

## PRESENTATION TO INQUIRY INTO OP BURNHAM AND RELATED MATTERS

4 APRIL 2019

Good afternoon Sir Terence and Sir Geoffrey, counsel assisting, core participants and attendees.

My name is Colonel Grant Motley. I am a Regular Force Army Officer with 30 years' service. I have served in Afghanistan on two occasions in 2006/07 and 2011/12. I was not involved in Operation Burnham and I have not previously served with the NZ Special Air Service either in New Zealand or on operations overseas. However, I have worked alongside the SAS and the Special Operations Component Command in the past and in my current appointment as the Deputy Chief of Defence Intelligence in HQ NZDF.

**BY WAY OF INTRODUCTION**, in the Inquiry Minute No 8, dated 11 February 2019, a presentation was requested of the NZDF on the location and events that occurred on 21/22 August 2010 in the Tirgiran Valley, Afghanistan. This operation was planned to arrest an insurgent known as Objective Burnham. This operation has now become known as 'Operation Burnham'.

This presentation will explain the technology that the NZDF used to establish locations, describe the location and relevant structures where the operation occurred, and provide a chronology of the activities that took place in Tirgiran.

The presentation will not provide or refer to information or material that is available only from classified sources. Unclassified information alone will be able to satisfactorily show and explain the location of Operation Burnham. Nevertheless, the NZDF invites the Inquiry Members to refer to classified material provided to you previously, which provides greater detail.

This presentation will use terminology and refer to systems used in military operations. Navigation precision is important in military operations such as this so I will spend a few minutes providing an explanation of those systems and terminology. I will explain the use of the Global Positioning System, GPS, to pinpoint a location and latitude and longitude and the Military Grid Reference System to describe and identify that location. I will discuss the time that was used in the operation, and how metadata and the use of Intelligence, Surveillance, and Reconnaissance Remotely Piloted Aircraft, abbreviated to ISR RPA, confirms the precise location of Operation Burnham.

**The Global Positioning System** (or GPS) is the primary navigation tool used to confirm locations and other geographic references in the air and on the ground. GPS is used by supporting aircraft to navigate and determine location relative to the aircraft.

**Most GPS units display their position on the Earth's surface in latitude and longitude.** Latitude and longitude are abstract lines referenced to a defined mathematical model of the Earth. It is common for geospatial data to be referenced to the World Geodetic System 1984 (or WGS 84). This system is defined and maintained by the United States National Geospatial-Intelligence Agency. GPS uses the WGS 84 as its reference co-ordinate system.

**The Universal Transverse Mercator** projection, abbreviated to UTM, transforms the three-dimensional Earth into a two-dimensional system that allows cartographers and map users to measure distances, angles and areas accurately. The UTM system divides the Earth into sixty zones, each being a six-degree band of longitude. These longitudinal zones can then be broken into designated blocks moving north and south of the Equator.

**NZDF personnel also use the Military Grid Reference System or MGRS to describe location.** This is the geo-coordinate standard used by militaries for locating points on the Earth. MGRS is derived from the UTM projection.

Using the UTM zones, MGRS identifies blocks with a designated letter moving north and south of the Equator. These blocks are then divided into 100 kilometre by 100 kilometre square blocks that are given letter designations. Within these blocks, the MGRS breaks down further into square grids at set distances, measured in metres. When operating in a specific MGRS block, coordinates of positions can be translated into simple alpha numeric values for the specific localised grid.

**In addition to having a common understanding of the location, time is important** in military operations. These operations have a large number of participating elements, some of which may be local to events and others not. The primary time standard for military use is the Co-ordinated Universal Time (abbreviated to UTC) time standard. Time zones are based on this standard. In this presentation, local Afghanistan time is used. Local time in Afghanistan is four and a half hours ahead of UTC.

**Metadata is information that can be recorded by systems,** such as Geographic Information Systems and is either held for reference or can be displayed in real time on the system recording the data. It is common for digital cameras to capture metadata about an image which is usually the time and

date an image was taken, the serial number of the camera, and the geo-position of the camera, if the camera is geo-enabled.

Cameras or video recording devices on military aircraft are able to capture and display additional metadata which may include aircraft location, the location of the imaged object, the date and time, the bearing and distance of the image from the device, and technical operating data.

Metadata was taken from sources not able to be used during this presentation, to confirm times and locations of structures and events related to Operation Burnham.

The NZDF has provided to the Inquiry classified video taken from cameras on board an **ISR RPA**, to confirm the precise location of Operation Burnham. The video from the ISR RPA provided useful metadata including position, direction, altitude, time, bearing and distance, referenced to accurate on-board GPS. This was used to confirm actual locations and timing that occurred during Operation Burnham.

#### **I WILL NOW ADDRESS THE QUESTIONS OF LOCATION AND NAMING DIRECTED BY THE INQUIRY.**

The Inquiry has requested that this presentation address five places that have been named in public or written submissions to the Inquiry. The Inquiry requested the NZDF provide a visual depiction of where each named location is on a map; the coordinates or grid reference for each named location; the location of any relevant structures; and a chronology of activity at that location.

To begin, I will first show a map of the NZDF presence in Afghanistan, before turning to the specific locations given by the Inquiry.

The New Zealand Provincial Reconstruction Team (the PRT), and the New Zealand Special Air Service (the SAS) worked with the police and security forces of Afghanistan, the international community, and our partners in the International Security Assistance Force (abbreviated to ISAF) to carry out United Nations Security Council objectives to restore peace and security to Afghanistan.

- The SAS, together with the Crisis Response Unit (CRU), their Afghanistan partner force, were based in Kabul, the capital of Afghanistan.
- The PRT were based in Bamian, in Bamyān province.

- The eastern side of Bamyan province borders Baghlan province where the Tirgiran Valley is located.

**THE FIRST PLACE THE INQUIRY REQUESTED WE DEPICT IS TIRGIRAN.** The location shown as MGRS reference 42S VD 23061 91545 on the Google Earth image supplied by the Inquiry is the centre of the area where Operation Burnham took place. Its latitude and longitude is 35.16389 degrees north, and 68.15517 degrees east. This is the location the NZDF know as Tirgiran.

Excluding the routes and flight paths of supporting aircraft and any refuelling locations en-route, all of the events of Operation Burnham conducted by the SAS occurred within 600 metres of this position.

The ground forces used a MGRS position to precisely locate the operation, and used GPS to accurately navigate to the location while airborne and on the ground. The NZDF has complete certainty as to the exact place where Operation Burnham occurred. During the information-gathering, planning and execution of the operation, NZDF and partner forces referred to the location primarily by its MGRS grid designation, rather than a place name.

The NZDF is careful not to rely on local descriptors or names to pinpoint locations. This is because there is significant variation in the names used by the Afghanistan Government and by the various tribes and ethnic groups. Additionally, adversaries often provide misleading information regarding local names, locations, or events said to have occurred in some place. False or misleading location data can be used to hide insurgent activity or intentions from the police and security forces, or obstruct security operations.

The Operation Burnham MGRS position refers to a certain point on the ground within an inhabited area. This area is referred to as Tirgiran (1) by at least four different official maps. Some of the maps describe the cluster of housing as 'Tirgiran' while other maps describe the same group of housing as Tirgiran (1) to the south and Tirgiran (2) some two kilometres to the north. On that basis, NZDF understood the area in which Operation Burnham was conducted to be called Tirgiran.

**Tirgiran village is located** along the banks of the Tirgiran River, in the Tirgiran Valley. Tirgiran is a region in southern Tala-wa Barfak district, part of Baghlan Province in northern Afghanistan. The Tirgiran River runs from south to north, with small settlements near the river, and the flatter land is

used for farming. In the Tirgiran Valley, buildings are scattered along the flat land either side of the river. There are no clearly delineated boundaries to indicate where a housing area or community 'starts' and 'stops'.

The Tirgiran Valley area is mountainous and difficult to access. There are no roads or vehicle-capable access tracks. People travel along formed pathways or tracks, mostly by walking or by using animals as transport.

The remoteness of, and difficult access to, this area has limited the ability of Afghan government or provincial officials to visit this area.

The quickest and most secure way for police or military security personnel to approach and access this area is by using air transport. The only way coalition forces could accurately navigate in this area was by using MGRS or geographic coordinates and GPS navigation equipment, which is recorded on many electronic systems. This is how the NZDF knows where Operation Burnham took place.

**I WILL NOW HIGHLIGHT THE STRUCTURES RELEVANT TO EVENTS IN TIRGIRAN.** The slide images appear on a satellite photograph supplied by the Inquiry. NZDF markings give a visual depiction of where each named location is.

The first of the relevant structures in Tirgiran, and its geolocation is: **the Helicopter Landing Zone, abbreviated to HLZ, for the landing of the assault teams.**

The HLZ for the assault teams was centred on the pinpoint located at MGRS 42S VD 2274 9169. This HLZ location was a relatively flat field, clear of obstacles and had sufficient space for a helicopter to land and for personnel to disembark or embark with a degree of safety and security.

**A building that we describe as the 'cache house' is** where insurgent activity was observed by aircraft following the arrival of the NZDF SAS and Afghan CRU personnel in Tirgiran. This is located at MGRS 42S VD 2277 9156.

The cache house was composed of two nearly-connected rectangular-shaped buildings on the western edge of Tirgiran, approximately 100 metres south from the HLZ and 300 metres west of buildings Alpha 1 and Alpha 2.

**The intended HLZ for the transport helicopter carrying the SAS's Ground Force Commander (GFC) and Joint Tactical Air Controller (the JTAC), and other specialist team members** was found to be unsuitable on close approach, because of the uneven and rocky terrain. A site approximately 300 metres further south of the planned HLZ, in the vicinity of MGRS 42S VD 2280 9106, and to the west of Alpha 3, was ultimately used.

The HLZ area was uninhabited, had no structures and minimal vegetation.

**Alpha 1 and Alpha 2** were located at MGRS 42S VD 23031 91473 and MGRS 42S VD 23063 91484. Alpha 1 was the residence of Objective Burnham. An Afghan arrest warrant had been issued for Objective Burnham. Alpha 2 was about 20 metres to the east of Alpha 1. It was not known beforehand what the function of this building was.

**The location where captured weapons and ammunition were disposed of** by the Explosive Ordnance Disposal team at the end of the operation was approximately 25 metres to the west of A1.

**The HLZ for the casualty evacuation, abbreviated to CASEVAC,** was used to evacuate the injured SAS member and was in the close vicinity of MGRS 42S VD 2304 9139.

The CASEVAC HLZ was to the south of Alpha 1 in an area of open clear land; an area large enough for a helicopter to land to enable the wounded person to be uplifted and evacuated for medical care.

**Alpha 3 was the residence of Objective Nova** and was located approximately 300 metres to the south of Alpha 1 at MGRS 42S VD 23090 91154. An Afghan arrest warrant had been issued for Objective Nova.

Alpha 3 is above the river bank and consisted of a compound with a rectangular building and smaller wings at each end.

**HAVING IDENTIFIED THE LOCATIONS OF EVENTS I WILL NOW PRESENT CHRONOLOGICALLY THE ACTIVITY THAT OCCURRED IN TIRGIRAN.**

On the night of 21/22 August 2010, the ground forces travelled to the Tirgiran Valley in transport helicopters. The first Chinook landed at the HLZ at 0030, or at half past midnight. The CRU and SAS ground forces disembarked and moved south-east towards A1.

The first Chinook landed and ground forces disembarked to make their way towards A1 and A2. At the same time two Apache helicopters, tasked with supporting the ground forces, observed a number of insurgents, military-aged males armed with weapons including rocket propelled grenades, exiting the 'cache house' and moving southward to the ridgeline above the village.

Between approximately 0035 and 0048, the ground forces moved towards building A1. They passed a tree line behind which a number of armed insurgents positively identified by the Apache helicopter crew were located. The SAS member closest to the tree line appeared to have sighted at least one of these individuals, but was not in a position through his night vision goggles to positively identify the person as an insurgent.

At approximately 0045 hours, a command helicopter landed the GFC, the JTAC, and the observation team that included a sniper pair, on the ridgeline to the west of building A3.

A few minutes later, at approximately 0048 hours, the second Chinook landed at the HLZ.

The second Chinook had the security teams which were to guard and secure the HLZ and the planned exit routes for the ground forces to use at the completion of the operation.

The GFC, having been informed by the Apache helicopter crew of the insurgents' activities, assessed that the insurgents were moving above the village to a position that would enable them to fire on the ground force from the high ground and would present a threat to the helicopters and to coalition forces already on the ground.

The GFC gave clearance to the Apache helicopter crews to engage the insurgents when they were certain that the Rules of Engagement were met, and that there was not likely to be civilian casualties or collateral damage.

At approximately 0054 hours, once the insurgents were positively identified as direct participants in hostilities – and once checks were made to ensure that there were no civilians visible or friendly forces nearby – shots were fired by aircraft at the insurgents making their way up to the ridgeline. A number of insurgents were assessed to have been killed in this engagement.

A single insurgent was seen breaking away from the group that had been moving towards the ridgeline, and appeared to be returning back to the building from which the armed insurgents had been seen leaving. One of the Apaches fired on this insurgent. During this engagement, several rounds fell short due to a gun sight malfunction and this resulted in the cache house being inadvertently hit by gunfire.

At approximately 0052 hours, the ground forces reached building A1, the residence of the first insurgent commander (Objective Burnham).

The Afghan interpreters conducted a 'call out' through a loudhailer, the purpose of which was to announce the ground force's presence and intentions to enter the building to any residents inside. There was no response.

The western wall of building A1 was breached by directional explosive charge so the ground force could enter the building safely.

The breached wall and part of the roof collapsed onto a SAS member. He was seriously injured and was medically evacuated at approximately 0237 hours.

A second entry point was made three minutes later, again by controlled explosive charge, and the residence was searched. The ground force did not find anyone present but did find an RPG launcher, rocket grenades, and other weapons and ammunition.

The nearby building A2 was then entered and searched and was found to be unoccupied.

At approximately 0115 hours, for approximately 10 minutes, the ISR RPA observed an insurgent moving along the ridgeline south of the village towards the observation position where the Commander and his team were stationed.



The GFC was informed. He assessed that the insurgent presented a threat and authorised a SAS sniper to engage the insurgent. The sniper fired two shots; the first hit and presumably killed the insurgent and the second hit a rock. The SAS searched for the insurgent who was shot but did not find him. The terrain was rocky and steep and time was limited to search.

While the ground forces were at A1 and A2, at 0123 the Apache helicopter crew observed and positively identified armed insurgents south of A3 and engaged them.

At approximately 0145 hours, the ground forces reached building A3.

After the Afghan interpreter conducted a 'call out', to which there was no response, the ground forces used explosive entry methods to breach building A3, the residence of Objective Nova.

The ground forces did not find anyone present. There was a still-burning cooking fire, and warm food and drinks had been left behind. It appeared that the inhabitants had recently and hurriedly exited A3. A search of A3 located more weapons and munitions, which were taken to A1.

At approximately 0155, while the ground forces were at A3, groups of insurgents were observed by support aircraft south of A3, but not engaged.

At approximately 0255, after the ground forces had left A3 and had returned to A1 to destroy the seized munitions, air support identified four insurgents leaving the group to the south and moving towards high ground. These insurgents were engaged by support aircraft.

At approximately 0319 hours the SAS EOD Technician placed the munitions taken from buildings A1 and A3 at a distance of approximately 25 metres from building A1 and conducted a controlled detonation to destroy the seized munitions.

The ground forces were extracted by the helicopters from the HLZ at approximately 0346 hours.

A1 and A3 were damaged by fire. The fire at A1 was most likely to have been caused by one of the detonated munitions and the fire at A3 was most likely caused by the unattended cooking fire. The ground forces did not know about the fires; it was not until after their departure that the ISR RPA detected 'hot spots' at A1 and A3.

**THE SECOND AND THIRD NAMED PLACES BY THE INQUIRY WERE NAIK AND KHAK KHUDAY DAD.**

The authors of *Hit and Run* allege that Operation Burnham took place in two villages in the Tirgiran Valley called Naik and Khak Khuday Dad.

The NZDF accepts that villagers living in Tirgiran, where the operation was conducted, may refer to their villages as Naik and Khak Khuday Dad.

The annotated satellite images provided by the authors at pages 64 to 67 of the book are wrong.

A geospatial analysis undertaken by the NZDF centres the villages depicted on pages 64 to 67 of *Hit & Run* approximately two kilometres north of where Operation Burnham took place. The NZDF has restated that it never conducted operations at these locations.

On 19 March 2019, Mr Hager asked the Inquiry to disregard the satellite images at pages 64 to 67, the image on page 35, and the references in the book that are based on those images. The erroneous annotated images still appear on the authors' *Hit and Run* website.

Mr Hager accepts the NZDF's account of the location of the operation, including the structures, namely, the HLZ, buildings A1, A2 and A3, and the observation point used by the GFC.

Looking at the map, Mr Hager says that the villagers use the name Naik for the area to the east of the river (including A1, A2, and A3), and that the villagers use the name Khak Khuday Dad for the cluster of houses on the west of the river, adjacent to the HLZ.

The maps from *Hit and Run* illustrate not just a different location, but also a different story and geography for the events on 21/22 August. Based on the data that NZDF has reviewed, it is impossible that events were as Mr Hager and Mr Stephenson alleged on pages 64-67 in their book.

**The FOURTH LOCATION OF THE INQUIRY IS KHAKANDY.** The NZDF has no knowledge of a location referred to as Khakandy. The only reference to this place name is in media released correspondence of McLeod and Associates to the Prime Minister on behalf of their Afghan clients, who state that Khakandy is a village about two kilometres north of where Operation Burnham took place. This location was wrongly referred to as Khak Khuday Dad in *Hit & Run*.

The NZDF never conducted operations at this location.

**THE LAST LOCATION OF THE INQUIRY IS BEIDAK.** The NZDF has no knowledge of a location referred to as Beidak. The only reference to this place name is in media released correspondence of McLeod and Associates to the Prime Minister on behalf of their Afghan clients, who state that Beidak is a village about two kilometres northwest of where Operation Burnham took place. This position is the same location as that wrongly stated as being Naik by the authors of *Hit & Run*.

The NZDF never conducted operations at this location.

**IN CONCLUSION,** Operation Burnham took place on 21/22 August 2010. Excluding the routes and flight paths of supporting aircraft, all of the ground-based operations conducted by the SAS occurred within 600 metres of MGRS reference 42S VD 23061 91545. The engagements from the air happened within 1200 metres of this location. This location was established and confirmed through GPS, map and satellite images, and still photographs with metadata showing the location and time.