sup> Rapid establishment of a fire position. conduct of a short engagement followed immediately by repositioning.

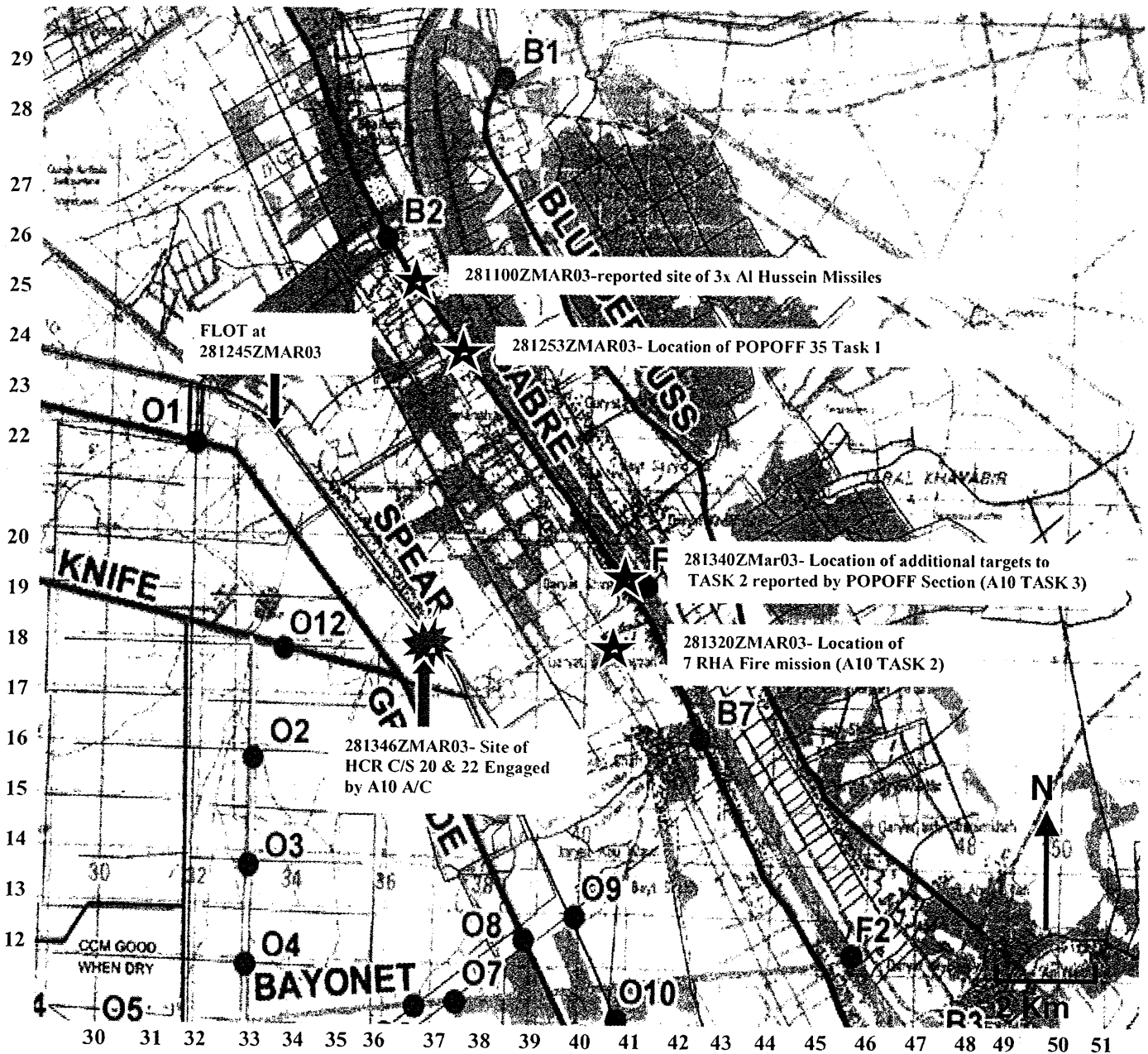


Illustration 1: Graphic depiction of events.

### Misidentification

8. MANILA HOTEL was then advised by POPOFF 35 that he had seen additional targets 800 metres north of Task 2 and that he wanted to engage these with a further fire mission (A10 Task 3 on Illustration 1). Whilst this was being coordinated, POPOFF 36 saw 4 vehicles 2 to 3 kilometres to the west moving in a northerly direction. He identified what he thought were "orange panels" and asked POPOFF 35 for confirmation. For the next 5 minutes the pilots sought to confirm the vehicles' identity. POPOFF 35 asked MANILA HOTEL whether there were any friendly vehicles in the area. The grid of this sighting was not given nor was it asked for. MANILA HOTEL responded that they were "well clear" of friendly forces. POPOFF 35 continued trying to confirm

[REDACTED]

the sighting and asked again if there were friendly forces in the area. They were again told they were well clear. It is at this stage that for numerous reasons, to be covered in detail in this report, that the pilots misidentified the panels as "orange rockets" on enemy vehicles.

### Engagement of UK Recce Patrol

9. POPOFF 36 was then cleared by POPOFF 35 to carry out an attack using his 30mm GAU canon. The aircraft attacked the 2 lead vehicles and hit both. The pilots reconfirmed the target and POPOFF prepared for a second attack. Following the first attack both Scimitars were badly damaged and LCoH Hull was not seen alive again. POPOFF 36 then attacked again and destroyed the vehicles causing additional casualties to the crews abandoning those vehicles. A Spartan, that had by this stage pulled forward to assist the injured crews, also received damage.

10. POPOFF 35 then saw red smoke, the signal that Coalition forces thought that there were the subject of an attack by their own forces. At almost exactly the same time POPOFF 35 heard MANILA 34 advising him that there were friendlies in the area and very shortly after that, that he should abort the mission. POPOFF 35 then stopped POPOFF 36 from prosecuting a third attack. Both aircraft then left the scene, as they were low on fuel.

### Casualties

11. As a result of the attacks, LCoH Hull was killed and 4 other crewmembers sustained varying injuries. Both CVR(T) Scimitars were destroyed. The remaining casualties were then moved by vehicle to be treated by the RMO before then being extracted by helicopter. Due to the situation on the ground and the dangerous state of the damaged vehicles, LCoH Hull's remains were recovered the following day.

The information used in formulating this summary has been drawn from the Flight Transcript [REDACTED], extracts taken from the SIB Sudden Death Report [REDACTED] the US FFIB Report [REDACTED]



[REDACTED]

**PART 5**

**FINDINGS OF THE BOARD**

<b><u>Circumstance</u></b>	<b><u>Supporting Documentation</u></b>
<p>1. The Board found that this incident had to be taken in context. It was agreed that despite severe operational restrictions, and although integrated in a very short timescale, the employment of CAS within 16 Air Asslt Bde had been highly effective. However when considering the events that led to this tragic loss of life the Board found that procedures were not followed in that, without having been authorised by MANILA HOTEL, POPOFF Section engaged the UK Recce Patrol believing it to be hostile.</p>	[REDACTED]
<b><u>Coalition CAS Procedures</u></b>	
<p>2. The Board found that at the time of the incident Coalition CAS Procedures were in force and that these had been briefed to the aircrew, and ASO. 16 Air Asslt Bde was content to employ these procedures and this included Type 3 CAS.</p>	[REDACTED]
<p>3. The Board did not find clear direction or policy as to which UK commanders could authorise the use of Type 3 CAS. Following numerous interviews, the Board found that in the absence of clear direction by UK ground commanders and staff, that MANILA HOTEL was authorised to conduct Type 3 CAS engagements and that no additional restrictions had been placed on him.</p>	[REDACTED]
<p>4. During the control prior to the incident the Board found that the degree of aircrew/GFAC awareness and understanding was insufficient in that:</p>	[REDACTED]
<p>a. The ground situation information given by MANILA HOTEL to POPOFF Section was scant, and that for Type 3 CAS, insufficient friendly positional information and control measures were passed or requested. The Board found that this increased the possibility of fratricide but that this did not break Coalition CAS procedures in force at the time.</p>	[REDACTED]
<p>b. Neither target description nor location of the final target was passed by POPOFF 35 to MANILA HOTEL. This target was actually the UK recce patrol.</p>	[REDACTED]

[REDACTED]

c. The aircrew did not receive clear authority from the GFAC for POPOFF 36 to engage. Although MANILA HOTEL had cleared the use of Type 3 CAS by POPOFF Section (*"Advise me and I'll clear you as appropriate"*) POPOFF 35 had made no reference of the newly acquired patrol to MANILA HOTEL before himself authorising POPOFF 36 to engage the target. At no stage was MANILA HOTEL advised of the new target nor did he clear POPOFF Section *"as appropriate"*. POPOFF Section was therefore not clear to engage.

### Human Factors

5. When studying the evidence available, the US FFIB and the QinetiQ Principal Psychologist both drew the conclusion that at the time of the incident POPOFF Section, and particularly POPOFF 35, was suffering from a significantly high task load. The Board found that this was likely to have hindered timely and accurate decision making.

6. When comparing the US FFIB report with the QinetiQ report the Board found it probable that the pilots' understanding of the threat, combined with a lack of situational awareness, led to them incorrectly identifying the UK patrol as hostile.

7. The QinetiQ report further highlighted that prior to the incident POPOFF 36 showed a single-minded pursuit of the UK vehicles and there is no indication that he was sensitive to POPOFF 35's workload or the difficulties posed by addressing two possible targets at the same time. In interview POPOFF 35 conceded that he respected POPOFF 36 'immensely' and it is possible that this respect and difference in rank (35 Major/36 Lt Col) influenced POPOFF 35's judgement. The Board agreed that POPOFF 35's actions and judgement might have been unduly influenced by POPOFF 36's continued interest in the UK vehicles and by his wingman's status.

### FFIE

8. The Board found that at the time of the incident there was a clear policy on the fitting of FFIE and that there were comprehensive instructions on how it was to be fitted. This direction was supported by the deployment of a Fitting Advisory Team.

9. The trial, production and fitting of FFIE was found to have taken place over a 10 week period as necessitated by the nature of the operation.

10. It was found that at the time of the incident the UK Recce

[REDACTED]

Patrol was fitted with and was displaying FFIE in accordance with the then current instructions.

[REDACTED]

11. The Board found that in an attempt to increase the CVR(T) Scimitar's visibility from the air, the crews of the HCR had fitted additional day-glow panels to the tops of their vehicle turrets. This additional measure was noted by the Fitting Advisory Team and thought to be an enhancement. The Board further found, that whilst all of the individuals concerned were acting in the very best of interests, that this 'enhancement' contributed to the misidentification of the "orange panels" as "orange rockets".

[REDACTED]

[REDACTED]

12. The Board found that the pilots concerned recollected having had very little or no UK/Coalition AFV training and were unlikely to have been familiar with the non-standard TIPs fitting for CVR(T) Scimitar. Their identification of the vehicles or FFIE was made harder in that apart from x12 binoculars they did not have any other means of visually identifying the vehicles or FFIE.

[REDACTED]

[REDACTED]

[REDACTED]

13. The Board considered whether or not FFIE was adequate to sufficiently minimise the risk of fratricide. In this incident POPOFF 36 initially identified "orange panels". The Board found it conceivable that the day-glow panels were seen first and then subsequently identified as orange rockets. However the larger TIPs panels displayed by the accompanying Spartans in the patrol do not seem to have drawn the pilots' attention sufficiently. The Board agreed that FFIE generally minimized the risk of fratricide but that in this case, in the visual spectrum, it was not adequate. The Board found that whilst technical solutions are being sought for fratricide avoidance, more work must be done in R&D of visual identification markings.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

14. During the incident 1 Spartan and 1 Scimitar from the patrol threw red smoke in order to stop the attack. The sighting of red smoke by POPOFF 35 contributed to the Section ceasing its attack. The Board found that in this instance the red smoke served as a clear indication that fratricide had occurred and that the attack must be ceased.

[REDACTED]

[REDACTED]

**Communications**

15. The Board's findings on the standard of communication closely matched that of the US FFIB: there were a number of 'stepped-on' or incomplete transmissions, non-standard terminology was used, important information was omitted and net discipline was poor.

[REDACTED]

[REDACTED]

16. The Board found that the use of UHF radios for

[REDACTED]

[REDACTED]

controlling CAS is a normal procedure and that in this instance MANILA 34 was also operating on the same frequency. The Board found that whilst the UK/US Liaison organisation had the equipment to listen to the control, the short range nature of UHF communications meant that whilst they work well between aircraft or aircraft/ground, they are not suitable for ground/ground communication and range is severely limited. An example of this is that calls from MANILA HOTEL had to be relayed by POPOFF 35 to MANILA 34. The Board found that in this incident even had the Bde Air Cell heard all of the communications there is little likelihood that it could have prevented it from occurring since they would have had no more information than MANILA HOTEL.

[REDACTED]

17. Though not a contributory factor in this incident the Board noted that the UHF radios used by the UK have now fallen behind the standard of those used by the US. The UK uses frequency agile radios (HAVEQUICK II) whereas the US has now moved forward and is using secure UHF frequency agile radios. At the time of the incident there was also a physical lack of UHF radios meaning that the ability of the BALO or DALO to monitor more than 1 frequency was limited. This led to increased reliance on individuals moving between tents to ensure that everyone knew what was going on.

[REDACTED]

**UK/US Liaison Procedures**

18. The Board found that a comprehensive UK/US liaison organisation was in place at the time of the incident and that it was functioning in accordance with procedures. However a number of issues are highlighted none of which are thought to have contributed to the incident:

[REDACTED]

a. There had been limited time to fully integrate and train with the 3rd ANGLICO and that 16 Air Asslt Bde and its units had had very little, if any, experience of operating with a US ANGLICO prior to this time.

[REDACTED]

b. UK FACs were generally well prepared but some UK liaison personnel had been brought into the Air Support Organisation with very limited training prior to deployment. That they were integrated at very short notice and in a testing operational environment.

[REDACTED]

c. Ground/Air liaison was sufficiently robust that ground formations were able to call for air support when they required it and could assume that the ground situation was known in sufficient clarity from divisional level down to FAC level. Prior to the incident there is no evidence that UK/US liaison procedures failed and that

[REDACTED]

[REDACTED]

[REDACTED]

MANILA 34 or MANILA HOTEL were unaware of the ground situation.

d. Communications equipment issued to the UK Air Support Organisation was limited. This is unlikely to have altered the events immediately prior to the incident but did impose a restriction on the overall effectiveness of the liaison organisation.

e. In general ground commanders had only limited awareness of Close Air Support procedures and the implications of the different types. This resulted in reduced direction and guidance as to who within the UK chain of command could authorise Type 3 CAS.

### Injuries

19. The incident resulted in the death of LCoH Hull and injuries to 4 other members of the patrol:

a. [REDACTED] sustained had multiple shrapnel wounds to both legs and superficial burns to his face, hands and knees.

b. [REDACTED] sustained 2 wounds to his right forearm.

c. [REDACTED] sustained a penetrating head injury, shrapnel wounds to his left thigh and abdomen. His left leg was fractured. He had a wound to his right hip and burns to his left hand.

d. [REDACTED] sustained bullet wounds to his right buttock.

### Damage to Vehicles

20. Two CVR(T) Scimitars, vehicle registration numbers 08 FD 15 and 08 FD 25 were damaged beyond repair. One CVR(T) Spartan received damage to its rear quarter but was driven away from the incident.

[REDACTED]

## PART 6

### RECOMMENDATIONS OF THE BOARD

1. **CAS Procedures.** During Operation TELIC, Coalition CAS procedures were employed that differed somewhat from the UK/NATO standard. In general, UK commanders were not fully aware of the implications of the differing types of CAS nor were additional procedures adopted that could have further mitigated risk. During the incident itself there are examples of non-standard procedures and a corresponding lack of situational awareness.

**Recommendation.** Irrespective of the type of Coalition CAS procedures being employed, the passage of positional data relating to both the target and the location of the nearest Friendly Forces be mandatory.

**Recommendation.** When working to Coalition CAS procedures, UK air staffs should be aware of any variations to UK/NATO CAS procedures in order to ensure that no degradation of UK CAS safety standards occurs. UK FAC STANEVAL should be entrusted with monitoring this.

**Recommendation.** Prior to operations, UK ground commanders must be given clear direction and guidance as to whether there are alterations to normal CAS procedures. Furthermore they must fully understand their role in authorising and monitoring the conduct of CAS missions as required.

2. **Vehicle Recognition.** A major contributory factor in the incident was the misidentification of the UK Recce Patrol as hostile by POPOFF Section. Despite initially seeing what they described as "orange panels", after further inspection the aircrew interpreted the markings as "orange rockets".

**Recommendation.** Only official issue FFIE should be utilised and this should be fitted and displayed in the authorised manner. Locally manufactured enhancements and additional FFIE should not be permitted.

**Recommendation.** Cross-Coalition vehicle and equipment recognition training, including air-to-ground as well as ground-to-ground, be conducted prior to the commencement of operations. This should include a practical phase, in addition to the preparation and cross-Coalition distribution of vehicle and equipment recognition packs.

**Recommendation.** Whilst noting the requirement for OPSEC, FFIE should be procured, and fitted to appropriate UK vehicles and equipment in order that it can be utilised during training and on exercises – especially with any potential future Coalition partners.

3. **Situational Awareness.** Good situational awareness is a key factor in the avoidance of fratricide and, in this incident, became degraded between aircrew and FAC. The Board was briefed on a number of "high-tech" initiatives

[REDACTED]

and current research designed to improve situational awareness at all levels – especially in the area of autonomous positional data reporting. However, this work will take several years, and a great deal of investment, before it bears fruit.

**Recommendation.** Until future equipments enter service (and become widely available) the Board recommends that for Coalition CAS, taut, positive or procedural control remains the primary means for the avoidance of air-to-ground fratricide. In particular complete, standardised communication and co-ordination between Coalition aircrews and FACs is imperative.

4. **Augmentees.** A number of UK augmentee air staffs were brought in to support the Air Support Organisation at all levels. Many arrived with little experience of their new role and had not served in these positions before.

**Recommendation.** The manning of the Air Support Organisation should be reviewed with a view to either increasing personnel or establishing an Essential Augmentee Nucleus (EAN). The EAN would then provide a central pool of trained and experienced personnel for both operations and training.

5. **UK/US Liaison and Communications.** Training as you mean to fight plays an important role in achieving success on the battlefield. The arrival of the 3<sup>rd</sup> ANGLICO, meant there was only limited time to train and integrate procedures with them. Consequently, full UK/US integration was difficult to achieve. Despite this, the system was made to work, and in general it worked well.

**Recommendation.** That efforts be made to identify future training opportunities with potential Coalition members air support staffs.

**Recommendation.** That ground/air communications be the subject of a review. The aim being to improve future interoperability/compatibility with Coalition partners.

[REDACTED]

**PART 7**

**OBSERVATIONS OF THE BOARD**

1. **General Observation.** Throughout its investigation the Board was aware of the need to balance its recommendations against the general success of CAS during Op TELIC and its employment in the future. Numerous witnesses whilst highlighting areas of concern were quick to add that they were generally satisfied with the support they received and the procedures in place at the time. This was often caveated with the remark "with the time available". Time is a precious commodity when preparing for operations and there is little doubt that CAS was employed effectively during Op TELIC and that in general terms liaison procedures were made to work. It is however incumbent on the Board to highlight issues that led to this incident. A number of areas have been highlighted and the Board is aware that many of these are being addressed through ongoing projects such as Conningham Keyes<sup>1</sup>. This report should therefore add impetus to the work currently being conducted.
  
2. **OP GRANBY and the 9 Line Brief.** In investigating the incident the board studied a strikingly similar case that occurred during OP GRANBY in 1991. Here the Board found that a lack of situational awareness was again a major factor. At the time the UK Board commented that it found that the 9 Line Brief should have been a sufficient medium to ensure the safe conduct of operations. In light of the incident on 28 March 2003 and when considering that none of the lines were mandatory, this is clearly not the case. The Coalition 9 Line brief allowed a significant degree of user interpretation as to what information must be passed and what may be omitted. When the situation is clear this would seem an expedient manner of prosecuting a CAS mission. The events immediately prior to this incident led those involved to believe that they had a sufficient understanding of what was going on. Regrettably this proved to be incorrect. Due to the very real danger of CAS to our own forces, the requirement to check and confirm targets as applied in the NATO 10 Line Brief should remain a mandatory practise and any attempts to erode this must be resisted. In further corroboration of this the Board notes the Secretary of State's letter (Exhibit 13) to the relatives following the OP GRANBY fratricide in which he writes: "*The Board has recommended that procedures should be tightened up to ensure that the coordinates for a target are always given to and acknowledged by the aircraft pilot.*"
  
3. **UK Board/US FFIB.** The nature of this Board's inquiry differed in many ways from that of the US FFIB. The US FFIB was convened directly following the incident and investigated the material facts and events that led to

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<sup>1</sup> Project Conningham Keyes (PC-K) is the initiative to develop better Air-Land-Maritime co-operation and co-ordination. The overall aim of PC-K is 'to develop a Maritime/Land/Air regime for the Front Line Commands' (FLCs) which will exploit existing and future opportunities, in order to improve maritime/land/air interoperability either on a triservice or bi-lateral basis according to need'. In setting up PC-K, it was accepted that inter-Service co-operation and understanding, particularly in air/land is not as close as it was at the end of the Cold War. Central to the success of PC-K will be the examination of the (FLC) training programmes.



[REDACTED]

the incident. The US FFIB focused on the Pilot/GFAC involvement whereas this Board has had more time and to consider other areas that did not necessarily lead to the incident, but that shaped the environment in which it could occur. The UK Board found the US FFIB's work to be extremely detailed and particularly helpful in analysing the events that resulted in the death of LCoH Hull. As previously stated, this Board has accepted many of the findings of the US FFIB and where differences of opinion were found they have been addressed. The Board notes the direction given to the US FFIB's by General [REDACTED] and is content that this will be reconsidered.

4. **UK/US Integration.** The Board makes the observation that in principle a capable and well structured UK/US liaison organisation existed, and that its purpose was to maximise the effectiveness of OAS. The results were indeed impressive but they were not without issue. During the course of its interviews the Board was aware of a number of concerns expressed by individuals as to the perceived differences in cultural approach and the very real differences in procedures, training and mission execution. Most of those interviewed expressed views on the US approach to CAS and in particular the reduced degree of control and confirmation required before attacking a target. Concern was also expressed that the ANGLICO system was seen as an eleventh hour panacea and that too much reliance was placed on a US organisation and too little on our own. This would therefore bring into question the robustness of the ASO and whether at that time it could have been capable of managing this level of air support. Since then much work has been done to effect change in the ASO and PC-K is an ongoing illustration of this. The decision to integrate the ANGLICO was no doubt correct but it is regrettable that for reasons of time this decision was taken only shortly before hostilities commenced. The Board noted that many of the cultural issues and concerns could have been reduced through longer-term liaison, better integration of procedures and more training. Regrettably this was not possible then, but must be borne in mind for the future.

5. **Variations and Irregularities in Evidence.** The Board did not observe any significant degree of variation or irregularity in evidence but it is obliged to cover 2 points:

a. The Battery Commander supporting 3 PARA Battlegroup was of the opinion that at the time of the incident MANILA HOTEL was not under command of 3 PARA BG. From other witness statements it is clear that MANILA HOTEL was located at 3 PARA Main next to the FPC and that at the time he was TACON to the BG. This variation can be attributed to the passage of time and also that the same night MANILA HOTEL, post incident, was placed under command of D Sqn, HCR.

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<sup>2</sup> Quote: "The findings of the Board [US FFIB] that cognitive and physical task overload, ineffective communication and failure to recognise identification panels contributed to the terrible loss of life, injury and damage are difficult to square with a finding that no procedures were violated. In view of the above, the Commander, Coalition Forces Air Component Command should reconsider the actions of subordinate personnel for possible administrative or disciplinary action as he may deem appropriate."

[REDACTED]

b. SO2 J3 Air, 16 Air Asslt Bde, when checking his interview transcript found a factual error that he had made. He stated that ground commanders had not received a briefing about the different types of CAS to be used. He later contacted the Board to inform it that this was incorrect and that commanders had been briefed on the differing types, and procedures to be employed. This change was considered by the Board when formulating its report.

6. **Passive Glint Tape.** In examining US/UK FFIE the Board became aware that US ground personnel wore passive glint tape. This was in addition to helmet mounted beacons and infantry dismounted TIPS issued to UK personnel. The purpose of this small square of material is to reflect IR energy and increases the individual's visibility at night. This is not currently worn by UK personnel and should be considered to further reduce the possibility of fratricide in this area.

7. **UAV Coordinated CAS.** Following the sighting of Al Hussein missiles by Phoenix a request for air support was submitted by 16 Air Asslt Bde. The Board was aware that as UAV technology continues to develop that it is increasingly likely that such equipment may be used to control CAS. The Board observed that there is currently no official procedure for controlling this sort of engagement, and noted that direction and policy will be required in order to fulfil this role.

..... [REDACTED] President

..... [REDACTED] Member

..... [REDACTED] Member

27 May 2004

[REDACTED]

[REDACTED]

PART 8

REMARKS OF COMMANDER JOINT HELICOPTER COMMAND

Given that the Board of Inquiry had no authority to call US Nationals to attend, I consider it has reached as clear an outcome as possible and produced a clear and logical Report. That said, the US authorities co-operated fully in the provision of all additional material and documentation requested by the Board. I endorse the findings and recommendations of the Board and accept that the cause of this sad incident was that the US A10s, without having been authorised, engaged the UK recce patrol believing it to be hostile.

While the Coalition CAS procedures in force at the time were thought to have been adequate, the lack of passage of positional data and target co-ordinates between the US pilots and their US ground control elements is worrying. This needs to be rectified in any CAS procedures that the UK may adopt on future coalition operations. I note this was a key recommendation of the UK Board that investigated a similar incident on Op GRANBY.

In this case, it is not clear how UK FFIE (especially TIPS) performed. All that can be said is that the pilots initially identified "orange panels" and then later construed these as "orange rockets". Their subsequent misidentification of the UK recce patrol as hostile is difficult to reconcile, but appears to have taken place as a result of a number of contributory factors which are detailed in the Report. There can be no substitute for the clear, *positive*, ID of targets, linked to the unambiguous confirmation of precise location which is agreed by both pilot and ground control element.

Within the time available, the degree of integration of UK and US air staffs achieved was commendable. However, given we should aim to "train as we mean to operate", we should seek to maximise training opportunities with potential coalition partners prior to embarking on operations. In a similar vein, more work needs to be done on the identification, training and structures of UK air support staffs and I note the work being undertaken by Project Conningham-Keyes on air/land integration.

In conclusion, all those involved in this tragic incident appear to have been working to the very best of their abilities, under intense operational pressure, in order to achieve their objectives.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]