

CITATION: *Inquest into the death of Angus Lawrence* [2005] NTMC 069.

TITLE OF COURT: Coroner's Court

JURISDICTION: Darwin

FILE NO(s): D0194/2004

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HEARING DATE(s): 5 – 7 September 2005

FINDING OF: Mr Greg Cavanagh SM

**CATCHWORDS:**

Death heat stroke  
Defence Force

**REPRESENTATION:**

*Counsel:*

Assisting:	Ms L McDade
Department of Defence	Mr M Maurice Q.C.
Warrant Officer Lucas	Mr T Berkley
Corporal Kidson	Mr M Powell
Comcare	Mr M Roder

Judgment category classification: B

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IN THE CORONERS COURT  
AT DARWIN IN THE NORTHERN  
TERRITORY OF AUSTRALIA

No. D0194/2004

In the matter of an Inquest into the death of

**ANGUS JAMES EFFINGHAM LAWRENCE  
ON 10 NOVEMBER 2004  
AT ROYAL DARWIN HOSPITAL**

**FINDINGS**

(Delivered 31 October 2005)

Mr Greg Cavanagh SM

1. Angus James Effingham Lawrence (hereinafter called "the deceased") died on 10 November 2004 at Royal Darwin Hospital from acute heat stroke.
2. His death was unexpected and therefore a reportable death pursuant to section 12(1) of the *Coroners Act* ('the Act').
3. The Inquest into his death was held at my discretion pursuant to section 15(2) of the Act. The Defence Force could have prevented my holding an Inquest but to its credit did not do so. The Inquest was a public Inquest and took place in Darwin from 5 - 7 September 2005. Ms McDade was my Counsel Assisting and I gave leave to Mr Maurice QC to appear for the Department of Defence, Mr Berkley of Counsel to appear for WO1 Lucas, Mr Powell to appear for CPL Kelson when he gave evidence and a watching brief to Mr Roder on behalf of COMCARE.
4. Twenty-one witnesses were called to give evidence during the Inquest. In addition to their oral evidence, I received into evidence their statements and reports. I also received statements from a number of other persons, and other documents including the post mortem report and the deceased's hospital records. The reports prepared by Det SGT Stuart Davis the coronial

investigator, COL Michael Charles the Department of Defence appointed Investigating Officer and Mr Robert Wray the COMCARE Investigator were thorough and proved to be of significant assistance to me.

## **CORONERS FORMAL FINDINGS**

5. Pursuant to S34 of the Act, I find, as a result of the evidence adduced at the Public Inquest the following:
  - (i) The deceased was Angus James Effingham Lawrence a Caucasian male who was born in Tasmania on 8 September 1979.
  - (ii) The time and place of death was 2025hrs on 10 November 2004 at Royal Darwin Hospital.
  - (iii) The cause of death was acute heat stroke.
  - (iv) Particulars required to register his death are:
    - a. The deceased was a male.
    - b. The deceased was Angus James Effingham Lawrence.
    - c. The deceased was an Australian resident of Caucasian origin.
    - d. The death was reported to the Coroner.
    - e. The cause of death was acute heat stroke.
    - f. The forensic Pathologist was Dr Terry Sinton and he viewed the body after death.
    - g. The deceased's mother was Joanna Propsting.
    - h. The deceased's father was Graeme Lawrence
    - i. The deceased resided in Darwin.
    - j. The deceased was a member of the Australian Regular Army.
    - k. The deceased was aged 25 years having been born on 8 September 1979.

## RELEVANT CIRCUMSTANCES CONCERNING DEATH

6. At the time of his death the deceased was a trooper posted to the Second Cavalry Regiment and stationed at Robertson Barracks. He had been a member of the Regular Army for about 3 ½ years and had seen active service in Iraq.
7. On 26 September 2004 the deceased commenced a training course to qualify him as a corporal i.e. “Subject One Course for Corporal”. He was one of 67 students on the course. The Course was being conducted by instructors from the Army’s Regional Training Centre NT (“RTCNT”); it was the fourth such course to be conducted in 2004.
8. The evidence established that RTCNT was required by the Commander of Regional Training Centres for Army (a Brigadier resident in Queensland), to conduct three “Subject One Courses” in the Northern Territory in 2002/3 and that it was required to conduct four such courses in 2004. This training obligation resulted in courses being run in the weeks leading up to the “wet season” in the Northern Territory (i.e. the “build up”). The “build up” is the name locals give to the climatic conditions that prevail during September to December in the “top end”; it is a period noted to be extremely hot, dry but humid (and debilitating even for those acclimatised).
9. The “Subject One Course” is designed to test students in four main areas, Training, Administration, Leadership, and Participation in Operations. If a student successfully completes the course he receives a qualification that is necessary for his promotion to Corporal. The first three components of the course, of which the deceased was a student, were conducted within Robertson Barracks largely in an air-conditioned class room environment, (but some components such as drill and weapons were conducted outside). Physical training was not compulsory on the course, although all students had to pass a barrier assessment, that included a Basic Fitness Test, before commencing the course. The students were accommodated in air

conditioned rooms whilst on the course. The final phase (last two weeks) of the course, the participation in operations (field phase), was conducted completely outdoors at the Mount Bunday Training Area in the Northern Territory.

10. The Mount Bunday Training Area is located about 120km east of Darwin. During November 2004 the average temperature at Mount Bunday was between 24 and 37 degrees Celsius with associated high levels of humidity. It was described at the Inquest as (T228) during the evidence of Brigadier Bornholt:

“Mount Bunday is, as Senator Evans said so many years, clapped out buffalo country, isn’t it?---It’s an awful place.”

11. A Post Exercise Report for the “Subject One Course” conducted from 5 October to 28 November 2003 reported 29 incidents of heat related illness during the field phase. The report for the course conducted 15 February to 9 April 2004 reported 36 heat related injuries during the field phase. The post exercise reports for the courses conducted during the period May to early September 2004 reported no heat related injuries during the field phase. The increase in the number of heat related injuries did cause those responsible for conducting the training concern. It appears that concerns was firstly raised by the Senior Non Commissioned Officers who were personally responsible for the training. In particular WO1 Lucas who in his evidence said this (T31):

"I was more concerned about the incidents of the heat problem we have. I was quite confident in our ability to deal with those heat problems. I was more concerned about training outcomes, training outputs and that in my opinion we weren't achieving the training outcomes for the soldiers in those courses because at the end of the day they just became robots in that environment and we really can't deal with them....."

12. These concerns were passed up the chain of command and resulted in Brigadier Anstey, who at the time was the Commander of Regional Training

Centres Army, requesting the senior Instructor at RTCNT, Warrant Officer Class One Lucas, to prepare an options paper for the field phase of the Course with a view to reducing the number of heat related injuries. That options paper contained four recommendations:

- a. to replace the defensive scenario and with it the necessity to "dig in" with a low level Operational scenario conducted at "Scale A". see WO1 Lucas' evidence at (T52):

"And essentially was that don't do the defensive scenario, let's do low level operations in the scale A environment?---Yes.

Why would you make that suggestion to BRIG Anstey?---Well, doing our low level operations takes away the need for digging in and I've identified digging in as one of the potential areas that contributed to some of the cases we have. By going to low level ops you still achieve the same outcomes, you know your low level environment set in Scale A environment they may build some sandbag bunkers but they wouldn't be building – they wouldn't be digging and we would actually have to provide the resources to be able to do that....."

and he continued at (T53):

"And you formed that view, and please don't let me put words in your mouth, because you realized with experience that these courses were the ones that were encountering heat illness and injury?---Primarily them, yes. From my own research and looking at what was occurring, as we discussed earlier, I wasn't convinced I was actually achieving the outcomes of the course."

- b. that the courses scheduled during the wet and "build up" be conducted at a southern location where weather conditions were more moderate.
- c. that a purpose made defensive position be created for use by students, and

d. that one of the corporals courses be replaced by a sergeants course that had no requirement to "dig in".

13. During evidence Warrant Officer Class Two Dale Wallace said this (T66-67):

“Now can I take you to page 16 of your statement. You were asked by the police officer the following: ‘Have you at any time had any personal concerns about conducting these courses out there at this time of the year?’ I take it he’s referring to the wet season?---I believe so, yes.

Now your answer was and would you like to read the first three lines of what your answer was?---My first response was, yes, and then Sergeant Davis says: ‘Okay then’. And then I reply: ‘We’ve spoken to Brigadier Ansty who was up here two months ago, **I think, and we pretty much bluntly told him that if we keep doing this we’re going to kill someone.**’

And what you meant by that is if you keep conducting courses in the wet season we will kill someone?---Yes. When we spoke to Brigadier Ansty about this we had tried every avenue as instructors to change the subject 1 corporal course was the digging in and the time of year that did it. In the – prior to my (inaudible) being there it used to be that they would conduct the subject 1 sergeant course at the start end of the year, because they are run out of Robertson Barracks and (inaudible) and corporals courses were only conducted in the middle of the year. We put up the options on how we could change the subject 1 corporal to make it, we believed, more relevant to what the Army was doing today and also hopefully reduce some of the risks. When we spoke to him this was our last – **sort of our last chance to emphasise just how dangerous it was at that time of year given what we’ve seen over the last 18 months of our two years there.**”

14. Brigadier Mark Bornholt in addition to his detailed and comprehensive statement, which was tendered to me, gave the following oral evidence (T227-230):

“I asked you a question in response to something raised by the Coroner yesterday, he asked whether Brigadier Ansty or Brigadier Cantwell took any medical advice regarding the conduct of the subject 1 corporals course in November at Mount Bundy - - -

THE CORONER: This is after the warnings from the warrant officer?

MR MAURICE: Have you been able to speak to both of those overnight?---Yes, I – I spoke to both of them last night. Brigadier Cantwell in not much detail and the question I put to him is what advice did he take, if any, when Ansty came to him to say that he wanted to alter the training, the options that Warrant Officer Lucas had put to him. Cantwell, his – his view or his recollection of the discussion was that Ansty only asked him, are you happy with what we called the phase of war, so are you happy that we dig in on the course and Cantwell told him that he wanted digging to continue and then the evidence is there that he offered mitigation with backhoes and so on. He was not asked about heat or any of that type of thing. I spoke to Ansty in some detail. He told me that he first became aware of the issue at 12 months after he was appointed. He'd been in his position as the commander throughout 2003. In early 2004 he identified that there was an issue with heat stress. He was actually focussed on the February course, not on the November course. And at that time he tasked, in respect to the warrant officers and Warrant Officer Lucas, he tasked them to produce the options paper. When he got that options paper he told me that he took advice from Colonel Dunn who was the or is the commander of the Darwin based organisation - - -

That's effectively Mount Bundy?---No, Dunn is the commander of the Regional Training Centre here in Darwin out at Robertson.

Does that include - - -?---He works for me. He works for me he's a reserve officer. He's public or his civilian occupation is in Darwin, he's been here for 30-odd years, so he knows the Territory.

THE CORONER: What's he do? What's his ordinary occupation?--  
-It a ship's – he runs a chandlery business.

Thank you?---He also – and the advice – he also took advice from Warrant Officer Lucas which you're well aware of. He also took advice from Warrant Officer Nunes and Nunes was his regimental sergeant major which in – in army parlance he is the individual that each commander has who is their senior soldier, a fellow who's come through the ranks who can give you advice on what it's like at the base.

A tough nut?---Correct. A man like Warrant Officer Lucas.

Another tough nut?---He – he took advice from his own regimental sergeant major, a fellow called Warrant Officer Baker who's had 30 years in the army, like Lucas, an infantry officer an infantry warrant officer. Those were the only people that he took direct advice from. **The interesting part in that is that neither Ansty or Baker had any previous exposure, if I can put it that way, to the Northern Territory. They would not have been acutely aware of the – of the unique challenges that are up here.**

They are unique, aren't they? I keep on hearing about, for example, Canungra?

---Yep.

Now that's jungle area, isn't it, jungle training?---Yes, your Honour. Each of the training areas that we have are unique.

Mount Bundy is, as Senator Evans so many years, clapped out buffalo country, isn't it?---It's an awful place.

And awful place. And more than that as Territorians know you can get heat stress during the wet but the worst time is the build up in those weeks in November December before it rains. It's dry, no shade, everything's dead and it's a humid as you can get and I get the feeling that you might be in Townsville somewhere but you're really – if you haven't been out there you just can't appreciate it. Am I - - -?---**You are correct. I – I have considerable experience in Townsville and the Townsville high range training area is harsh, but it is nothing like Mount Bundy.**

I'm glad someone said that. I've been waiting for someone to say that for three days. Yes.

MR MAURICE: Yes, if I could just follow through on that, your Honour.

You said that neither Ansty nor Baker, did you say had?---Baker is my regimental sergeant major.

Right. But there's one other person we need to mention here too, what about Brigadier Cantwell, do you know what his experience in the top end was as of say August last year?---Cantwell, was appointed to be the brigade commander up here, I think, in about June. Somewhere – something like that, the middle of – the middle

of last year. I'm not aware of his specific background, but I do know that he was not a unit commander up here. He'd commanded in the south, so he may not have had previous postings to Darwin. He may not have been acutely aware of what the environment is like up here. He would have had, I assume, and to be honest you would have to ask him these questions not me, but I assume that like me he would have visited Townsville on and off over the years and been to Mount Bundy but that is a – you'll have to ask him I couldn't answer that.

We might infer that he didn't really know – have first hand experience of November conditions in the top end, but can you just tell us where were these men, Brigadier Cantwell and Brigadier Ansty when you spoke with them last evening?---They were in the Middle East.

And talking about Brigadier Ansty again, you asked him whether he sought any medical input?---Yes.

And he said no, but he made some comment?---He – he said to me that he did not specifically seek medical input to the decision making process. But he did say that he would have expected, as the commander, that if there was an issue he would have been given advice. Somebody would have said there's a medical issue. I equated the conversation to the push versus pull analogy, that there's plenty of information out there, but if you as the commander have to go searching for it you could spend all day looking for it. He expected that if there was an issue somebody would have pushed it back to him.

I think I've covered the matters that – as I wanted to cover with you, brigadier, but are there any other matters – loose ends - - -?---No.

- - - you wish to address before somebody else asks you questions. That's the evidence in chief.

Thank you, your Honour.

**THE CORONER: Brigadier, if I could start from one premise that the trooper's death was associated if not directly connected with a failure by the army to appreciate just how dangerous it was to be at that place, doing what he was doing in November, do you agree with that?---Yes, I do.**

And one can say it's caused by that appreciation may be caused by lack of training, lack of knowledge, maybe by army culture well meant but, culture of the soldiers we do what we're told and it's

dangerous we know, but we've got to endure it. We can put all that there, but there was some warning at warrant officer level about the danger, wasn't there?---Yes, there was, your Honour.

And for whatever reason push, pull, lack of medical input, culture, training or historical precedent at the necessary level for things to be done about that warning things were not done to prevent what happened in November, that being the level of Ansty and Cantwell. That's a fact, isn't it?---Are you asking me if that's a fact?

Yes?---I think that Ansty recognised that there was a problem and was in the process of gathering data to enable him to mitigate that problem.

No one's saying he dismissed the problem. Except that on his shoulders was doing things about it. That's correct, isn't it?---Yes, it is.

But what was being done, if I can quote paragraph 49 of your own statement, was not done in time or with sufficient rigour to save Trooper Lawrence?---That's correct.

And that was at the level that we're discussing, the Ansty level, do you agree with that – I withdraw that. I don't want you to say that, it's a matter for me."

It appears that Brigadier Anstey had never been to Mount Bunday during the "build up" although he had planned to attend the course to be conducted in February 2005 to experience conditions for himself. That course was not conducted because of the death of TPR Lawrence. It is apparent that there was a greater concern about the course to be held in "the wet" as opposed to the course to be conducted in the "build up". That in itself indicates a lack of knowledge of the climatic conditions experienced in the top end during the "build up". Any person familiar with the prevailing climatic conditions in Darwin and its environs during October – December would be wary of undertaking continuous exposure to the elements and strenuous physical activity.

15. It is clear that the Army knew, before the course on which the deceased died commenced, that to train at Mount Bunday during the "build up" and "wet"

was potentially dangerous to its personnel. In fact modifications to the field phase of the course had already been made, in particular there was to be no work from 1000 – 1500hrs, showers were to be made available after four days in the field and shower buckets had been placed in the field, patrol legs had been reduced to the minimum allowed under the training management package, a medic was positioned in the field in close proximity to the students, all patrol routes were within 20 minutes of a road to facilitate evacuation, and lessons in field hygiene conducted. These measures had been in place during the earlier courses and heat injuries had still occurred.

16. The options paper was delivered to Brigadier Anstey and he had discussions with the Commander First Brigade on 1 October 2004. The course the deceased was a student on had already commenced at this time. It is apparent from Brigadier Anstey's statement that the Commander First Brigade was keen to maintain the defensive scenario for the field phase, and to assist the students he offered engineer support to dig the fighting bays. The defensive scenario was maintained. As a lay person I do not readily appreciate the significance of maintaining a training regime that required soldiers to "dig in" in conditions that are extremely hot and humid to enable them to be assessed as potential junior leaders. I acknowledge that soldiers must train in all climatic conditions and be placed under pressure to assess their performance, but I cannot understand why they should be put in life threatening situations during training, particularly when the evidence of experienced soldiers at the Inquest suggested that the defensive scenario practiced on subject one for corporal courses was "archaic" and not in keeping with current operations being conducted by defence personnel. I am sure that Brigadier's Anstey and Cantwell could justify the retention of the defensive scenario in a theoretical sense, but given what appears to be their respective lack of knowledge of the conditions at Mount Bunday at the time their decision was made, and their failure to seek any advice from medical professionals before making the decision, I remain concerned about the

merit of the decision. However, I do not have to and do not make a conclusive finding on the merit or otherwise of the decision, that is a matter for others.

17. The options paper was prepared without regard to "Safetyman" a Defence publication that in part Volume 2 Chapter 1 deals with the prevention of heat illness and injury. The decision to maintain the defensive position scenario in the field phase of the subject 1 for Corporal's course was made without regard to "Safetyman". The field phase of the course was conducted without regard to the provisions of "Safetyman".
18. Chapter 1 "Safetyman" provides guidance to commanders to assist them in preventing personnel becoming unnecessary heat casualties. It places responsibility for the prevention of heat injury on commanders. Amongst other guidance it specifies that commanders must ensure that the work rest cycles set out in the table at annex A to Chapter 1 are not exceeded unless operational considerations are paramount. Commanders are reminded that exercises and administrative activities "during peace time are not essential situations. Exceeding the guidelines for a training situation will unnecessarily risk the lives of personnel". The work rest cycle is to be determined by the prevailing heat stress values. "Safetyman" prescribes that heat stress is to be measured using the Wet Bulb Globe thermometer (WBGT). It measures three parameters. The wet bulb thermometer reads the temperature as reduced by natural evaporation of water and sweat, the black bulb thermometer measures the radiant heat and the shaded dry bulb thermometer reads the actual air temperature. The readings are then combined in a specified ratio to produce a heat stress index.
19. "Safetyman" cautions commanders that personnel can experience heat illness when the WBGT index approaches 25. A WBGT index of 25 -26 requires the work rest cycles in Table at annex A to be instituted to prevent heat injury. A WBGT index of 26-28 requires increasing command

involvement in the supervision of physical activity and water intake to prevent heat injury. When the WBGT index is 28-32 even fully acclimatized personnel should restrict physical activity to no more than 6 hours per day at the recommended work/rest cycle. A WBGT index of 32 and above requires commanders to if possible suspend all strenuous physical activity for personnel. To enable commanders to make informed decisions and implement the appropriate work/rest cycle WBGT readings are to be taken every hour and the results conveyed to the Commander. The readings should be taken at all field sites even if there are only short distances between them.

20. WO1 Lucas in evidence said this (T54 – T57):

“Options for training. Now particularly at the time you prepared these options were you aware of the provisions of Safetyman?---I was – I was aware of certain things in Safetyman, but certainly it’s been brought to my attention the – the body heat index which is done by the Wet Bulb Globe reading or as we call it the ‘Wiget’ reading, for short, gives you the index and gives you a table to work off. Now I wasn’t aware of that table.

And it’s fair to say, and please correct me if I’m wrong, but you were not aware that Safetyman said to commanders on the ground you should get the Wet Bulb readings hourly and scope your activities on the work rest cycle accordingly?---I wasn’t – I wasn’t aware of that at the time, ma’am.

No. And when you put your precautions in, as you’ve indicated what they were, that was done from your experience from previous courses, not in accordance with Safetyman?---No. No, and if you have a look at what we had in place – what we had in place is far and above the requirements of what’s in the Safetyman. The strategies we had in place was far and above what the requirements are in Safetyman even with the index. You know between 10 and 3 we’re doing minimal activities and that’s – that’s 50 hours per individual each course. They’re doing one patrol activity that covers no more than 5 Ks on average no more than 3 Ks, 3 kilometres. Which is not a great distance and that – apart from being in the defensive position itself that is about the most physical activity that the course would do. So from a physical activity point of view, from a military point

of view and from my experience the physical activities they were doing was not great.

THE CORONER: But you didn't count the fact they were sitting under a plastic sheet for about 7 hours a day in the middle of the day as activity?---It's – it's hot, sir, and they're the best options we've got. They are trees out there, but they make best use of the shade and if you put the hootchies up high enough it does provide relief from the elements.

MS McDADE: But bearing in mind that Safetyman goes further than just simply indicating rest cycles, it says commander – we accept for the moment you were the commander on the ground?---  
Yep.

It says that if you get a heat stress index of greater than 32, the commander should seriously think about having no activity at all. Now on 10 November there's a real likelihood that before the patrol – the fighting patrol that Trooper Lawrence was on, commenced that the heat stress level would have been much greater than 32. Did you at any time give consideration to halting the course?---I don't know what the index was that day - - -

But the truth of the matter is it wouldn't have mattered whether you'd known or not because you didn't know that's what Safetyman said at the time, did you?---No, I didn't and again from my own personal experience I actually didn't consider the conditions out there any worse than what I've experienced previously.

THE CORONER: But weren't you – okay. You had knowledge that week that there'd been a fair few illnesses caused by heat stress out there, hadn't you?---I think up until that particular day, sir, I think we had about nine people go down with heat over the preceding couple of days which from previous experience was – I was of the opinion that what we had in place was working because it actually reduced a lot of the heat cases.

Hadn't a lot of those blokes ended up in ICU in Royal Darwin Hospital?---That was the - - -

MS McDADE: That's 5/7, sir.

THE WITNESS: Not my course, sir.

THE CORONER: It may not be your course. Where you were whereabouts on that training ground there are more than one course

going on, is that right?---Yes, sir. With the 5/7 RAR course I was aware they had a course. That particular course is reasonably similar to what we do. However, that is an infantry course. Now being infantry myself having done the course I've instructed on the course, I've conducted those courses myself, I was also in charge of the – or the manager of the team field when I was in – my job at Singleton in '96/97 so I'm intimately – I have intimate knowledge of what the requirements are of an infantry subject promotion course. They are training to job standards. That particular course is a lot more physically demanding than not anything I would have been doing on the course I was conducting. To compare – make a comparison between the two with the physical output is not even close.

Okay. But for all of that, in that area of Mount Bunday in the week leading up to this death, I'm told for example by Medic Ryan in the statement he made that there'd been around 23 cases of illness or injury and around 20 of them – 21 were all heat related. A lot of them were treated on the ground, we just dragged them out into the shade, we didn't need to cannulate or fluid them up, we just fed them a bit of water. He goes on in dramatic terms to tell me about the deceased and also Scott. Did you understand there to be that many heat related illnesses in that period?---I knew (inaudible) cases because on a daily basis I would go up, talk to the medics see how things were going what was happening and to my knowledge there was no what we call serious problems that we had and they'd all been treated on the ground and the medics had released them to go back after observation.

Except for Scott?---I – except Scott, sir.

Okay.

MS McDADE: Well, coming to that you were unaware of Safetyman and the requirement to take the heat stress levels hourly?--Yes, ma'am.

You were unaware whilst you were out there that work rest cycles had to be implemented in accordance with that heat stress level, correct?---Yes.

But you're of the view that, correct me if I'm wrong, that restrictions or the curtailment of activity put in place was enough?---I believe it was above and beyond what's in the Safetyman.

Now you've done a comparison between the work rest cycles in Safetyman to come to that conclusion or is that just a feeling you

have in your water?---Now being aware of what Safetyman says about the index readings and looking at what we had in place yes, I can make a comparison and say that I think what we had in place was far and above what we had in the Safetyman.

But that's only in relation to physical activity and resting isn't it?---Yes, ma'am.

That takes no account of the cumulative effect of heat, does it?---No.

And you'd agree with me that these fellows had been exposed to continuous heat and humidity from at least Sunday morning right through to Wednesday afternoon?

---Yes.

They could get no relief?---No, none.

They had no shower?---No.

They had no fresh rations?---No.

Now in relation to Private Scott, and I know that you just arrived in the field when he went down, did that cause you any concern at all about even commencing your field phase in the defensive position?--  
-I actually inquired about the Scott incident. I'd spoken to the medics that had actually treated Scott and as I stated previously I'm fully abreast and fully aware of what – what the requirements are on that course. We're talking about a military combat course, as compared to an all corps (inaudible) 1.49.39 course. You can't compare both courses.

THE CORONER: So – sorry, Ms McDade, the corporals course was physically easier than the other one?---Yes, sir.

Thanks that what I think you were saying.

MS McDADE: But they were both being conducted in extreme climatic conditions?

---At that time of the year, yes.

And in your options paper you yourself said look sir, it's more the climate than what they do that's causing this, didn't you?---Yes, ma'am.

And that's the truth of the matter, isn't it?---It's – regardless of what we put in place.

Regardless of what you put in place - - -?---We're going to have heat problems.

It was sheer folly to conduct a corporals course and a subject 1 course at that time of the year at Mount Bunday, wasn't it?---I don't know if it's sheer folly, ma'am.

Folly puts it too highly, but it wasn't a clever thing to do, was it?---I think the problem's manageable.

But it wasn't manageable?---In hindsight, probably not, no.

No?---At the time.”

21. WBGT readings were taken on the morning of 10 November 2004 (at the request of RTC – NT to obtain data to confirm the extreme conditions, not to provide guidance as to what work/rest cycle should be employed on 10 November). The results were not given to WO1 Lucas, the commander on the ground, but conveyed by minute 15 November 2004 to an Officer at Brigade Headquarters. The WBGT readings in the exercise area (THE DEFENSIVE POSITION) at 0925 hours on 10 November 2004 showed a heat stress level of 32.6. By 0940 hours the level had reduced to 29.7. At 1025 hours it had risen to 32.6. At 1040 hours it was 33.6. At 11:15 hours it was 34.6 and at 1140 hours it was 36.
22. It may be also that that particular readings might be wrong because there seems to have been a army wide lack of training in how to operate the instrument. It could be presumed that the WGBT reading on 10 November 2005, if taken accurately, and taken at every hour, may have indicated a heat stress level of 32 or more at 1500hrs. (bearing in mind that the temperature as measured by the Bureau of Meteorology at Jabiru at 0900 hours on 10 November 2004 was 30.4 degrees Celsius and at 3:00pm 36.6 degrees Celsius.) At this level SAFETYMAN indicates that Commanders should consider whether any physical activity should be undertaken at all.

23. Prior to deployment a General Instruction for the field phase was prepared by staff of RTC NT, in particular Sergeant Moon. It contained as annexures to it a safety brief and risk assessment. SGT Moon and WO1 Lucas in their evidence stated that the safety brief and risk analysis contained in the general instruction were an exact copy from previous courses. At (T100) Sgt Moon gave the following evidence;

"What I'm asking you, did you do any fresh analysis in relation to the risk of heat for this particular course? No Ma'am.

Why Not? From previous courses our risk assessment was made, implementations were put in place and it seemed to work. When I did this risk assessment I had a look at the previous ones, made changes if need be. I can't remember if I did actually make changes or not. But I look at it and decided and thought that it would work."

Coroner "Those previous courses were during the dry season? They were also in the wet season as well sir at the start of the year."

So is the case that essentially the general instructions for all the subject 1 Corporal courses conducted in 2004 contained the same safety brief and the same risk analysis as what were seeing here for this course? Yes Ma'am.

Whether it was wet or dry? Yes Ma'am

You're aware of the provisions of Safetyman? I am now ma'am yes.

At the time were you aware of them? No Ma'am.

So at no time were any of the requirements of safetyman factored into your risk analysis? No Ma'am."

24. WO1 Lucas said at (T32):

"Now what input did you have in relation to that general instruction? Well being the senior instructor I'm overall responsible for it.

Were you aware that the risk assessment contained in that general instruction was a copy from the previous course? Most of our risk assessments were much the same as previous courses for the simple reason we worse cased all our courses based on worse case scenario and that being the wet season and we apply that risk strategy even in

the dry season, although we didn't have any heat problems in the dry season."

It seems odd to me that an independent risk assessment was not done for this course. I accept what WO1 Lucas and SGT Moon have said at the Inquest and in their statements about the matter, however it seems to me that the purpose of a risk assessment is defeated if it is not done specifically for a given activity having regard to existing conditions that prevail at the time of the activity.

25. The field phase for this course commenced on Thursday 4 November 2004 when the students and instructors deployed to Mount Bunday. From Thursday until early Sunday 7 November the students essentially remained at a position known as "Scale A" (save for short sorties) revising and preparing for the defensive scenario. At 0600 hours on 7 November the students moved to the defensive position "the Hill" which was located about 3-4 km from "Scale A". They deployed on foot in marching order, that is full pack, webbing and weapon. The area was in open ground and had no natural shade. The fighting bays had been partially dug with engineering assets but remained incomplete and required the students to dig sleeping bays and erect wire and otherwise manually enhance them.
26. Another course was being conducted at Mount Bunday, a "Subject Two Course" for Infantry. That course was apparently more physically demanding than the "Subject One for Corporal's Course". On the 5th of November a soldier on that course collapsed from heat stroke and was evacuated to Royal Darwin Hospital where he was admitted to Intensive care. That soldier survived, however, he apparently has some residual cerebral damage. The evacuation of the soldier and the reasons for his collapse was known to the instructors on the "Subject One Course" and presumably their superiors. WO1 Lucas was not instructed to stop the course by his superiors. The "Subject Two Course" also continued. That

course had a commissioned officer in charge, a CPL medic, an ambulance and two basic medics. The "Subject One for Corporal's Course" had no commissioned officer, no ambulance and two basic medics. The basic medics were only qualified to operate under supervision. They had no supervision whilst they were at Mount Bunday. When asked about the level of medical support WO1 Lucas said this (T49);

"And that's two medics? Yes

And you only had two basic med assists, didn't you? Yes

A course of 67? A course of 67 plus attachments.

Is that enough? Yes I believe it is.

You didn't have an ambulance, but you had a safety vehicle didn't you? We had a four wheel drive vehicle which does the job.

Why didn't you have an ambulance? Well at the end of the day when we're training centre, we don't hold resources as such, of ambulances and or medics. Any stores and equipment or personnel that we need to support the activity we have to bid for and that is part of the process I have to go through in preparing the course, which we tend to work two to three months in front of ourselves for each course. So I would bid for medics and I get medics that are given to me by the Combat Support Battalion, same as the ambulance, they're a – actually a rare resource I didn't specifically bid for an ambulance, but I know from.....

THE CORONER: Sorry?---Sorry, sir.

What did say, you didn't specifically bid for an ambulance?---No, I didn't bid for an ambulance, sir, 'cause previous experience tells me that I'm very unlikely to get one and the 4-wheel drive vehicles will go a lot more places that what an ambulance will cross country.

Well, just say they're available would you have bid for one?---Probably not, sir, because common practice is that we use 4-wheel drive vehicles because we know that they will go a lot more places.

I don't particularly know much about the Army, don't you have 4-wheel drive ambulances?---We do sir, yeah, but - - -

Where are they?---That's what I'm saying, they're not a lot of them around the place.

Have any in the Top End?---There are some, sir, numbers I'm not too sure on what the actual numbers are that support the brigade but experience shows me that a 4-wheel drive vehicle 1.10 Land Rover cross country will go a lot more places than an ambulance and for that reason we tend to bid for the Land Rovers because we know they will get to where we want them to go.

And you've also got to bid for medics too?---Yes, sir.

So three or four months before these exercises you bid for medics?---Yes, sir, we did.

And did you get the number you wanted?---Well, we always bid for ten medics. We wouldn't get any more than about two medics anyway.

Did you think at the time two medics would be enough?---Yes, sir.

MS McDADE: There is a difference between an ambulance and a 4-wheel drive vehicle, isn't it, in the sense of treating someone in the back of the 4-wheel drive Land Rover is much more - - -?---There's certainly more room in the back of an ambulance."

And (T51):

"THE CORONER: Well, excuse me. I just want to come back to this, that - I don't think they're like the ambulance I see going along Ross Smith Avenue, they're not - are they 4-wheel drive ambulances?---There's 4-wheel drive ambulances, sir, yes.

And they've got medical equipment and the like inside them?---Yes.

In the normal way you'd expect ambulances to have?---Yes.

So why wouldn't they get to places that other 4-wheel drives would get to?---The training area out at Mount Bunday, sir, is quite rough in places - - -

I've looked at the photographs?---And I'd very hesitant to take the ambulance off any formed road.

But you weren't all that far away from a road, weren't you?---No, sir."

27. CPL Kelson the medic attached to the "Subject Two Course" informed me that 5/7<sup>th</sup> Royal Australian Regiment (5/7<sup>th</sup> RAR) did not own an ambulance, the ambulance used on the course was from 1 Combat Support Battalion (1CSSB). Further that there was a problem with the ambulance's air-conditioning, and I refer to his evidence at (T117):

"Were any steps to your knowledge taken to rectify the air-conditioning? Yes there was. The ambulance driver that was PTE Kalish we also had another piece of equipment that was faulty so he notified the unit as in 1 CSSB. We got the faulty piece of equipment replaced. We asked about the air-conditioning of the ambulance at the same time and he was told that there weren't parts available for the air-conditioning to be fixed and that there wasn't another ambulance available to replace that particular one".

CPL Kelson had completed both the basic and advanced Medical assistant courses and had previous civilian experience as an enrolled nurse. The two basic medics attached to the course were under his supervision. He was involved in the evacuation of PTE Scott who had collapsed with heat stroke on 5 November. At the Inquest he informed me of the measures that the "Subject Two Course" had taken to avoid heat injury and I refer to that evidence (T120-121):

"Before then when Private Scott had gone down, were there any modifications made to your course then, that is the Sub II course, to assist in the prevention of similar incidence?---Yes, there was, ma'am.

Can you tell us briefly what they were?---Prior to Private Scott's incident, we had a reduced activity period generally between the hours of 11 and 11500 each day. After the Private Scott incident we increased that from 11 until 1700 each day and it became a no activity period, so they weren't to be doing any activities whatsoever within that time and to remain within a shaded location. The length of the patrols was reduced. They had been doing approximately 5 to 6 kilometre patrols, that was reduced down to, I believe, a maximum of 3. So virtually the patrol was cut in half. There was also the timing for the patrols, they were going out earlier in the morning and therefore coming back in earlier. And in the afternoons going out later and trying to avoid that worst part of the heat of the day.

And during the heat of the day they were to do nothing?---Correct, ma'am.

So if they wanted to they could find shade and go to sleep?---Yes, ma'am. As far as I'm aware, ma'am, that was what Captain Ryan and myself discussed.

Now if one of the soldiers after the Private Scott incident from your course reported to medical care, what was the general protocol that you invoked?---Sorry, after the Private Scott incident, actually ma'am, had only very minor presentations generally for minor injuries, a couple of minor illnesses, so pretty much I was able to actually treat them in location. Speak to their instructional staff, let them know what restrictions that I wanted them placed on. A couple of times that was someone missing out on the next patrol, but still able to retain them out on the position.

Did you have a protocol in place in relation to people presenting with heat illness?

---Yes, we did. We had that in place, and we had that in place prior to Private Scott.

And what was that protocol?---We had that – anyone presenting with heat related illness we were moving them back to the Scale A location which is an airconditioned facility. That they would remain there under the care of the other two medics that were out there and that they would be there for a four hour period as a minimum. Once four hours had elapsed, you know, longer if required, they would be assessed by the medics that were there. If they felt that they were fit enough to return to a reduced duties, but able to be back on the position, they would notify me via radio, bring them back out to the position where I would then re-assess them as well. If I felt that they still, perhaps, weren't suitable I would send them back and make a longer period of time. If I was happy that they were okay, they would then be put on a reduced activity period for a further time which would usually involve them doing no digging and also not going out on the next patrol.

And that protocol was in place for the duration of your course?---Virtually for the duration of the course, yes ma'am.

And the other modifications you spoke about came into play as a consequence of the Private Scott incident?---We had certain things like we tried to make the hottest part of the day, like I say, between

11 and 1500 initially as a reduced activity period. After the Private Scott incident it was decided that it should be a no activity period.”

Further in his evidence he informed me about how he would have treated a soldier who consulted him in the field (T121-123):

“How were you ascertaining their temperature in the field?---In the field with someone that’s fully conscious we’d do an oral temperature ma'am. For someone that I thought wasn’t 100% certain that they were sort of mentally 100%, I would take a temperature by the axillae.

And where is that?---Underneath the arm, ma'am.

What about rectal temperatures, have you ever done that?---I have done them in hospitals, ma'am. I haven’t done them in a field situation.

The thermometers that you have available to you, were they capable of being used as a rectal thermometer?---Yes, ma'am.

You knew that, do you think other people knew that?---I believe they would know that, ma'am. Yes, I would believe that would be part of their training.

Do you know what a core temperature is?---Core temperature as in your core body temperature. Yeah, it’s the most accurate temperature recording that you can get.

And generally speaking the most accurate way that you can read that is by taking the temperature of the person by their rectum?---Yes, ma'am.

So that wasn’t what was occurring in relation to ascertaining soldiers’ temperatures, was it?---No, ma'am.

Now, given your experience, were you able to come to some assessment of what that core temperature of soldiers may have been by the method you used to take their temperature?---Yes, ma'am.

How were you able to do that?---By getting an axillary temperature, ma'am, You’re aware that their core temperature is generally within 1 to 2 degrees of that and it would be 1 to 2 degrees higher. So in the incident of Private Scott when we did an axillary temperature and had a temperature of 42. Any temperature of 42 by any means is a

serious condition and requires immediate evacuation and immediate treatment. So any axillary temperature that was raised is going to be of concern and will require some treatment.

So what temperature were you happy for a soldier to exhibit before you deployed him back once he'd complained of heat illness?---I would want him to have a temperature below 37.5, ma'am.

Above?---Below that. Anything above that you're looking at as some sort of low grade fever. So I would be reluctant to put someone back into a field situation under those circumstances.

What about their blood pressure and their pulse rate. What level would you be happy to send someone back if they were exhibiting say, for instance, a high pulse rate, would you be happy to send them back to the field?---No, ma'am.

Now it is probably relative in relation to what people consider a high pulse rate. You appreciate we have resting and activity pulse rates. If I had, just say for example, a resting pulse rate in the order of something like 72 or lower and then I presented with a pulse rate of 88, what would you say in relation to my condition in relation to my pulse rate at that stage?---I mean, one of the things I'd have to do is be asking you what activity you'd been doing. If you'd been on position, you'd been digging or you know, you'd been doing patrolling activity, I would still consider that would be relatively normal for you, ma'am.

What if I had been doing nothing effectively, that is resting for some time but in a hot exposed location whilst I did that?---I would be questioning still, ma'am, why it would be at that rate. Because if you have been resting and have just been sitting there, there shouldn't be a particular reason why it would need to be elevated.

Is 90 considered to be elevated in those conditions?---90 I would be starting to be concerned, yes ma'am.

If I present in the first instance with 90 and stay with you for 20 or so minutes and it goes down to 88, would you still be happy to let me go back?---I'd probably want to keep you for a longer period of time, ma'am.

What if I was insistent and said I want to go back?---I'd be expecting you to be insistent, ma'am. Obviously, you know, sort of with people on promotion courses they are very keen to do well. They are very keen not to be perceived as weak. However, I'd be insistent that you

would stay and I would keep you for a longer period of time. I would want to be, sort of, certain that I believed you were fit enough to go back, ma'am.”

28. The section of which the deceased was a member after arrival at the defensive position followed the following daily routine;
  - a) reveille at 0400 hours.
  - b) Standto 0445 hours to 0530 hours as patrols deployed from the defensive position.
  - c) 0530- 1000 hours morning routine and section enhancement of the defensive position.
  - d) Standown 1000 hours – 1500 hours in the defensive position when no work was to be undertaken.
  - e) 1530-2000 hours section participation in section patrols of between 3-4 kms in length.
  - f) 2000 hours until 0400 hours the students could sleep if they could, (but were also likely to be probed by enemy during that period and called to stand to).

On Tuesday the 9th the defensive position was probed during the night, and the evidence from students on the course was that by Wednesday the 10th of November they were tired, hot and "over it".

29. On Wednesday 10 November 2004, the deceased attended the medic at 1225 hours complaining of vomiting
30. He was seen by PTE Chatt a basic medic who had completed his basic medical assistant course in June 2003. He was one of two medics attached to the Corporal's course. On presentation TPR Lawrence informed PTE Chatt that whilst at the gun position he had vomited. He had a temperature

of 37.8 and a pulse of 90, and his blood pressure was elevated. PTE Chatt said the following in evidence (T164-170):

“Well, I had no way to get any other sort of temperature so I had to work off of what he gave me. Yep, that’s what I got. It is a little bit high, normal temperature is 36.1 to 37.1, so it was a hot day that day. He’s working out in the sun, so I would also expect it to be a little bit higher. His pulse here says 90, that was a little fast but some people’s pulse is between 80 and 100. It just depends on the person. His blood pressure here which I took with a BP cuff manually, is 130/70. The usual for a person or for a male is about 120/80 but he says, he told me, that his blood pressure was a little bit high sometimes, it just depended on the day. And his capillary re-fill, which monitors the circulation around his body was less than 2 seconds and that’s by pressing down on the finger and basically from pink to red. It basically tells me that he had good circulation through his body. After that I asked him why or what could have led up to him being sick and he told me he was just sitting behind the gun, just lent over and he told me he vomited about 100-150 mls of water and it was clear. He told me he drank about 8 litres since 4:30 that morning, since he woke up so by that stage he had drunk 8 litres before coming to see me. He had told me he had a shortness of breath but like I said it could just have been from him vomiting and then walking down to the position. Also, he went to the toilet, he stated about six times, and it was clear so that was telling me that he was not dehydrated. All through this we were talking, having a conversation so I was just assessing his observations, making sure he wasn’t going to collapse or anything like that. So he was coherent and answering all my questions so there was no problems with him there. I kept him with me for about half an hour. Here it says on 12:55 I took his pulse again, sorry his temp which was 37.1 so his temperature has gone down. Pulse is 88 so it has come down a little bit. Blood pressure stayed the same on 130/70 and his capillary re-fill was the same, less than two seconds. His breathing was okay, there was nothing wrong with his breath sounds when I had a listen to them. He stated he felt better and wanted to get back in the position because he had a patrol that day. He knew he was sent down as a precaution but he really wanted to get back there. So what I’ve written down is my query diagnosis was vomiting due to a large amount of fluids and I told him – I’ve written down here I’ve cooled the patient and given him fluids. I’ve also told him to reduce his tempo of work and I’d see him next time I was walking on the position.

I'm curious as to that last notation. Why, if you've ascertained that he's drank and you say he's been ill because of his intake of fluids did you give him more?

---Because he was hot, shortness of breath – I just sat him down in the fan and cooled him off. He wasn't sculling, he could keep his oral fluids down so there was no need to give him intravenous or anything like that. I told him drink this, if you want to stop – I didn't want to force it down his neck, he could stop when he wanted to. But he also had to go to the toilet so at that stage he was telling me that he was still hydrated and things like that.

How would you describe the symptoms that he presented with. If I was to suggest to you they were indicative of heat illness, what would you say?---The symptoms he was showing me, well as I've written here, I didn't think was a heat illness but I've always got to be aware of underlying illnesses so I've asked him like past histories and things like that. Is there anything wrong with his family side, or has he ever gone down with heat before or anything like that.

Corporal?---Yes.

Did you at any stage consider that he was presenting to you with symptoms of heat illness?---Yes.

Did you treat him accordingly?---I believe I did.

Now did you have a protocol in place in relation to people who did present with heat illness?---Yes.

What was it?---Protocols were issued after our basic medical course.

No, no, I'm talking about a protocol for his particular course. Perhaps I can give you an example. We've heard from Corporal Kelson that in relation to the discipline for the Subject II course, if they presented to the medic with symptoms of heat illness they were kept with the medic for a minimum of 4 hours, did you have a similar protocol?

---No. There was nothing here clinically – I had to keep him back.

I'm not asking you that, I'm asking you in relation to persons that presented to you with the illness, did you have a protocol in place that demanded they stay with you for 4 hours before they were re-assessed and returned to the field?---No.

Now you took the view that he was able to return to the field and you believed that his vital signs indicated that he was fine?---Yes.

You have also indicated that he wanted to go back?---Yes.

Did you have to discuss his return to the field with any of the directing staff before you returned him or not?---Yes, since he was – I can't remember the actual name.

But you did speak to one of the directing staff?---Yes, to say he's ready to go back out in the field.

And was it the case that the directing staff would you rely on your advice as to whether or not persons could return to the field?---Yes.

Now you were out in the defensive position during this time, how were the conditions so far as you were concerned?---Very hot. With the wind, very little wind, not a lot of shade at that time of day. However, that was during the reduced tempo period in which they were supposed to rest but it was a very, very hot day.

And was it a very, very hot day the day before?---It was not as hot, for some reason that particular day it was very hot.

And the day before?---Hot.

And on the Sunday?---Hot.

Were you sleeping on the position?---Yes.

So you were there the whole time?---Yes.

Were you also getting about the position and looking at soldiers to see how they were coping?---Yes, we were, twice a day.

Do you know what the signs of heat illness are, what you're looking for?---Yes.

Can you tell me what they are?---Headache, sweating, or in later cases no sweating, confusion, irritability, lethargy, things like that.

What about nausea and vomiting?---Yes.

So you spoke to the DS and said, 'He's fine, he can go back.'?---Yes.

And he was keen to return and he did?---Yes, he was, yep.

Now how (inaudible) Trooper Lawrence had you treated for what I'm going to call heat illness that day?

You're not going to find any solace in there, I'm asking you whether you can remember?

THE CORONER: Go on?---I think I saw about 10 people that day. Before Trooper Lawrence about four people that morning.

THE CORONER: Okay, what were you looking for just then?---I believe in the back here there was a register of how many people we saw, sir.

Back of what?---These notes.

Have we got that Ms McDade?

MS McDADE: Not that I'm aware of, there is a – in Colonel Charles' report there was a register of persons seen. Maybe that's what he's looking for.

THE CORONER: We can go back and have a look in a sec, but anyway, you remembering seeing four blokes that morning?---Yes, very early in the morning. Private Ryan saw a patient and went back to Scale A so on my own I saw about four patients before Trooper Lawrence first came and presented to me, sir.

MS McDADE: Do you recall when you were talking to Trooper Lawrence at any stage you asked him how much he had been eating?--Yes.

Did he inform you?---Yes, he told me that he hadn't been eating a lot, that's when we were out on position, I also had he been eating because they work a lot so they grab a quick bite when they can.

And did you make a note of what he told you he had eaten or not eaten, or you just remember that?---No, I just remembered that.

Now in your statement to Colonel Charles, I just want to show it to you. Have you got a copy there or if not I'll show you?---I'm not too sure, sorry.

THE CORONER: That day, the 10<sup>th</sup> or in the three or four days prior to that when these soldiers had been in the field and you'd been looking after them, had you had any reason to telephone or talk to

any other superior medical people about any of the soldiers you saw?---No, no sir.

Certainly no-one superior to you in medical confidence?---Only Corporal Kelson was on position sir.

Yes, did he come and see you?---No, he was in a separate - - -

In those three or four days?---Only when we were on the position, sir. When we were first at Scale A.

I know when you first arrived you saw him but after he moved out with the men?

---No, I didn't see him, sir.

It was you and Private Ryan all by yourself?---Yes, sir.

MS McDADE: Now perhaps I can ask you the question, you're looking at the police report, you're not going to find Colonel Charles' statement. Do you recall this question from Colonel Charles, if you don't I'll show you the statement.

'Are you aware of similar instances in the past?---Only Private Scott, his was very similar to Trooper Lawrence. Scott was working at a higher degree on his course, it was harder.'

Now there you're referring to Private Scott in the Subject II Corporal course?---Yes.

And to your knowledge it was a more difficult course than your special or infantry course?---Yes.

You then go on to say:

'Trooper Lawrence should not have had a drama with heat. He's a 2CAV person, they're outside a lot.'

So is it the case by making that comment, what you're meaning to convey was when he presented to you, you did not think that he was coming in with a heat illness?

---No.

You didn't did you?---Heat illness, yes.

You did? So what does that comment mean?---Sorry ma'am, what I'm just trying to get at he should have been acclimatised. I know they don't do a lot of PT on the course so he's level of fitness might have gone down but he's been up here for a few years and he was able to acclimatise to the heat.

So in your view he should not have had a drama with heat?---Yes.

THE CORONER: How long have you been in the Top End when you said that?---At that stage probably about 18 months, sir. I also spent six years in Townsville too, it's very similar.

The November month at Mount Bunday is that similar to the weather around Townsville?---No, it's hotter up here sir, it's more humid.

MS McDADE: I just want to clarify what you mean by that comment. Are you trying to convey to us by that comment that you did not believe that Trooper Lawrence should have had a problem. I'm asking you now that when you indicated what you thought his problem was, drinking too much water, and I've asked you about whether or not vomiting is an indicia of heat illness. I'm asking you whether or not you believed when he presented to you that he had a symptom of heat illness?---It was on my mind.

But principally it wasn't operating on your mind, was it?---It was a thought, yes ma'am.

A passing thought?

THE CORONER: It was a thought but what?---It was a thought but from the notes that he told me and the – basically everything that I got off him told me, what I believe, I don't think it was heat illness.

So it was in the back of your mind but having regarding to your examinations and what he told you, you dismissed it?---Yes, sir. Well, not dismissed but I made a different diagnosis, sir.

You're not in the gun sights, just relax.

MS McDADE: And is that why you were not so concerned about not being able to get his core temperature?

THE CORONER: I got the impression it didn't occur to you at all to think about core temperature?---I had nothing to take his core temperature.

But you didn't think about it at all anyway?---I was going of the normal thermometer.

Is that right, the notion of a core temperature didn't occur to you to be something to think about when you were with Trooper Lawrence?--No.

MS McDADE: This maybe conjecture to a certain order but say in any event you had similar protocols that were in place at 5/7<sup>th</sup>, that was keeping someone with you for four hours if they presented with a heat illness, given the circumstances of Trooper Lawrence's presentation and your assessment of it, you probably wouldn't have kept him there for four hours anyway?---That's right, ma'am. That was my assessment and I sent him away.

And you still would have sent him back irrespective if such a protocol was in place?

---I had no knowledge of that protocol, ma'am.

THE CORONER: No, what the lady's saying is that if there was a heat stress protocol that was in front of you that had you keeping that bloke for 4 hours, you wouldn't have kept him anyway because at the end of the day you didn't diagnose him as having heat stress?---Yes, sir.

Would that be right?---Yes, sir."

31. The deceased returned to his section at about 1300 hours. At 1530 hours he left (with other members of 4 section) the defensive position by vehicle to travel to the patrol insertion point. At 1600 hours the deceased and his section arrived at grid reference 114752 to commence their patrol. The first leg of their patrol was approximately 700 meters to grid reference 121751 where a section attack was conducted.

All of the participants had water with them and food by way of ration packs. At this stage the deceased was part of the assault group. I should add that the deceased had already completed and passed his assessment. On the day of his death he was making up numbers for the section so that others could complete their assessment, in this case SPR MARTIN. Prior to the commencement of the patrol SPR MARTIN indicated that the deceased

appeared to be fine however, after commencing the patrol he was of the view that the deceased was not comprehending his orders, in fact bounding when it appeared suitable to him. Other members of the patrol who observed the deceased did not notice anything out of the ordinary in his behaviour. After the assault and during the reorganisation phase the deceased was observed by SPR MARTIN and WO1 Lucas to be a little disorientated. Shortly thereafter he collapsed. He was then taken to the creek line where WO1 LUCAS amongst others administered first aid to him. A priority 3 casualty was called. This quickly changed when he lost consciousness to priority 2. He was then physically carried to the ambulance which had been called. It was the 5/7 ambulance (which had no air-conditioning). As he was being carried CPL KELSON who had come from 5/7 with the ambulance met them. He noticed that the deceased wasn't responding to any voice commands. The deceased was moved directly to the ambulance and taken back to "Scale A". When he returned to "Scale A" he was still unconscious, not responding at all. He was having trouble maintaining his airway. He was immediately upgraded by the medics to priority 1 with heat stroke. Attempts were made to stabilise him by using ice to cool him for approximately 20 minutes at scale A before he was put in the ambulance to meet the civilian ambulance. The civilian ambulance arrived at the rendezvous point at about 6:20pm. Ambulance Officer GRAYDEN observed that the deceased was at this stage plainly in a critical condition, totally non-responsive, laboured breathing, very hot to touch and extremely unwell. At the time of hand-over by the Army medics he had been cannulated and was receiving IV fluids intravenously, and ice had been applied. The civilian ambulance continued treatment by way of IV fluids and oxygen. The deceased was placed on a heart monitor. At one stage on route to hospital he vomited so he was rolled to his side and his airway suctioned. The ice that had been applied by the medics at this stage had melted. The civilian ambulance asked the police to meet them with ice. They met up with the police at the Palmerston lights on the Stuart Highway

and ice packs were placed around the deceased. Treatment continued en route to hospital but he was clearly in a critical condition. He deteriorated slightly about 3 to 4 minutes from the hospital and deteriorated greatly as they were bringing him up the ramp to Accident and Emergency. His respiratory effort went from laboured to almost extinct. He arrested once he was handed over to the trauma team at 1933 hours. The hospital had been warned of his impending arrival and had assembled an emergency medical team to receive the deceased at the hospital. He had a glasgowcoma score of 3; that score is a measure of consciousness, and he was in cardiac arrest (Cardiac Pulmonary Resuscitation) was commenced and he was ventilated. Advanced life support and adrenalin was administered. His initial temperature on arrival was 41.7 ascertained by a rectal probe temperature. He was iced externally. He was cooled significantly by .7 of a degree over the next 40 minutes. Despite intensive treatment from 1933 to 2225 hours the deceased did not respond. He was declared life extinct at 2225 hours. The senior treating doctor Dr Didier Palmer was of the view he died from hypothermia.

32. Dr Terry Sinton conducted the post mortem examination and determined that the deceased had died from acute heat stress.
33. The Defence Force appointed an Investigating Officer under the Defence Force Inquiry Regulations to investigate the death. He was subsequently reappointed to further inquire into whether any individuals should be held responsible for the death of the deceased. That Investigating Officer Colonel Michael Charles gave evidence at the Inquest and his very comprehensive reports were tendered. In essence Colonel Charles concluded after his investigation that systemic failures contributed to the death of the deceased. I had the following exchange with Colonel Charles (T191-193):

“THE CORONER: Colonel Charles, your reports speak for themselves. You're to be commended for their detail, in my view. Just a couple of things.

There's 70 or 80 young men in their 20s and 30s, one they tell me is 41. He must have been 40. All been in the army about three or four or five years. Need to be looked after by the army. I think that's now conceded and would have been conceded before. That's right?--  
-Yes.

There's been some explanation which I've got an open mind about at this stage about no-one in particular being responsible in any blameworthy way for what occurred and there's much talk about systems faults. That's right, isn't it?---Yes, your Honour.

Now this may be a small point. I don't know. It may have nothing to do any may not have prevented the death. But there were two medical enlisted men to look after those 60 or 70 people during the field operations. That's right?---Yes. That's correct.

And they were both qualified at the most basic level, so far as the army was concerned?---Yes.

Now as I understand the system that saw them there, in terms of how they operated that week, they were supposed to be supervised. Is that right?---I believe so, yes.

So that's not a systems failure. It can't be called a systems failure, can it? The system was there, the system as I understand it to be that they should have been supervised?---That's quite correct, your Honour, except the system we had a shortage of AMAs and I looked at the system has not recruited enough people in order to - - -

**Well, I was going to come to that. I understood from Lucas that that situation of having two medics with the most basic qualification out there during what must be called a dangerous phase of training was basically down to a resourcing issue. Is that right or wrong?---That's right.**

Just as it appears the - I'll put that aside, in that box there. There was one ambulance there, out there at Mt Bunday, was there?---Yes.

Just by the way, was that covering both courses or just the one course?---It belonged to 5/7 Battalion and the safety vehicle for the Subject 1 for Corporal was a Land Rover fitted with stretchers. So it was there - - -

In terms of being an ambulance fitted out as an ambulance with medical facilities therein, there was only one for both courses?--- That's right.

So how many men are we talking about then going through the training? 60 or 70 in the corporals' course and how many were in the other one, the other corporals' course?---A little less, I believe.

150 men all up? 140? I might be wrong but my impression from Lucas again was he was lucky to get what he got and that was also a resourcing issue in terms of a vehicle? Am I wrong in that or do you think I'm right in that?---I don't know what the resources were at the time they bid for them, I'm afraid. I can't answer that.

Yes, well, you put that down to systems problems. That may be the word to use. I'm not sure. Is that what you do, though?---That's the way I approached it, yes. Rather than in an individual because I was not able to identify - - -

I haven't got to individuals yet... ..”

34. Comcare also appointed an investigator Mr Robert Wray. Mr Wray gave evidence and his report was tendered. Again it was a comprehensive report and highlighted as did Colonel Charles' report a number of shortcomings and systemic failures. I found both reports, which speak for themselves, very helpful throughout the Inquest.
35. My only concern about the reports is that both investigators conclude that systemic failures caused or contributed to the death. As I indicated at the Inquest systems are made up of people who are required to make decisions that can affect others. In particular in the Defence Force, which is a disciplined hierarchical force, those holding senior appointments do make decisions that affect those who are subordinate ( in rank ) to them. For instance I do not criticise WO1 Lucas for maintaining the defensive scenario for the field phase, he was told it was to remain. Nor do I criticise him for not "pushing" the decision back to those in higher command.

36. Dr Stefan Rudzki had provided to Colonel Charles a frank assessment of the factors contributing to the deceased's' death. His evidence at the Inquest concerning his report was (T195-197):

“And before you wrote that report, you reviewed the medical records relating to Trooper Lawrence's death?---Those that were made available to me, yes.

And you had also available to you, various witness statements?---Correct.

I think you extracted parts of those witness statements and the parts that you think are crucial to the opinions you formed and attached them to your report?---Yes.

Then in your report at the second page, you say that you believe there are a number of system factors that contributed to Trooper Lawrence's death?---Yes.

And then you proceed to identify, I think, something - 15 factors.

THE CORONER: Mr Maurice, if it makes it any easier for you, and you can bring out all the factors you want. Perhaps you'd let me read what sticks out in front of me and ask him to confirm it, and then go and I won't interfere any more. If that's okay?

MR MAURICE: That's so, sir.

THE CORONER: I understand, doctor, that it was your professional opinion that Tpr Lawrence died as a result of exertional heat stroke. 'It is also my opinion that he sustained several and possible irreversible brain damage for the time he was evacuated from his patrol location'. Is that right?---Yes.

And when you look into the factors contributing to death, you highlight the following amongst other factors, 'It is my view that none of the soldiers or staff understood the true hazard posed by exposure to high temperatures. The constant theme is one of dehydration as a threat and commendable effort was put into ensuring hydration. The regular use of IV therapy was for rehydration purposes'. That's the canulation, is it?---Yes. Well, the canulation is the insertion of the needle. The infusion is the giving of fluids.

And that explains all the fluid packs that the medicos were taking down there. 'The regular use of IV therapy was for rehydration

purposes but it also had the unrecognised benefit of being a highly-effective method of cooling core temperature. It is my view that if this practice had not been widespread, it is highly likely that more severe casualties would have occurred sooner. Failure to appreciate the hazard posed by heat led to failure to manage the risk effectively.' And you go on to note, 'Medical staff are returning soldiers to training without ascertaining core temperatures and the absence of rectal thermometers.' You go on to note the problems with the use of basic medical assistance in an unsupervised role. And you go on to constructively criticise some of the treatment handed out by those medics that day. You go on to say, 'Failure to adequately appreciate heat as the prime threat is also illustrated by the practice of wearing T-shirts under the uniforms. The body's main method of losing heat is the evaporation of sweat. The use of T-shirts to soak up sweat greatly reduces the ability of the body to cool itself.' You want that looked into as well as the simple things like the use of woollen socks in tropical areas which would also increase heat retention. You go on to note - I don't say this in a pejorative way - but note the obvious, that the buddy system appeared to have failed Tpr Lawrence, that there appeared to be a culture that training took priority over all other issues and commencing a patrol activity in poor physical condition increases the risk of potential harm. You go on to note that 'There is clear evidence of troops and staff being desensitised to the risk and consequences of heat injury.' I might say, doctor, that that was somewhat apparent yesterday, I thought. 'Troops appeared to expect to fall victim to heat injury and be "bagged"'. You note the high statistics of heat casualty rates and you question just what is an acceptable casualty rate in that regard. About the acclimatisation is likely to have been a key issue. And traditional army methods in that regard, you are not sure about at all. You talk about what you think may be the loss of emphasis on the simple measure of replacing salt as well as water in hot climates and you question the limitations of the current ration pack in hot environments. So far as you were concerned, 'It's clear that neither the medics nor the staff understood the diagnosis of heat stroke. Heat stroke is the condition with a 20% mortality and a 20% residual neurological shock stroke. It's a medical emergency. That this was not recognised or understood represents a systemic training failure.' And you once again, go on to say that and I'll say it perhaps in a way that you didn't, that it's almost a matter of luck that there wasn't any other fatality such as Lawrence occurring earlier because of the use of fluids for rehydration purposes. And how lucky enough that helped cool the core temperature. In your conclusion, you note something that I was rather interested in. 'Lawrence died as a result of exertional heat stroke on a day where anecdotally, it was extremely hot. Training decisions were not informed by the actual

heat stress being experienced and risk mitigation focused primarily on fluid replacement. In my view, a defeatist culture had evolved regarding heat injury. Everyone expected to fall victim to heat.' And you once again emphasise that there was a failure to appreciate the threat posed by heat itself. 'Effort must be directed improving policy guidance to commanders and comprehensive heat injury training for all ranks'. I'll stop it there. We had a most impressive witness yesterday, Warrant Officer Lucas. He was in charge of things that day. It may be, and I've got an open mind still about it all, that he would have benefited greatly by specific training and advice in relation to heat stroke and its severity and incidence, rather than have to rely on 'experience'. And I think he was relying on, in terms of what he did - - -?---Sir, army have acknowledged that. We have re-written our policies completely.

That's not a reflection on Lucas, by the way.”

37. Dr Rudzki has since the death of TPR Lawrence been appointed as the Director of Occupational Health and Safety – Army. As I noted at the Inquest I was surprised that the Army did not have any internal audit system in place at the time of the deceased's' death to monitor the incidence of heat injury. The Army has clearly addressed this issue and I commend it for doing so. (T198-200):

“All this data was correct and up to 2005, well, probably the bulk of it was collected before Trooper Lawrence died, and it doesn't appear that anything was made of it. Is that a fair statement?---Yes.

And how can the coroner have confidence that in the future, the collection of this data will actually lead to analysis and action?---It is now my personal responsibility to collect it and I can assure you that it will be done.

And how frequently will that occur?---We get all the notifications as they arise. We're establishing a database and will be reporting the data monthly to commanders.

To commanders. Is there any mechanism to ensure that action you recommend is taken?---We will be monitoring. If we see trends that we perceive to be hazardous, we'll notify commanders and then we'll monitor the ongoing performance once commanders have been notified. And there are mechanisms in place to intervene if the initial advice is not providing fruitful results.

Is it correct to say that the Chief of the Armed Services himself is directly overseeing the - - -?---Absolutely, the Chief of Army has made the occupational health and safety of the army a key priority and he is quite adamant that commanders will be held accountable for the health and safety of their troops.

This is part of the Army Safe initiative?---Yes, it is.

Which I think was announced earlier this year?---That's correct.

It coincides to some extent with Trooper Lawrence's death, but it was something that was occurring anyway?---No, the work had commenced earlier in 2004 and was independent of the unfortunate incident involving Trooper Lawrence.

THE CORONER: But I think just on that, that I'm pleased to hear that. I said something yesterday about it being sad that it took the death of a soldier to prompt these kind of commendable initiatives. But you're saying that it was already in the pipeline, was it?---Yes, sir. It was.

There are quite a substantial number of new positions, occupational health and safety positions to be created as a result of the Army Safe initiative?---That's correct.

Approximately how many such positions?---Roughly of the order of 80 positions but perhaps in structural terms, every formation which for example 1 Brigade is a formation will have a permanent safety adviser who'll be working to me and will be available to (a) monitor and (b) advise commanders of their performance and give them advice as to how they might mitigate risks in their workplaces.

There hasn't been anyone performing that function before, is that correct?---Not on a full-time basis. We've had people who have been tasked with that safety role but it's usually not been a full-time position.

So these people will be exclusively focused on occupational health and safety issues concerning their particular unit?---Yes.

And what sort of access will they have to their commanders?---Very good access. They are the commander's key adviser in occupational health and safety.

So they'll be - you'd expect that certainly someone like Brigadier Bornholt in charge of regional training would be in daily contact

(inaudible)?---I hope not because that would tend to reflect concerns but certainly the brigadier would have access when and how he chose and the adviser equally. If there were matters that needed to be brought to the commander's attention, he would have instant access.

Coming back to the specifics of what's been done and is about to be done to render the deficiencies brought to light by Trooper Lawrence's death, first of all in relation to training exercises or training carried out in environments where there's a risk assessed of heat injury occurring, what will be the requirements for medical assistance in the field?---We have produced a work/rest table that has stratified risk levels and with increasing risk, there is an increasing requirement for the sophistication of the level of medical care provided. So in the high and extreme risk categories, there will be a requirement to have a resuscitation team available to support the activity. And there are other requirements that have been mandated that commanders must formally address before exercising in high and extreme heat conditions. The Chief of Army has become more directive, whilst not forbidding activities, he's given clear guidance that commanders must undertake a thorough and comprehensive risk assessment before conducting activities and to ensure they have adequate control measures and mitigation strategies in place in the event that casualties occur.

So if the - if heaven forbid that circumstances dictated that a subject 1 corporal's course had to be run at mount Bundey in the wet season, you wouldn't expect to find two basic medics the medical backup?--- If it was in the higher extreme range, no. And that's - well, for starters, we wouldn't anticipate having unsupervised basic medical assistant operating independently in the future. But for example if we had an advanced medical assistant, that would be insufficient in a high or an extreme risk situation.

An advanced medical?---Would be insufficient. No, you would need a resuscitation team which includes a doctor and a nurse.

And in terms of the - you've been sitting in this afternoon and listened to the two medics who were part of the Subject 1 corporals course in November last year. There appear to be virtually no protocol for - concerning the team of soldiers to the course, so they - once a question had been raised about whether they were subject of heat injury or illness, what's the position regarding that?---A draft protocol specifying clear return to work criteria has been produced and is currently being sent to our consultative groups in emergency medicine and occupational medicine for comment. And we anticipate

a very comprehensive and detailed protocol being issued by the defence health service branch within the next two weeks.”

38. I should comment about the medical evidence given at the Inquest relating to heat stroke. It appears that heat stroke can occur suddenly and unexpectedly and not be preceded by any obvious symptoms. Apparently some people are more susceptible to heat stroke, and there is no test that can be conducted to ascertain an individual's susceptibility. In some cases of course there will be obvious signs of heat injury. In those cases steps can be taken to prevent the onset of heat stroke.
39. The Defence Forces appear to have now appreciated the dangerous nature of training in hot and humid climatic conditions and taken positive steps to prevent a similar death. It is indeed unfortunate that it took the death of TPR Lawrence and the near death of PTE Scott for that to happen. This was a preventable death and the Army has acknowledged that. I refer to Counsel for the Army's opening remarks: (T6):

“Yes, your Honour. Your Honour, the Army's position is that this was a preventable death, that the death of Trooper Lawrence has exposed systemic faults in the Army's processes and procedures – procedures and policies relating to the prevention and treatment of heat injury. No individuals were at fault, all personnel behaved or performed to the best of their abilities within the limits of their training experience and the equipment available.

As a result of the death of Trooper Lawrence the Army has instituted wide ranging reforms to ensure an incident of this kind doesn't happen again and those reforms are ongoing. There will be evidence about them during the hearing. And finally, your Honour, the Army apologises to the family and friends of Trooper Lawrence and that apology will be delivered later on in your Honour's inquiry through Brigadier Bornholt who is present and might I also ask in relation to him then, your Honour, that he have leave to sit in during the course of the inquiry, Brigadier Mark Bornholt is his name. Although he will be a witness he's really – he can give no evidence about the circumstances surrounding the death.”

## **RECOMMENDATIONS**

40. I note and commend the pro-active measures taken by the Army in response to this death, and its fulsome apology to the family of the deceased. However, I do recommend that the Chief of Army review (once again) the position of some of those responsible for allowing the exercise to occur during which the deceased became ill. I accept the evidence of WO2 Wallace that he specifically warned higher command that exercises at the place, and at the time of year, during which the deceased became ill would lead to death. This warning was echoed to a significant extent by WO1 Lucas. I note that WO2 Wallace gave oral evidence about this warning at the Inquest, as well as in his statement which had been made quite some time before the Inquest. Nothing I heard or read suggests that this explicit warning was not given. I remain unsure that this warning was taken seriously enough or that the response was appropriate enough in the circumstances.

Dated this 31<sup>st</sup> day of October 2005.

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GREG CAVANAGH  
TERRITORY CORONER