



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR COMBAT COMMAND  
LANGLEY AIR FORCE BASE, VIRGINIA

OFFICE OF THE COMMANDER  
205 DODD BOULEVARD SUITE 207  
LANGLEY AFB VA 23665-2788

22 JUN 2009

**MEMORANDUM FOR ACC/JA**

**SUBJECT: AFI 51-507, Ground Accident Investigation Report – 9 January 2009, CCSC  
Training Fatality, Lackland AFB, TX**

I have reviewed the Ground Accident Investigation Board Report regarding the Class A ground mishap wherein a trainee died in the Combat Controller course at Lackland AFB, TX, on 9 January 2009. The report prepared by Lt Col Paul H. Harris complies with the requirements of AFI 51-507 and is approved.

  
**R. MICHAEL WORDEN**  
Major General, USAF  
Vice Commander

**Attachment:**  
**Ground Accident Investigation Board Report**

# **United States Air Force Ground Accident Investigation Board Report**

## **CCSC 09-003 Mishap**

### **Lackland Air Force Base, Texas**

**9 January 2009**

#### **EXECUTIVE SUMMARY**

On 9 January 2009, at approximately 0826 local time (L), a 30-year-old male Staff Sergeant who was cross training from the Security Forces career field into the Combat Control career field lost consciousness while treading water in the Skylark pool at Lackland AFB, Texas. The accident occurred while students of Combat Control Selection Course (CCSC), Class 09-003, were performing water skills training. The Staff Sergeant died as a result of the accident. There were no other injuries related to the mishap, and no accident-related damage to property.

The Staff Sergeant began the ten-day CCSC on 5 January 2009. On the morning of 9 January 2009, the class was scheduled to perform water skills training. Immediately preceding the accident, the class performed two 500 meter swims and approximately 150-200 flutter kicks. The Staff Sergeant then entered the deep end of the pool with his classmates, and they began to tread water. After approximately 6 minutes, he lost consciousness. A CCSC instructor in the water at the time immediately removed him from the pool. A CCSC instructor and an EMT-trained student began cardiopulmonary resuscitation (CPR). Another student called 911 and a nearby ambulance arrived within 3 minutes. The Staff Sergeant was then transported to the emergency department at Wilford Hall Medical Center, Lackland AFB. The Staff Sergeant never regained consciousness. On 12 January 2009, he was taken off of life support and pronounced dead at 1610L.

**SUMMARY OF FACTS  
CCSC 09-003 MISHAP  
LACKLAND AIR FORCE BASE, TEXAS  
9 JANUARY 2009**

**TABLE OF CONTENTS**

<b>TABLE OF CONTENTS .....</b>	<b>i</b>
<b>COMMONLY USED ACRONYMS &amp; ABBREVIATION .....</b>	<b>ii</b>
<b>SUMMARY OF FACTS.....</b>	<b>1</b>
1. AUTHORITY, PURPOSE, AND CIRCUMSTANCES .....	1
2. ACCIDENT SUMMARY .....	1
3. BACKGROUND.....	2
4. SEQUENCE OF EVENTS.....	6
5. MAINTENANCE. ....	16
6. EQUIPMENT, VEHICLES, FACILITIES, AND SYSTEMS.....	17
7. ENVIRONMENTAL CONDITIONS .....	17
8. PERSONNEL QUALIFICATIONS.....	18
9. MEDICAL FACTORS.....	19
10. OPERATIONS AND SUPERVISION.....	23
11. HUMAN FACTORS ANALYSIS .....	23
12. GOVERNING DIRECTIVES AND PUBLICATIONS.....	25
13. NEWS MEDIA INVOLVEMENT .....	27
14. ADDITIONAL AREAS OF CONCERN.....	27

## COMMONLY USED ACRONYMS & ABBREVIATION

ACC	Air Combat Command	EMT-B	EMT-Basic
ACLS	Advanced Cardiac Life Support	EMT-I	EMT-Intermediate
AED	Automated External Defibrillator	EMT-P	Paramedic
AETC	Air Education and Training Command	ETT	Endotracheal Tube
AFB	Air Force Base	GAIB	Ground Accident Investigation Board
AFI	Air Force Instruction	G&G	Grass and Gorilla Drills
AFSC	Air Force Specialty Code	IV	Intravenous
ALS	Advanced Life Support	L	Local Time
AOR	Area of Responsibility	LAFB	Lackland Air Force Base
AST	Advanced Skills Training	M	Meter(s)
ATL	Assistant Team Leader	MERC	Medical Equipment Repair Center
BIC	Basic Instructor Course	Min	Minute(s)
BLS	Basic Life Support	MIR	Minimum Instructor Requirements
BMT	Basic Military Training	NCO	Noncommissioned Officer
BVM	Bag Valve Mask	NSAID	Non-Steroidal Anti-Inflammatory Drug
cc	Cubic centimeters		
CCS	Combat Control School	OI	Operating Instruction
CCOC	Combat Control Operators Course	PA	Public Affairs
CCSC	Combat Control Selection Course	PAST	Physical Ability Stamina Test
CCT	Combat Control	PEA	Pulseless Electrical Activity
CFETP	Career Field Education and Training Plan	POI	Plan of Instruction
		SIE	Self-Initiated Elimination
CPR	Cardiopulmonary Resuscitation	TDY	Temporary Duty
CTS	Course Training Standard	TL	Team Leader
DMT	Discipline and Motivational Training	TRS	Training Squadron
DOD	Department of Defense	TRW	Training Wing
ED	Emergency Department	TX	Texas
EKG	Electrocardiogram	USA	United States Army
EMS	Emergency Medical Services	USAF	United States Air Force
EMT	Emergency Medical Technician	WHMC	Wilford Hall Medical Center

The above list was compiled from the Summary of Facts, the Statement of Opinion, the Index of Tabs, and witness testimony (Tabs R and V).

**United States Air Force Ground Accident Investigation Board Report  
Training Related Accident, Lackland Air Force Base, Texas,  
9 January 2009**

**SUMMARY OF FACTS**

**1. AUTHORITY, PURPOSE, AND CIRCUMSTANCES**

**a. Authority**

On 13 March 2009, Major General R. Michael Worden, Vice Commander, Air Combat Command (ACC), appointed Lieutenant Colonel Paul H. Harris as Board President of a Ground Accident Investigation Board to investigate a mishap that occurred on 9 January 2009 involving a student in the Combat Control Selection Course, Class # 09-003, (CCSC 09-003) at Lackland Air Force Base (LAFB), Texas (TX). (Tab Y-3) The investigation was conducted at LAFB from 16 March 2009 through 30 March 2009. Technical advisors were Major Karl L. Brown (Medical), Captain Jason R. Smith (Legal), Senior Master Sergeant Michael L. Fleming (Subject Matter Expert), and Technical Sergeant Teresa M. Hodgson (Recorder). (Tab Y-3)

**b. Purpose**

The purpose of this investigation is to provide a publicly releasable report of the facts and circumstances surrounding the accident; to gather and preserve evidence for claims, litigation, disciplinary, and adverse administrative actions; and for other purposes. This report is available for public dissemination under the Freedom of Information Act.

**c. Circumstances**

The accident board was convened to investigate the Class A accident involving a student who was participating in CCSC 09-003.

**2. ACCIDENT SUMMARY**

On 9 January 2009, at approximately 0836 local time (L), Staff Sergeant Kenneth J. Wilburn, a 30 year-old male student, hereinafter referred to as the mishap student (MT), on day five of the ten-day CCSC 09-003 at LAFB, lost consciousness while treading water. One of the CCSC instructors was in the pool within two arms' length of the MT and observed him go underwater. The instructor swam under the water to view the MT and he appeared unconscious. The instructors immediately recovered the MT to the deck of the pool and cardiopulmonary resuscitation (CPR) was initiated. One of the other students called 911 emergency services at 0839L, and emergency medical services (EMS) arrived within three minutes. EMS loaded the MT on the ambulance at 0850L and arrived at Wilford Hall Medical Center (WHMC) emergency department (ED) at 0855L, and then the ED took control of his care. The MT never regained consciousness. On 12 January 2009, at the request of the family, he was removed from life

support at 1522L and declared deceased at 1610L. There were no other injuries related to this mishap, and no accident-related damage to property.

### 3. BACKGROUND

The MT was permanently assigned to the 820th Security Forces Group (820 SFG), 93rd Air Ground Operations Wing, Moody AFB, Georgia (GA). (Tab B-1) At the time of the mishap, he was temporarily assigned to the 342nd Training Squadron (342 TRS) for CCSC 09-003. (Tabs B-1, O-6) The 342 TRS is a squadron within the 37th Training Group (37 TRG). (Tab CC-21) The 37 TRG is a group within the 37th Training Wing (37 TRW), LAFB. (Tab CC-23) The EMS responders and medical personnel who treated the MT were assigned to WHMC, 59th Medical Wing (59 MDW). (Tab CC-25)

#### a. Lackland Air Force Base, 37th Training Wing (37 TRW)

LAFB is home to the 37 TRW, the largest training wing in the Air Force. The wing provides basic military, professional, technical and English language training for the military services, government agencies and allies. The base's four primary training functions graduate more than 86,000 students annually. The base is named for Brigadier General Frank D. Lackland, who originated the idea of an aviation cadet reception and training center there. The base's mission is to provide basic training for all non-prior service airmen of the regular Air Force, Air National Guard, and Air Force Reserve; provide modern technical training in the fields of security and law enforcement, military working dog handling, combat arms, recruiting, supply, transportation, services, food preparation, and social actions. (Tab CC-23)



#### b. 37th Training Group (37 TRG)

The 37 TRG provides professional, military and technical training in the knowledge and skills needed for graduates to perform their jobs worldwide. Joint service training for Air Force, Army, Navy and Marine personnel is provided in numerous courses, such as the military working dog program and security and law enforcement. The 37 TRG is comprised of six squadrons: 37th Training Support Squadron, 341st Training Squadron, 342 TRS, 343rd Training Squadron, 344th Training Squadron, and 345th Training Squadron. Most students enter technical training immediately after completion of basic military training upon selection for their first assignment. Others may cross train from their current specialty. Technical training at the 37 TRG is accredited by the Commission on Occupational Education, Southern Association of Colleges and Schools, the Defense Acquisition University, and the Community College of the Air Force. (Tab CC-21)



**c. 342nd Training Squadron (342 TRS)**

The 342 TRS is the home of all Air Force Special Operations entry level training and advanced security forces skills. The squadron provides Pararescue, Combat Control, Survival Evasion Resistance Escape, Tactical Air Control Party and Explosive Ordnance Disposal recruitment, screening and training in support of Air Force units worldwide. (Tab CC-21)



**d. Wilford Hall Medical Center (WHMC), 59 MDW**

WHMC is the Air Force's largest medical facility and is a national resource, providing complete medical care to military healthcare beneficiaries in the United States as well as specialized care to patients referred from all over the world. WHMC's mission is to provide global medical readiness capability and comprehensive peacetime healthcare benefits supported by education, training and research. (Tab CC-25)



**e. History of Combat Control (CCT) Career Field**

The CCT career field was created by the United States Air Force (USAF) in 1953. CCT was created as the need for precision tactical air control became apparent during the early years of the Korean War. (Tab CC-5)



The mission of CCT is to direct and control the delivery and battlefield application of lethal and non-lethal airpower through the use of visual and electronic aids to control the airhead in the area of responsibility (AOR). During the course of operations, combat controllers conduct reconnaissance and surveillance of potential assault zones and target areas; plan, organize, supervise, and establish air traffic control (ATC) in the AOR/target area; identify, assess, and mark assault zones with visual and electronic navigation aids for day and night air-land and airdrop operations; and conduct fire support operations through the application of close air support and Joint Terminal Air Control. (Tab CC-17)

Combat controllers deploy into forward areas and forward operating locations by land (mounted, special purpose vehicle or dismounted), sea (surface or subsurface naval vessel, small watercraft, SCUBA, or surface swim), or air (parachute, airmobile, air-land). (Tab CC-17)

The CCT career field is a challenging career field. The challenges of this job calls for students to be trained early and often on situations they will face in the real operational environment. The training must test a person's character so that when that person ends up in the deployed environment and the bullets start flying, he will be able to appropriately react when it matters. (Tab R-13.44)

#### **f. CCT Selection Process**

The different paths for entering the CCT career field are non-prior service (NPS) who enter through the Guaranteed Enlisted Program; in-service cross trainees (first term and career airmen); or through the Prior Service/Sister Service (PS/SS) program. NPS trainees may enter through the Guaranteed Enlistment Program or by volunteering during BMT. To be accepted for training into the CCT career field candidates must have the requisite security clearance and volunteer for hazardous military duties to consist of parachuting (static line and freefall), marine diving (surface and underwater operations), and demolitions. Candidates must also medically qualify under a Class III Flight Physical/Medical qualification for traffic controller duty, marine diving duty, and parachute duty in accordance with Air Force Instruction (AFI) 48-123, *Medical Examination and Standards*. The career field is restricted to male enlisted personnel of any age. (Tab Z-3 thru Z-5, Z-9, Z-10)

Before beginning formal training, candidates must take a physical ability and stamina test (PAST). The PAST includes the following events: 2 x 20 meter underwater swim; 500 meter surface swim; 1.5 mile run; pull-ups; sit-ups; push-ups; and flutter kicks. The events are performed consecutively with rest periods in between. Failure to meet the minimum standards in any category eliminates candidates from selection. (Tab Z-3 thru Z-5)

Once a candidate has successfully completed the PAST and medical examination requirements, they are qualified to enter the CCT pipeline. The CCT pipeline consists of CCSC, Combat Control Operator Course (CCOC), Combat Control School (CCS), and Advanced Skills Training (AST). (Tab AA-9 thru AA-18) NPS trainees report to the CCSC after successful completion of BMT. Cross trainees are given a CCSC start date as soon as possible upon USAF approval for cross training. PS/SS trainees report two weeks prior to the start of the CCSC to attend a one-week "Blueing" course at LAFB where they are issued uniforms and instructed on USAF history and other USAF customs and courtesies before they are in-processed at the 342 TRS to await the start of the CCSC. (Tab Z-3 thru Z-6)

#### **g. The Combat Control Selection Course (CCSC)**

The CCSC was created on 28 August 2008. Its predecessor course was known as the Combat Control Orientation Course and started in December 2000. The Orientation Course was created due to new USAF guidance released in October 2000 that allowed CCT candidates to by-pass the PJ (pararescue)/CCT Indoctrination Course. The Combat Control career field leadership met in November 2000 to discuss this change and decided to create the Orientation Course. The only changes from the Orientation Course to the CCSC are the name and the addition of a requirement for a PAST on the first day of the course. (Tab V-10.2)

The CCSC is a two week (10 training days) orientation course designed to ensure all students in the CCT pipeline are at a relatively similar physical and mental condition at the beginning of the CCOC, allow them to function better as a team, and improve their chances of success in subsequent pipeline courses. During the CCSC, time is devoted to improving physical conditioning, building self-confidence, and cultivating an appreciation of the CCT career specialty. (Tabs O-4, V-10.2)



Because the CCSC is an orientation course, it does not require a course training standard (CTS) or a plan of instruction (POI) in accordance with AETCI 36-2203, *Technical and Basic Military Training Development*. (Tabs O-4, AA-47) A CTS is a document that identifies the training and level of proficiency to be provided in a specific course. This document serves as a contract between AETC and its customers. A CTS may also identify optional supplemental training requirements. A CTS may also be used to identify both mandatory and optional course requirements in USAF officers' Career Field Education and Training Plans. The CCSC has not developed a CTS.

A POI serves as a course control document, organized by blocks and units in the preferred sequence of instruction. It lists the objectives to be accomplished during the course, the support materials needed, and the apportionment of training time. Actual instructional times may vary due to differences in class size or student ability. Although the CCSC does not require an official POI, the 342 TRS has developed an unofficial POI that is labeled "Instructional Guide." (Tabs O-4, AA-47)

The CCSC provides mentoring/coaching in running, calisthenics, swimming, water skills introduction, team building skills, and psychological enhancement training. Students are also introduced to the following basic CCT skills: rucksack loading/carrying, sports injuries/nutrition, functional strength, land navigation, adverse terrain, operations/missions, and ATC. (Tabs O-4, O-8, R-14.19) No subsurface, i.e. underwater, events are implemented at the CCSC. (Tab AA-10)

During the CCSC, students are briefed on health and nutrition, and they are warned about the dangers of dehydration and the negative effects of some health supplements. At the beginning of the CCSC, all students are required to sign a form acknowledging the 342 TRS policy that prohibits possessing or consuming any sports or health food supplements during the CCSC unless they have been provided or approved by the instructors or a USAF Flight Surgeon. (Tab R-2.14, R-14.35)

There are no formal measurements at the CCSC. However, it is desired that students successfully complete all course requirements. (Tab O-4) Formal measurements are not necessary since the CCSC is meant to give CCT candidates an introduction to everything that they will be exposed to in the pipeline, so they can decide if it is something that interests them. (Tab R-14.8)

The physical and mental challenges for CCT skills are extremely demanding and the average attrition rate for the CCSC is a 50%. Attrition generally falls into three categories: failure of PAST on the first day of the CCSC, self-initiated elimination (SIE) or medical conditions that prevent continuation. The CCSC instructors are not permitted to force students to quit the course. (Tab R-12.39) A SIE is initiated by the student by stating he quits or by quitting by action. When a CCSC student SIEs, the student is removed from the current course. (Tab R-12.6, R-12.63, R-14.5, R-14.53) Depending on the physical ability, determination and motivation of the student, he may be permitted to return to the next CCSC. The CCSC instructors do not have a specific quota for the number of students that are to be eliminated from the course.

(Tab R-14.8) Thus, there is nothing to prevent all students initially enrolled in a CCSC from completing it. (Tab R-12.8)

After graduating from CCSC, CCT trainees must complete the following courses to qualify as combat controllers: CCOC for initial ATC training, United States Army (USA) Airborne Parachutist, USAF Survival, and CCS. (Tab AA-9 thru AA-18)

Upon completion of CCS, trainees are awarded their 3-skill level (apprentice level). They then go to Hurlburt Field, Florida, to attend the 12-month AST course. While in AST, students attend these additional courses: USA Military Freefall Parachutist, USAF Combat Divers Qualification, and USAF Underwater Egress Training. Upon completion of AST, students are designated as 5-skill level (journeyman level). (Tab AA-12, AA-39, AA-41) AST is last required formal training for combat controllers.

#### **h. Staff Sergeant Kenneth J. Wilburn**

The MT enlisted in the USAF on 14 January 1998. After completing BMT, he reported to Camp Bullis, TX, for Security Forces (military police) technical training. He then received permanent change of station (PCS) orders to the 321st Security Forces Squadron (SFS), F. E. Warren, Wyoming, and worked as an alarm response team member there from May 1998 to September 1999. He then received PCS orders to the 48th SFS, Royal Air Force Lakenheath, United Kingdom, and served there from September 1999 to October 2002 as a Security Forces member. He then received PCS orders to the 824 SFS, Moody AFB, and worked as a fire team member then as a fire team leader during the time frame from October 2002 to January 2007. He then received a permanent change of assignment to the 820 SFG, Moody AFB, where he served as the Noncommissioned Officer in Charge of Training. The MT was actively involved in his unit's fitness program, leading physical training with the unit in the mornings and working out on his own in the afternoons to keep fit. He was known to regularly work out four times per day. The MT successfully completed the USA Airborne and USA Ranger schools, and he used his training to take over as the leader for Phase I of the Pre-Ranger course taught at Moody AFB. He deployed two times in support of Operation IRAQI FREEDOM. During his deployment from June to December 2006, he was an assistant squad leader conducting patrols in the Al Doura district and performed police transition team missions throughout the Baghdad AOR. (Tab CC-29 thru CC-36)

The MT is survived by his wife, nine year old daughter, and newborn daughter.

#### **4. SEQUENCE OF EVENTS**

The MT was selected to cross train to CCT. He was scheduled to attend CCSC in June 2009, but another military member dropped out of CCSC 09-003 before it began which created an opening for the MT to attend earlier. (Tab R-18.3) He was excited and highly motivated about the opportunity to cross train and getting into the earlier CCSC. (Tab R-14.1, R-18.1, R-19.5) He began intense individual conditioning training in September 2008 in preparation for the CCSC.

The MT arrived and in-processed LAFB on Friday, 2 January 2009. (Tab G-3) The MT was the senior ranking enlisted member among students at CCSC 09-003; therefore, he was designated the Assistant Team Leader (ATL). The ATL is responsible for ensuring the other students are ready for the start of the course. (Tabs O-6, pp. 11-12, R-18.2) His experience in the USAF also allowed him to provide guidance and mentoring to a second lieutenant student, who was designated the Team Leader (TL). The lieutenant was the sole officer student, but he had come directly from the USAF Academy and had little military operational experience. (Tab R-17.5) On Saturday, the MT did some familiarization on various water skills exercises at the pool with other students, and some of the students observed that the MT was not very strong in the pool. (Tab R-17.2, R-19.1 thru R-19.2)

Monday, 5 January 2009, was the first day of CCSC 09-003 and the students were required to take the PAST. (Tab O-8) The following table displays the minimum passing scores and the MT's scores.

PAST, 5 January 2009						
Event	1.5 mile run	Pull-ups	Sit-ups	Push-ups	500 meter swim	Flutter kicks
<b>Minimum Scores</b>	<10:45 min	≥6	≥45	≥45	<14:00 min	≥45
<b>MT's Scores</b>	9:59 min	15	75	56	13:10 min	50

His scores ranked him in the middle of his class. His swim time ranked 25<sup>th</sup> out of 31 students tested. Swim times for the class ranged from 8:52 to 15:35 minutes. (Tab G-2)

Starting on the second day of the CCSC, the students began each day with a water skills session from 0700-0900L at Skylark pool, except for Thursday when the students went to the firing range for M-9 training and qualification. (Tabs O-8, R-13.14) Skylark pool is an enclosed pool with a maximum depth of 9 feet. The pool is reserved for the CCSC during their water skills training. (Tab R-13.14, R-15.13) The students usually finish their water skills training by 0850L to give them time to shower and change before the bus departs at 0900L to take them to their next training session for the day. (Tab R-12.19, O-8) The course schedule is intended to be organized to alternate between more physically challenging days and less physically challenging days. (Tab R-13.14) For week one of CCSC 09-003, Monday (day one) was considered an easier day, other than the PAST; Tuesday (day two) was a more challenging day; Wednesday (day three) was an easier day with mostly lectures in the afternoon; Thursday (day four) was an easier day with M-9 training most of the day; and Friday (day five) was set up to be the most challenging day of the week. (Tabs O-8, R-13.14)

The water skills session on day two of CCSC 09-003, Tuesday, 6 January, was an introduction to pool procedures such as walking briskly around the pool deck - no running, entering the pool, donning scuba gear, and performing various swim strokes. (Tab R-15.2)

After the Tuesday water skills session, the students did the Adverse Terrain Course, which included Grass and Gorilla (G&G) drills. (Tab O-3, O-8, R-12.9) G&G drills are exercises that feature rapid changes in body position, develop all the major muscle groups, and develop muscle

memory for basic military skills. (Tab O-3) The MT cut his hand during this event, but he did not report it. After the students completed the session, the TL reported the MT's injury. The MT was taken to Reid Clinic, an outpatient clinic at LAFB, to have the wound treated. (Tabs R-14.9, FF-117) The clinic sutured the wound; prescribed him Septra DS (oral antibiotic), Mupirocin (topical antibiotic), and Motrin (ibuprofen – a non-steroidal anti-inflammatory drug (NSAID)); and returned him to duty without limitations. (Tabs R-14.9, FF-117)

The next training session on Tuesday was a classroom session from 1300-1430L taught by the swim coach that featured a short video that demonstrated how to tread water using the "eggbeater" method. The eggbeater method is a method of staying afloat in the water by using the legs only in a motion that looks similar to an eggbeater and does not require use of the upper body. The video included underwater footage so the students could see the proper leg motions. (Tab R-12.12, R-15.5) The MT was at Reid Clinic for his hand from 1340L until 1624L, so he missed most, if not all, of this session. (Tab FF-117, FF-118)

He also missed the last session on Tuesday, which was an introduction to rucksack marching that occurred from 1430-1600L. (Tab O-8) This event involved the students carrying 45 pound rucksacks while walking two quarter-mile laps on the track. (Tabs O-4, O-5, R-12.7, R-14.22)

During the water skills session on day three of CCSC 09-003, Wednesday, 7 January, the students practiced the eggbeater method for 15 to 20 minutes. (Tab R-15.5) The MT was present for this practice. First, one of the students familiar with it demonstrated for the rest of the class, and then the rest of the class practiced. (Tab R-15.5) Since this was their first time trying it in the class setting, they were allowed to hold onto the edge of the pool while doing it. (Tab R-12.12, R-15.5) The remaining sessions for Wednesday were classroom sessions, except for the introduction to running session in the afternoon that included a 1.5 mile run broken into quarter-mile intervals. (Tab O-8)

Day four of CCSC 09-003, Thursday, 8 January, started off with M-9 training at the firing range. Since the MT was a Security Forces member, he was already qualified on the M-9 and did not require the training. (Tab R-12.14) This gave the MT an opportunity to go to Reid clinic for a follow-up medical appointment for his hand. The treating physician noted no infection in the area of the wound, recommended a follow-up appointment in 8 days to remove the sutures, and returned him to duty without limitations. (Tab FF-119) Once he left the clinic, he insisted the instructors take him to the firing range to join the other students even though it was not required. (Tab R-12.15) After the M-9 training, the instructors led the students, including the MT, in some physical exercises before they returned to the classroom. (Tab R-7.2) Then, the instructors told the students that they would be doing some exercises with water-filled scuba masks. (Tab R-7.2) They had the students fill their masks with water, don their masks, and perform flutter kicks. (Tab R-7.2, R-10.2, R-10.3) (Note: flutter kicks described below)

During the first four days of CCSC 09-003, students and instructors observed the MT struggling with some of the training events, specifically G&G drills, inverted push-ups, and treading water. (Tab R-12.14, R-13.12, R-13.13, R-14.9, R-17.6) However, it is common for trainees to struggle with these events due to unfamiliarity with them; and, in the case of the MT, it was not perceived as an unwillingness or inability to accomplish the tasks. (Tab R-13.13, R-14.9) The MT was

physically prepared for the exercises at the CCSC. (Tab R-14.15) The MT was 71 inches tall and weighed 176 pounds. (Tab FF-114)

There is no evidence that the MT's performance was declining or that he was having difficulty on the first four days of the CCSC. There is no indication of him ever complaining of pain or indicating that he was not up to the task. (Tab R-13.13, R-18.16) CCSC instructors perceived the MT as a 'hard-charger' and 'loath-to-quit.' (Tab R-12.48, R-13.12, R-13.13) There is no evidence that the MT experienced fainting episodes or other medical issues prior to the accident. (Tab R-13.13)

The fifth day of CCSC 09-003, Friday, 9 January, was the day the mishap occurred. An approximated timeline for the day of the mishap follows.

The students awoke at their normal time of 0445L. (Tab R-18.3) They ate breakfast, assembled at 0615L, and boarded the bus at 0630L to head to Skylark pool for their morning swim session. (Tab O-8)

At 0650L the students arrived at the pool and laid out their required equipment for their water skills session. The swim session began at 0700L. (Tab R-15.13, R-17.8) There were 19 students, including the MT, at the beginning of the session. The swim coach led the first hour of this session; and two instructors, TSgt Nicholas Seibel (Instructor 1) and TSgt Jared Antoni (Instructor 2) observed from the pool deck. The swim coach's focus is to assist students improve their form and endurance. (Tab R-15.15) The students started with a 300-meter swim warm-up, and then they completed four 500-meter swims with fins, mask and snorkel. (Tab R-15.5, R-15.32) During this session, the instructors and swim coach observed the MT struggling with his snorkel. He kept fiddling with it because he was not able to keep a good seal around the mouth piece, and water entered his mouth and caused him to cough. (Tab R-12.16, R-12.46, R-14.10, R-14.30, R-15.6)

At 0800L Instructors 1 and 2 assumed control of the class. (Tabs R-12.24) The swim coach remained at the pool to observe. (Tab R-15.7, R-15.32)

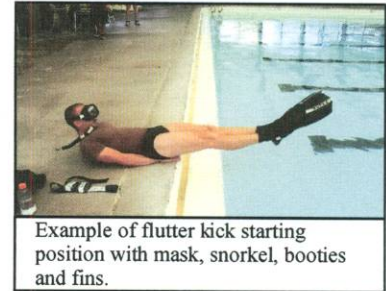
Instructor 1 first told the students to hydrate and to use the restroom. (Tab R-12.19) Once the students returned to the pool deck at the shallow end where the instructors were waiting, Instructor 1 informed the students he saw one of them walk on the bottom of the pool, a non-permitted action, during the swim coach's session. (Tab R-12.20, R-12.24, R-12.42) Instructor 1 asked who committed this offense, but none of the students admitted to it. (Tab R-12.21, R-12.42) Instructor 1 asked again, and the MT raised his hand as the offender. (Tab R-12.21) Other students didn't believe the MT did it, but thought he took responsibility as a leader for the team. (Tab R-12.21) To correct this training deficiency, the students were ordered to drop. (Tab R-12.21) Drops, also known as disciplinary reinforcement training, are designed to reinforce individual or team standards in accordance with course procedures or USAF instructions and include approved physical exercises of a short duration. (Tab O-3)

Drops are not to be used as punishment or to influence a student to quit. Drops are to be performed immediately after the offense, unless it will interfere with the training objective. One

of four stated purposes for drops is that it “instills and emphasizes in the student’s mind that there are real consequences for not paying attention to detail. [It is] [u]tilized to motivate, strengthen and enhance attention to detail deficiencies. In training it is a drop; in the operational world it may mean mission compromise, mission failure, or the loss of life.” (Tab O-3)

The approved drop physical exercise at the pool is flutter kicks. (Tab O-3) A flutter kick is described in the CCSC Instructional Guide as follows:

This is a four count exercise. Starting position is lying flat on the back with the feet and head approximately 6 inches off the ground. Hands are under the buttocks, fists are clenched or hands flat to support the lower back. On count one, raise the left leg off the ground to a 45-degree angle, keeping the right leg stationary; count two, raise the right leg off the ground to a 45-degree angle while, at the same time, moving the left leg to the starting position; counts three and four are repeats of counts one and two. At all times legs must be locked, with toes pointing away from the body. (Tab O-4)



In keeping with the ‘attention to detail’ concept, when students fail to “sound off” (keep an audible count) while performing flutter kicks or do not perform the exercise correctly, the instructors may direct them to start over. (Tab O-3)

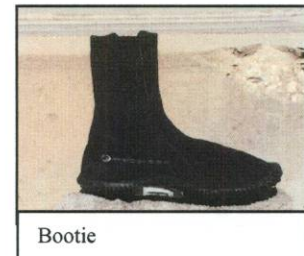
The students started doing flutter kicks at 0815L. (Tab R-12.24, 12.43) The only instruction given by the instructors was to drop. The instructors do not tell the students how many repetitions to do because it is listed in the CCSC Student Handbook, and the TL is expected to lead the team in accomplishing the correct number. (Tab O-6, R-16.6) When the students began their first set of flutter kicks, they did not have their fins or any of their scuba gear on. The prescribed number of flutter kicks without fins is 35, plus 1 for teamwork. (Tabs O-6, R-12.21) After they performed one set, the instructors waited until all students had their legs up and straight, then gave them an order to recover (stop and stand up at the position of parade rest). The students were then told to don their fins. (Tab R-12.42) When performing flutter kicks with fins, the prescribed number of repetitions is 25, plus 1 for teamwork. (Tab O-3) The instructors dropped the students for a second set of flutter kicks. The TL started them off on the second set, but some of the students were not performing them correctly or were not sounding off, so Instructor 1 directed them to start over multiple times. (Tab R-12.21) The team was still unable to correct its deficiencies, so Instructor 1 told them to charge their masks (fill them with water), don them and finish the second set of flutter kicks. (Tab R-12.42, R-14.30) Once they completed their second set of flutter kicks, they were recovered and dropped for a third set with all the same scuba gear on. During the last set, they were told to put their snorkels in their mouths. (Tab R-14.30) There were short breaks between each set of flutter kicks. (Tab R-12.67, R-14.29, R-14.30, R-16.7)



While the students performed flutter kicks, Instructor 1 sprayed the students with a water hose to motivate the students to perform the exercise correctly, increase the stress level and ensure a good mask and snorkel seal. (Tab R-12.21, R-14.30) While water may have splashed into a student's snorkel, the instructors did not stick the hose down the end of students' snorkels. (Tab R-12.40, R-12.41, R-14.13, R-14.25) If water splashed into a snorkel, the students had previously been trained how to clear it. (Tab R-12.16, R-14.11) At one point during flutter kicks, Instructor 1 told the students 'oh that's it, you owe me 100,' referring to the number of flutter kick repetitions. (Tab R-12.43) The intent was not for the students to perform 100 repetitions, but to keep them motivated so they wouldn't quit just before reaching the count of 25 or 35. (Tab R-12.43) The instructors observed that the MT did well during these drops, and they did not notice him having any more problems with his snorkel. (Tab R-12.42, R-12.47, R-14.11) At one point, Instructor 1 told the MT that he could not hear him counting, and the MT began counting so loud that Instructor 1 could not hear the other students over him. (Tab R-12.42, R-12.44)

The instructors stopped the flutter kick routines between 0825L and 0830L. (Tab R-12.24, R-12.44) Factoring in the multiples times that the students had to restart their flutter kick sets, it is estimated that the students completed between 150 and 200 flutter kick repetitions. (Tab R-5.14, R-14.51, R-18.19) One student SIE'd (quit) during the second set of the flutter kicks shortly after they charged their masks. (Tab R-7.4, R-12.42, R-14.29)

Next, the remaining 18 students were instructed to hydrate and remove their fins and snorkels, which took one to two minutes. (Tab R-12.19, R-2.4) Then, they were instructed to swim to the edge of the deep end of the pool. They had their scuba masks down around their necks and, they were still wearing their booties. (Tab R-12.25, R-16.6) However, when the students began moving in the pool without fins, their booties filled up with water and all booties fell off or were kicked off within a minute. (Tab R-12.25) The students were not directed to retrieve and re-don their booties. (Tab R-12.25) By the time the students got to deep end of the pool, and the instructors got in place to observe the students it was 0830L. Instructor 1 observed and directed from the swimming pool deck while Instructor 2 took the observation position in the lifeguard chair at the "danger line," which is a demarcation line located 10 meters from the deep end wall where the water level drops to over 6 feet in depth. (Tab R-12.42) The students were next instructed to move into a pre-designated alphabetical formation and begin treading in place. (Tab R-12.25)



The students treaded water for approximately one minute, and then Instructor 1 instructed them to charge their masks and begin treading water using the eggbeater method. (Tab R-12.25, R-12.46, R-12.47) He told them they 'owed him 10 minutes,' and the timer would start once they had their hands and ears out of the water. (Tab R-12.25) Many of the students, including the MT, who Instructor 1 identified as students uncomfortable with having their masks charged, had problems keeping water in their masks. (Tab R-12.22) Instructor 1 repeated the order to charge their masks a couple times to specific students including the MT. (Tab R-12.22) At different times during the treading water event, the students were instructed to either stay in line, group together, or spread apart. (Tab R-12.22)

After a couple of minutes, the instructors noticed that the students had drifted apart. (R-14.11) Both instructors noticed that the MT and three or four other students were separated from the rest of the team and were back near the danger line. (Tab R-14.11, R-12.61) The instructors usually expect the TL to take charge and get the team back in line. (Tab R-14.12) The TL did not take charge before Instructor 2 intervened. (Tab R-14.12) Instructor 2 challenged the separated students to move back with team and tread water, and all of them complied except the MT. (Tab R-14.11, R-14.12) The MT remained standing at the danger line (approximately 5 ½ foot depth), chin above water, and his mask was not charged. (Tab R-14.15) Instructor 2 noticed that the MT was staring at him. (Tab R-14) Both Instructors 1 and 2 thought the MT looked like he was ready to quit. (Tab R-12.49, R-14.38)

At 0833L Instructor 1 entered the pool to encourage and assist the students to group closer together. (Tab R-12.48, R-12.49) Upon entering the pool, Instructor 1 swam toward the MT and started splashing up and down to try to motivate the MT to move back with the team and tread water. (Tab R-12.40) The MT did not move. (Tab R-12.40) Upon reaching the MT, Instructor 1 saw that the MT had no water in his mask. Instructor 1 told the MT 'if you are done, get out of the pool.' (Tab R-12.22, R-14.29) This statement was intended to challenge the MT, and to see if he was mentally prepared to continue. (Tab R-12.6) The MT responded, "Negative, Sergeant." (Tabs R-12.22, R-14.29) Instructor 1 responded, "Well then, you need to join your team or get out of the pool." (Tab R-12.22) The MT nodded and started moving toward the rest of the group at the deep end. (Tab R-12.22) When he reached the point of 6 ½ to 7 foot depth, he sank to the bottom of the pool, pushed off and resurfaced. (Tab R-12.22, R-12.28) This is a maneuver known as a "bob," and is not allowed at the CCSC. Instructor 1 saw this and told the MT he was a "safety hazard" and to get out of the water. (Tab R-12.22) The MT calmly replied, "I'm okay, Sergeant." (Tab R-12.22, R-12.50) The MT responded correctly and coherently to Instructor 1 so as to not give Instructor 1 any cause for concern. (Tab R-12.22)

Instructor 1 noticed the MT was breathing heavy, but no more than the other students. (Tab R-12.49) The MT did not report any injuries or not feeling well. Instructor 1 saw the MT actively treading water and decided to give him a moment to collect his thoughts and calm down. (Tab R-12.22, R-12.26, R-12.50)

Instructor 1 then turned his attention to another student who was struggling with treading water and being helped by the TL. (Tab R-12.23) He told the TL to stop helping the other student and for them to spread out. (Tab R-12.23) About 30 to 45 seconds later, he sensed something was wrong. (Tab R-12.23, R-12.26) He turned around and saw the MT treading water and moving towards the other students. (Tabs R-12.23, R-14.12) Instructor 1 started swimming towards the MT. (Tab R-12.23, R-12.26, R-12.28) Then, he saw the MT's head go underwater. (Tab R-12.23) Instructor 1 estimated that he swam less than two strokes to reach the MT. (Tab R-12.27) Instructor 1 put his head underwater to observe the MT and saw that he appeared unconscious, and witnessed an air bubble escape his mouth. (Tab R-12.23, R-12.28, R-12.50) Instructor 1 pulled the MT's head above water, supported his head and swam him approximately 4 feet to the side of the pool. (Tab R-12.23, R-12.28, R-12.50, R-14.27) Instructor 1 alerted Instructor 2, and Instructor 2 yelled for all students to drop their masks and



get out of the pool. (Tab R-12.23, R-14.12, R-14.16) The students immediately complied with his order. (Tab R-2.5) They moved to the corner of the pool area. (Tab R-2.6)

Within seconds, Instructor 1 got the MT to the side of the pool, and Instructor 2 pulled the MT out of pool at 0836L. (Tab R-14.12, R-14.16) They pulled him out onto the deck at the deep end of the pool. He was limp and unresponsive. (Tab R-12.55, R-14.32) Instructor 1 slapped the MT in the face to try to wake him up and then pulled his shirt up to check for any signs of breathing. (R-12.23, R-12.57) The MT still did not regain consciousness. (Tab R-12.23)

At the same time, Instructor 2 yelled, "Where is my paramedic?" (Tab R-14.16) A student who was an emergency medical technician basic (EMT-B), hereinafter referred to as T-EMT, was getting out of the water at the time and ran to the MT's side to assist with basic life support (BLS) procedures. (Tabs R-14.16, R-18.12) The T-EMT arrived at the MT's side just as Instructor 1 was pulling up the MT's shirt. (Tab R-12.23, R-14.40) At this time, Instructor 1 yielded control of resuscitative efforts to the T-EMT. (Tab R-12.23, R-18.12) The T-EMT assessed the MT's airway and his carotid (neck) pulse and determined the MT was not breathing and had no pulse. (Tab R-18.12, R-14.40) They rolled the MT on his side, and Instructor 1 performed two abdominal thrusts. (Tab R-12.23) Then, they rolled him on his back. The T-EMT administered two breaths, observed bilateral rise and fall of the chest, and directed Instructor 1 to perform 30 chest compressions. (Tab R-18.21) Simultaneously, the swim coach ran to grab the automatic external defibrillator (AED), and another student ran to call 911. (Tab R-15.7, R-15.24) Both the AED and the phone are located on the wall at the shallow end of the pool.

They dried the MT off, and the T-EMT placed the AED sensors on him. (Tab R-12.23, R-18.21) An AED automatically analyzes a patient's heart rhythm and advises when shocks should be administered. (Tab U-13) The AED only allows the user to deliver a shock when it is advised. (Tab U-13) Between CPR cycles, the AED analyzed the MT's heart rhythm and advised "no shock advised - continue CPR" on three occasions. (Tab R-12.23, R-18.21, DD-3) While the T-EMT was placing the AED sensors on the MT, Instructor 1 completed a set of chest compressions, so Instructor 2 jumped in and gave the two rescue breaths. (Tab R-14.16) After that, CPR was administered exclusively by Instructor 1 and T-EMT; and they continued CPR until EMS arrived. (Tabs R-12.23, R-18.23)

At 0839L LAFB 911 dispatch received the emergency call and relayed the information to the primary EMS responders, hereinafter referred to as EMS 1, who were at the LAFB main post office at the time of the call. (Tabs V-8.5, DD-5) EMS 1 received the call and immediately departed the post office to proceed to the scene of the mishap. (Tabs V-8.5, V-9.4) On the EMS 1 ambulance were an EMT paramedic (EMT-P) and two EMT-Bs. The paramedic had the greatest amount of medical training and was the most experienced, so he was in charge of the EMS response. (Tab V-9.12) A secondary EMS was called and responded after EMS 1. On the secondary EMS were an EMT-intermediate (EMT-I) and an EMT-B.

At 0842L EMS 1 arrived on scene and parked on the grass a few feet from the door to the pool enclosure near the shallow end of the pool. (Tab V-9.9; Tab DD-5) They loaded their equipment including defibrillator, endotracheal tube (ETT) and bag valve mask (BVM) onto the

backboard, which was placed onto the stretcher, and rolled the stretcher into the pool area. (Tabs V-8.12, V-9.9) The students and instructors were yelling at the EMS responders to move quicker. (Tab V-9.10, V-9.11) They had to be careful moving in the pool enclosure area since the area is tight and the pool deck was wet and slick.

The EMS 1 personnel took over the care of the MT at 0844L. (Tab DD-5) They reassessed his airway. The EMT-P began ventilations with a BVM with supplemental oxygen, and the EMT-B initiated CPR. (Tab V-8.15, V-9.12, V-9.13) They observed bilateral rise and fall of the chest and heard equal bilateral breath sounds. (Tab V-9.15) They detached the AED and attached their own defibrillator on the MT. A defibrillator is better than an AED in that it provides a real-time visual of the patient's heart rhythm, which allows a medically-trained user analyze the heart rhythm and assess whether a shock is needed. (Tab U-3) The defibrillator showed the rhythm to be asystole (no heart beat), and no pulse was felt. (Tab V-8.27) At 0846L intravenous (IV) access was established in the left arm with normal saline. (Tabs V-9.14, DD-5) There was inadequate space at the poolside for the paramedic to attempt to intubate the MT with the ETT. (Tab V-8.19, 8.20, V-9.21)



Bag Valve Mask

The instructors, students and the environment posed distractions to the EMS personnel at the poolside. (Tab V-8.20, V-9.8, V-9.13, V-9.15) At 0848L EMS 1 personnel decided to load the patient onto the stretcher and move to the ambulance for a more controlled environment. (Tabs V-9.15, DD-5) Four personnel loaded into the back of the ambulance with the MT: the paramedic from EMS 1, the EMT-I from the secondary EMS, the EMT-B from EMS 1 and a CCSC student. (Tab V-9.25)

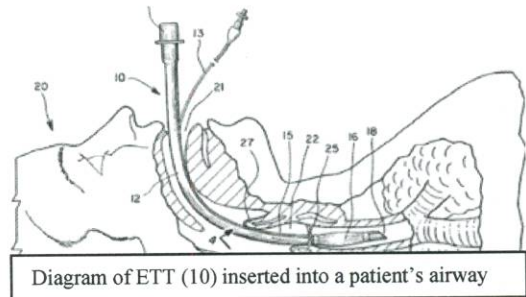
Once they had the MT in the ambulance, the paramedic attempted to intubate the MT with an ETT. He used a scope to look down the MT's throat, but he could not visualize the MT's cords, so he was unable to intubate the MT. (Tab V-8.23) At 0850L EMS 1 departed Skylark pool for transport to WHMC. (Tab DD-5) Since the MT was not intubated, they went back to artificially ventilating him with the BVM, and the EMT-I continued CPR. (Tab V-8.22)

EMS 1 personnel had difficulty maintaining a positive seal with the BVM, so it took two people to effectively ventilate the MT. (Tab V-8.26) The paramedic used both hands to keep the BVM sealed around the MT's nose and mouth, and the CCSC student squeezed the bag to keep oxygen flowing. (Tab V-8.23) In treating the MT, the EMTs were required to follow advanced cardiac life support (ACLS) protocols. ACLS protocols allow for medications to be administered once a stable airway is established. The paramedic was the only EMT on EMS 1 authorized to administer ACLS medications. (Tab V-8.28, V-8.29) The EMT-I was certified to administer ACLS medications, but WHMC protocols did not authorize him to administer them. (Tab V-9.24) Since keeping a patient effectively ventilated is the most important thing, the paramedic decided his experience warranted him staying on the BVM. (Tab V-8.28) This precluded them from administering ACLS medications. (Tab V-8.28, V-8.31)

While they were in the ambulance, they determined the MT's electrocardiogram (EKG) rhythm was pulseless electrical activity (PEA), since the defibrillator showed irregular electrical activity

and a pulse could not be felt. (Tab DD-85) PEA occurs when a person's heart is beating, but it is not enough to pump blood effectively to his body. ACLS protocols do not advise defibrillation when there is a PEA rhythm. Therefore, the MT was not defibrillated during his transport to WHMC.

During poolside resuscitation and transport to WHMC, EMS responders observed clear fluid drain from the MT's mouth. (Tab V-9.26) EMS 1 arrived at WHMC at 0855L. (Tab DD-5) EMS 1 personnel brought the MT into trauma bay 1. They continued CPR until they turned him over to the care of the emergency department (ED). (Tab FF-19) Medical staff at trauma bay 1 assumed the MT's care and continued CPR. The EMS report was given to the



ED receiving physicians, primary survey was conducted, IV lines noted (18-gauge in left arm), BVM used for ventilation with supplemental oxygenation source connected continued, and a defibrillator was noted to be in place. (Tab FF-19) An ED physician intubated the MT with endotracheal tube (ETT) and his facial color immediately improved. (Tab FF-36)

At 0901L a 16-gauge IV was placed in the MT's right arm. (Tab FF-19) Two doses of epinephrine and atropine were given following ACLS protocols. (Tab FF-19, FF-129 #7) Prolonged PEA arrest was observed by ED staff. (Tab FF-33) The MT converted to ventricular fibrillation at 0904L and was shocked at 200 joules (J). (Tab FF-33) They did not observe any change in his rhythm and continued ACLS. (Tab FF-33) They administered one more round of epinephrine, atropine, D-50, bicarbonate and shocked him again at 200J. (Tab FF-33) Next, epinephrine, magnesium, bicarbonate, vasopressin were administered following ACLS protocols. (Tab FF-19) Dopamine was started through the IV in the MT's left arm, and one of the treating physicians placed a right femoral cordis venous catheter. (Tab DD-36) At 0913L they found a pulse on the MT and discontinued ACLS protocols. (Taps FF-19) A cervical collar was placed on the MT, he was transferred from the stretcher to a bed in the trauma bay and he was put on a mechanical ventilator. (Taps FF-19) A foley catheter was placed with no urine return, and a nasogastric tube captured approximately 100 cubic centimeters of fluid. (Tab DD-19) A chest x-ray (CXR) confirmed proper ETT placement and noted no acute abnormality in the chest. (Tab FF-27)

The medical intensive care unit (MICU) and cardiology teams were notified, and since the primary medical concern was cardiac related, the cardiology service accepted the MT. The ED staff recommended a computed tomography (CT) scan of his head as soon as possible to rule out any gross intracranial process contributing to the MT's presentation. (Tab FF-33)

At 0937L the cardiology service assumed the MT's care. (Tab FF-19, FF-37) A cardiac catheterization (cath) was performed at 1010L. (Tab FF-41) The cath report revealed no significant findings other than a severely decreased heart function, which rapidly improved on subsequent studies. (Tab FF-41)

At 1130L a cooling protocol was initiated due to the cardiac arrest. (Tab FF-43)

At 1213L a second CXR was taken. (Tab FF-27)

At 1626L a CT of the head was obtained that showed no significant brain findings. (Tab FF-47)

At 1701L a CT of the cervical spine was done that showed no fracture. (Tab FF-49)

On 10 January at 0259L a second CT of the head showed signs indicating global ischemia (effects of reduced oxygen). (Tab FF-51)

At 2200L the cooling protocol was discontinued. (Tab FF-53)

On 11 January at 0100L a neurology consult was obtained. (Tab FF-55)

At 1332L a third CT of the head was obtained that showed brain swelling. (Tab FF-57)

At 1510L a CT angiogram of the brain was obtained showing normal brain blood flow. (Tab FF-59)

A neurosurgery consult was obtained at some time before 1800L, but the medical record does not list the time of the consult. (Tab FF-61)

At 1800L two devices were surgically placed in the brain, one to monitor the pressure and the other to monitor the oxygen. (Tab FF-63)

At 2000L the MT's care was transferred to the MICU service. (Tab FF-133, FF-67)

On 12 January at 1051L psychiatry professionals met with the MT's family. (Tab FF-75)

At 1140L the MICU physicians met with MT's family and informed them that MT had 0% chance of meaningful recovery and 3% chance of any recovery. (Tab FF-133)

At 1500L the MT's family approved actions to discontinue life support, but to continue medicine to keep the MT comfortable. (Tab FF-77)

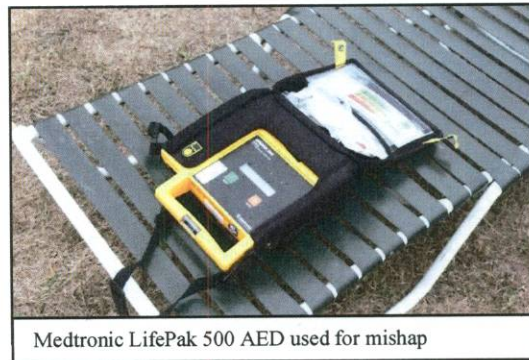
At 1522L the MT was extubated (breathing tube removed) at the request of the family and his heart stopped at 1603L. (Tab FF-79, FF-83)

The MT was declared deceased at 1610L hours. (Tab FF-79, FF-83)

342 TRS personnel inspected the MT's room on 9 January and did not find any health supplements, over-the-counter medications, alcohol, or tobacco.

## **5. MAINTENANCE**

The AED used by the CCSC personnel is a Medtronic LifePak 500, model number 3011790-001129, serial number 30514399. (Tab U-17) It is maintained by the LAFB Medical Equipment Repair Center (MERC). (Tab U-17) This AED entered in service September 2003 and receives annual inspections as prescribed by the manufacturer. (Tab U-13) It was last inspected on September 2008 and found it to be in good working order. (Tab U-17)



The EMS 1 vehicle and its assigned equipment were inspected on the morning of the mishap. All required equipment was in the vehicle and in good working order. (Tab DD-11, DD-12) The LifePak 12 defibrillator used by EMS 1 was in good working order. (Tab U-3)

## 6. EQUIPMENT, VEHICLES, FACILITIES, AND SYSTEMS

The mishap occurred at Skylark pool, Building 6482. (Tab CC-27) The 37th Civil Engineer Squadron, LAFB, maintains the pool and manages the day-to-day operations. (Tabs F-2, R-15.3) The 37th Service Division Civilian Lifeguards (lifeguards) monitor the pool temperature as well as the acidity levels (PH) and bacterial composition (CL) several times a day. (Tabs F-2, R-15.3) The CCSC swim coach also measures the water levels each morning before the swim sessions begin, except for Tuesdays and Thursdays because the lifeguards check it at 0500L on those days. (Tab R-15.3) Normal levels are: PH 7.0-7.5, CL 1.0-2.0, and temperature 84-86° F. (Tabs F-2, R-15.3)

The lifeguards are also responsible for maintaining the backboard, first aid kit, and AED. (Tab R-15.10) Normally, the AED is unlocked and available for use during public swim hours and CCSC training. (Tab R-15.10) Lifeguards are not required to be present during CCSC water skills exercises. (Tab R-15.4)

The 911 system at LAFB was in proper working order at the time of the mishap. On LAFB, there are a couple phone numbers that can be dialed for emergencies. (Tab R-14.45) A person can dial 671-8911 or 9-1-1. (Tab 14.45) The system is setup to ring simultaneously at the WHMC Emergency Room, Security Forces, and Fire Department; and calls are recorded. Immediately after the MT was pulled out of the pool, a CCSC student dialed 9-1-1. After he dialed the number, all three entities received the call. (Tab N-1)

## 7. ENVIRONMENTAL CONDITIONS

At the time of the mishap the outside temperature was approximately 66° F, and there was no precipitation. (Tab F-1) On the day of the mishap at 0500L, the PH level was 7.5 and the CL level was 1.2. (Tab F-2) The water temperature as of 1100L was 87° F, and the water

temperature was 85° F on the day prior. (Tab F-2) There is no evidence that environmental conditions were a factor in the mishap or subsequent response.

## **8. PERSONNEL QUALIFICATIONS**

### **a. Training Requirements for CCSC Instructors**

The only training requirement for military personnel to qualify to be CCSC instructors at the time of the mishap was completion of the 200-hour Basic Instructor Course (BIC). Additionally, the 342 TRS only selects experienced combat controllers to be CCSC instructors. The instructors involved in the mishap had successfully completed BIC and had an average of 11 years experience as combat controllers. (Tab G-4 thru G-7)

All combat controllers receive CPR training during their formal pipeline training. Whether they are required to remain current on CPR depends on if it is a requirement for their particular job. Since CCSC did not include subsurface water events, an event known for high risk of blackouts and potential for cardiac arrest, (Tab R-12.33) CCSC instructors did not have a job requirement to stay current on CPR or BLS. (Tab R-12.38, R-14) Also, the lack of instructors being current on CPR had not been an issue, since there had never been an instance of blackout or cardiac arrest at the CCSC or its predecessor course.

### **b. Qualifications of Personnel Involved in the MT's Resuscitative Efforts**

Prior to being transferred to the care of the ED, there were two separate groups of people involved in the MT's resuscitative efforts: the CCSC personnel and the EMS personnel.

The NREMT sets national standards for EMTs. All EMTs must obtain their certification through NREMT as a prerequisite to qualifying for an EMT state license. The NREMT offers initial and recertification programs. NREMT certifications must be renewed every two years, due by 31 March of the year of expiration. (Tab EE-7 thru EE-12) The NREMT recognizes three levels of EMTs--Basic, Intermediate, and Paramedic. (Tab FF-7 thru FF-12) An EMT-B receives 110 hours of training and is BLS certified. (Tab EE-7, EE-8) BLS certification for EMTs includes training on CPR, AED utilization, accident extrication and wound care management. (Tab EE-5) An EMT-I must first be an EMT-B and receives an additional 200 to 400 hours of classroom and field training. (Tab EE-9, EE-10) An EMT-I is capable of administering various medications and may be ACLS certified. (Tab EE-3) An EMT-Paramedic (EMT-P) must first be an EMT-B and receives an additional 1000 hours of classroom and field training. (Tab EE-11, EE-12) EMT-Ps must be ACLS certified. (Tab EE-11, EE-12)

Although BLS is a prerequisite for NREMT certifications, it may be taken separately. (Tab EE-7 thru EE-12) Stand-alone BLS training includes CPR, Rescue Breathing, Choking, and AED utilization. (Tab EE-5) BLS certification expires after two years. (Tab EE-5)

ACLS training is required for EMT-P licensure, but is taught separately. Additionally, EMT-Ps must re-accomplished ACLS training for recertification. ACLS teaches providers how to treat life threatening cardiac arrhythmias with various medications and defibrillation techniques.

(Tab EE-3) ACLS certification expires after two years. (Tab EE-3)

(i) Qualifications of CCSC Personnel

The CCSC personnel who provided BLS to the MT initially were the T-EMT, Instructor 1 and Instructor 2. The swim coach grabbed the AED and observed the application of BLS, but did not participate. The T-EMT had a current NREMT-B certification that was due to expire on 31 March 2009. (Tabs R-18, T-13) Instructor 1 estimated he last received BLS training in 2006, and he was not current at the time of the mishap. (Tab R-12.54) Instructor 2 last received BLS training in 2003, and he was not current at the time of the mishap. (Tab R-14.24) The swim coach was certified to coach swimming and had previous BLS training. (Tab 15.14) The swim coach completed Lifeguard & First Aid Training in May 2003. (Tab G-9)

(ii) Qualifications of EMS Personnel

The EMS personnel who provided BLS and ACLS to the MT were an EMT-P, an EMT-I and an EMT-B. All of these personnel were current on their NREMT certifications. The EMT-P had a current TX EMT license, which requires current NREMT certification, due to expire on 30 September 2011; and he was ACLS certified. (Tab T-3) The EMT-I had a current NREMT certification due to expire on 31 March 2010; and he was BLS certified. (Tab T-5) The EMT-B had a current NREMT certification due to expire on 31 March 2010; and he was BLS certified. (Tab T-7)

## 9. MEDICAL FACTORS

### a. Medical Treatment

The MICU physician at WHMC pronounced the MT dead on 12 January 2009 at 1610L. His medical treatment included a prolonged CPR and emergency medical treatments standard under ACLS protocols. The MT received properly administered CPR for approximately 36 minutes, had several IV lines inserted, was intubated and artificially ventilated, had suctioning of his airway, and was defibrillated twice, all in accordance with ACLS protocols. (Tab FF-19)

Rescuers at Skylark pool indicated that on initial assessment when they removed the MT from the water he did not have a pulse, nor was he breathing. (Tab R-12.24, R-18.12) At one point in the poolside resuscitation, rescuers detected a brief pulse, but the AED did not detect electrical activity in the heart that would support an effective heart rhythm at that time. (Tab R-12.24, R-18.12) At no point in the event did rescuers see the MT make an effort to breathe. (Tab R-12.24, R-12.58, R-18.21) The instructors and student started CPR immediately, performed abdominal thrusts, and applied an AED to the MT within 3 minutes of the initial event. (Tab R-12.23, R-18.12) The AED indicated "no shock advised," on three occasions and advised that CPR be continued. (Tabs R-12.23, R-18.21, DD-3) The AED log showed his non-shockable rhythms were first asystole (no heart beat) then PEA. (Tab DD-3)

EMS arrived within 3 minutes of receiving the initial call. (Tab DD-5) EMS took over care of the patient, continued CPR, ventilated with a BVM, started an IV, and decided to emergently

transfer him from the poolside to the ED. (Tab V-8.21) While in route, EMS 1 determined the rhythm to be PEA and did not defibrillate the MT. (Tab V-8.22) The rescuers attempted unsuccessfully to intubate the MT with an ETT. (Tab V-8.23) The EMT-P paramedic was the only EMT qualified to administer ACLS medications, but did not administer medications because he was focused on managing the airway. (Tab V-8.23) The MT's airway was deemed unstable; and since the paramedic was the most experienced medic on EMS 1, it was necessary for him to focus his attention on managing the airway. (Tab V-8.24) They continued to use the BVM. (Tab V-8.24) Other methods of securing the airway were not used as it was thought that they might obstruct fluid being expelled. (Tab V-8.27)

Approximately 19 minutes after the MT was removed from the water, he arrived at the ED. (Tab DD-5) Some clear fluid was noted to be coming out of the MT's mouth during transport and at time of transfer to the ED physicians. (Tab V-8.26) ED physicians assessed his airway. They found no fluid, but they found what appeared to be a scant amount of vomit in his mouth. (Tab FF-33, FF-36) The defibrillator continued to show his heart rhythm as PEA. (Tab FF-19) The ED staff intubated him and administered medications. Once his heart rhythm changed to ventricular fibrillation, they defibrillated him twice. (Tab FF-19) After defibrillations and one more dose of ACLS medications, the MT's heart rhythm became a stable rhythm. (Tab FF-19, FF-85)

The MT was initially admitted to the cardiology service. (Tab FF-19) They took him to the cardiac catheterization (cath) lab. The cath report showed no abnormalities other than severely depressed heart function, consistent after PEA cardiac arrest. (Tab FF-91) The MT also shortly thereafter received a transthoracic echocardiogram (heart ultrasound) showing no significant abnormalities and that the function of his heart (ejection fraction) was rapidly recovering (expected outcome after initial heart arrest). (Tab FF-41, FF-37) He was also started on a hypothermia (cooling) protocol utilizing an intravenous cooling device, which was later discontinued when it was noted that his initial cardiac arrest was due to PEA, not due to ventricular fibrillation. (Tab FF-43, FF-67, FF-129 #11)

#### **b. Cause of Death**

During the MT's resuscitation and hospitalization, the neurological exam and a CT scan of his head showed he developed anoxic (deficient supply of oxygen severe enough to cause permanent damage) -ischemic (deficient supply of blood) brain injury, a condition that can occur during cardiopulmonary (heart and lung) arrest despite adequate CPR and resuscitation efforts. (Tab FF-73) This complication necessitated neurology and neurosurgery consults. (Tab FF-61) Treatments were given and interventions were made, but it was felt by neurology, neurosurgery, cardiology, and critical care physicians that no medical or surgical interventions at any time during the hospital course would have changed the eventual outcome of the initial anoxic-ischemic brain injury. Although there were multiple organs affected by the prolonged cardiopulmonary arrest (liver, kidneys, etc.), the MT's anoxic brain injury was the major irreversible complication that ultimately led to his death. (Tab FF-83) Anoxic brain injury is known to be a major cause of death and disability after cardiopulmonary arrest, and the MT's brain reacted in a typical manner following a prolonged period of reduction in oxygen to the brain. (Tab FF-129 #3, #4, #5, #9, #14, #15, #23)



The Air Force Regional Medical Examiner (AFRME) performed the MT's autopsy. (Tab FF-107) He listed the cause of death as cardiac arrhythmia complicated by near drowning, and his overall neuropathological finding was global hypoxic (deficient supply of oxygen)-ischemic brain injury. (Tab FF-107) Near drowning is defined as either aspiration of fluid in the lungs or suffocation by submersion in a liquid medium with death after 24 hours. The AFRME found that the MT experienced cardiac arrest and near drowning, but the cardiac arrest occurred first. The pulmonologist/critical care specialist involved in the MT's care agreed with the findings of the AFRME and described the cardiac arrhythmia as hypoxemic-induced cardiac arrest (low oxygen to the heart resulting in the heart not beating effectively). (Tab FF-127) It is during the cardiac arrest, the MT developed the anoxic brain injury. (Tab FF-127, FF-129 #12, #13, #16) Thus, the immediate cause of death was devastating hypoxic brain injury due to cardiac arrest; and the brain injury resulted in respiratory failure. (Tab FF-83, FF-127)

The cardiac arrest the MT experienced is classified as sudden cardiac death (SCD). SCD has many causes. The greatest percentage of SCDs are due to ischemia (low blood flow) caused by blockage of coronary arteries (atherosclerotic disease). Heart failure is another major cause. Left ventricular hypertrophy and other structural abnormalities can also cause SCD. (Tab FF-129 #20, #22) More rarely in the absence of either of the aforementioned causes, rare syndromes like Brugada syndrome, Commotio cordis, idiopathic ventricular fibrillation, long or short QT syndrome and arrhythmogenic right ventricular dysplasia can lead to SCD. (Tab FF-129 #2, #18) The MT had no evidence of any of these disorders noted either before or after his admission to WHMC on 9 January. (Tab FF-67) However, at the time of the mishap, he was involved in stressful physical training that most likely led to hypoxemia (low blood oxygen) that eventually led to PEA arrest. A cardiologist/electrophysiologist analyzed the MT's EKG's and considered his low resting heart rate, his acquired prolonged QT during his hospital stay, the possibility of Brugada Syndrome, and other rare causes of SCD and did not find any evidence to support that any significant cardiac abnormalities were present. (Tab FF-67)

Strenuous exercise is noted to be a rare cause of both SCD and high output cardiac failure. This is in part due to high oxygen demands of the muscles involved in the exercise, dilatation of the circulation system, and rapid shallow breathing leading to low blood carbon dioxide levels and decreasing blood oxygen levels. (Tab FF-129 #1, #21) In a stressful training environment, a rapid shallow pattern of breathing may be hard to detect. Low levels of carbon dioxide decrease the drive to breathe (high blood carbon dioxide levels drive respiration much more than low blood oxygen levels). (Tab FF-129 #8) Low oxygen concentration in the blood cannot support the oxygen demands of the heart, leading to low oxygen concentration in the heart. This predisposes the heart to irregular beating (dysrhythmias) and cardiac arrest, known as hypoxemic (low oxygen) cardiac arrest. (Tab FF-129 #8, #19) Unlike skeletal muscle, the heart and the brain are particularly dependent on oxygen to maintain function and do not tolerate well periods of time without adequate oxygenation. Compared to other tissue types, heart and brain tissues show signs of damage and death relatively quickly when deprived of oxygen. (Tab FF-129 #1, #8)

### **c. Other Potential Contributing Factors or Causes of Death**

The GAIB considered other medical facts and circumstances that could have contributed to the MT's cardiac arrest or caused his death, but did not find any other medical factors relevant to the mishap.

### **Recent Hand Injury:**

Potential Adverse Reaction to Medication. On 6 January the MT was prescribed Septra DS and Motrin for a laceration to his hand. (Tab FF-117) Although high dose NSAIDs are known to be associated in rare instances with heart failure and vasoconstriction, there are no available data or reports to indicate that NSAIDs or Septra DS can cause or worsen heart muscle oxygenation. Postmortem toxicology testing revealed only atropine in the MT's serum, which was administered during resuscitative efforts at WHMC. (Tab FF-121) The toxicology testing does not test for other ACLS or over the counter medications and supplements.

Potential Severe Infection. A wound that becomes infected can cause death. The MT cut his hand on 6 January. It is possible that he had a minor infection at the laceration site, but none of the medical records indicated an overt infection. Moreover, it was properly treated to prevent infection. The MT did not seek further medical attention for this wound, so it is unlikely a severe infection developed. (Tab FF-117)

### **Cholesterol Level:**

High cholesterol levels have been associated with an increased risk of heart disease. (Tab FF-130 #17) The MT's labs prior to the mishap show his total cholesterol above 200. (Tab FF-125) When the components of the MT's cholesterol were assessed it was noted that his low density lipoprotein level (LDL – bad cholesterol) was within normal limits for his risk factors, and that the high density lipoproteins (HDL – good cholesterol) were high. (Tab FF-125) These levels do not infer a greater risk for heart disease. (Tab FF-130 #17)

### **Family Medical History:**

Family history of heart attack in first degree relatives is a risk factor for heart disease. A second degree relative of the MT had a history of early heart attack. (Tab FF-123) A family history of heart attack from a second degree relative would not have significantly increased the MT's risk of heart disease. (Tab FF-130 #17)

## **10. OPERATIONS AND SUPERVISION**

The 342 TRS was the only organization involved in the mishap. Prior to this mishap, there were no reported training related blackouts or deaths at CCSC or its predecessor course. The operations tempo during the course was high. The CCSC is physically demanding, and the day of the mishap was no exception. On that day the students were challenged on their ability to apply their water skills training under stress. (Tab O-8)

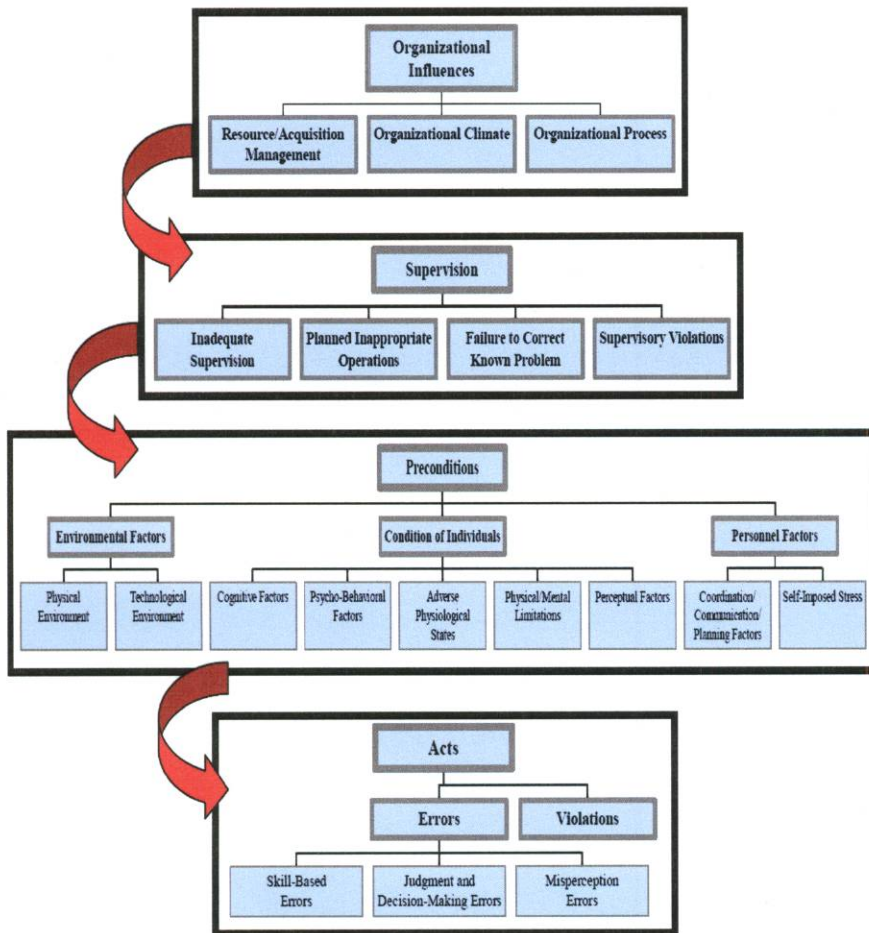
Due to the rigorous nature of the course and the possibility of injury, all training exercises have specific safety requirements including minimum instructor ratios (MIR), which is the minimum

instructor to student ratio. The MIR needed to provide instruction, supervision, and safety for water skills exercises is one instructor per ten students. (Tab O-4) Additional instructors are required to monitor student performance, provide additional guidance, supervision and evaluation. (Tab R-14.48, R-15.4) At the time of the mishap, two instructors and the swim coach were present to monitor 18 students. (Tab R-15.4) The swim coach counts as a supervisor for purposes of MIR, but even without the swim coach, the MIR requirement was met.

There is no evidence to indicate that operations or supervision were factors in the mishap.

## HUMAN FACTORS ANALYSIS

A human factor is any environmental factor or individual psychological factor a human being experiences that contributes to or influences performance during a task. There are many potential human factors which need to be assessed for relevancy during a mishap investigation. The Department of Defense Human Factors and Analysis Classification System addresses the following categories of influences, illustrated below.



**Excessive Motivation to Succeed.** Excessive motivation to succeed is a factor when the individual is preoccupied with success to the exclusion of other mission factors leading to an unsafe situation.

**Hypoxia.** Hypoxia is a factor when the individual has insufficient oxygen supply to the body sufficient to cause an impairment of function.

**Distraction.** Distraction is a factor when the individual has an interruption of attention and/or inappropriate redirection of attention by an environmental cue or mental process that degrades performance.

Excessive motivation to succeed is relevant to this mishap because the MT was known to be highly motivated and hard-working. On many occasions during his training he was noted to give maximal physical exertion and indicated a willingness and motivation to do so. It was this motivation that led the MT to continue his efforts in the pool on the day of the accident, giving his all during the rigorous physical training, despite possibly feeling that something was not right with his body. This was evidenced in the fact that he stood at the danger line of the pool, and the instructors noted that this is something he would not have ordinarily done. (Tab R-14.38) Then, likely feeling like he could make it through any pain or discomfort he was feeling, he made his way toward the deep end of the pool to resume treading water. Shortly thereafter, the mishap occurred.

The MT exhibited behavior consistent with hypoxia while in the pool, a condition known to impair one's ability to think clearly.

There were distractions for the EMS responders at the pool including: wet area, wet patient's body, prompts to hurry up, poor acoustics (it was loud, people yelling, trying to help and asking questions), and tight operating space. The sooner ACLS medications are administered, the sooner it is possible to attain a stable heart rhythm and the better the outcome for the patient. The poolside environment was not conducive to quality care, so EMS responders moved the MT to the ambulance to continue ACLS.

## **11. GOVERNING DIRECTIVES AND PUBLICATIONS**

- a. Air Force Instruction (AFI) 13-219, *Combat Control and Special Tactics Officer Training*, 1 October 1998
- b. AFI 32-2001, *Fire Emergency Services Program*, 9 September 2008
- c. AFI 44-103, *The Air Force Independent Duty Medical Technician Program*, 1 May 2005
- d. AFI 48-123, *Medical Examinations and Standards*, 5 June 2006
- e. AFI 48-149, *Squadron Medical Elements*, 28 February 2003
- f. AFI 51-507, *Ground Accident Investigations*, 15 October 2004
- g. AETC Instruction (AETCI) 36-2202, *Faculty Development and Master Instructor Programs*, 21 June 2005
- h. AETCI 36-2002\_37 TRG Sup 1, *Faculty Development and Master Instructor Program*, 1 December 2008
- i. AETCI 36-2203, *Technical and Basic Military Training Development*, 8 March 2001

- j. Combat Control AFSC (Air Force Specialty Code) 1C2X1 Career Field Education and Training Plan, 1 November 2006, with Change 1, February 2008
- k. Combat Control Selection Course Instructional Guide, Part I, 25 August 2008
- l. Combat Control Selection Course Instructional Guide, Part II (Lesson Plans), 25 August 2008
- m. Combat Control Selection Course Student Handbook, 25 August 2008
- n. 342 TRS Discipline and Motivational Training (DMT) Annex L, 30 September 2008
- o. Department of Defense (DOD) Regulation 6055.06-M, *DoD Fire and Emergency Services Certification Program*, February 2006
- p. DOD Instruction 6055.06, *DoD Fire and Emergency Services Program*, 21 December 2006

The GAIB considered potential deviations from standards as discussed below and determined that there were no deviations from standards.

The CCSC Student Handbook and 342 TRS Instructional Guide did not list treading water as a physical activity that students would engage in during the CCSC. (Tab O-4, O-6) A change was made to the Career Field Education and Training Plan (CFETP) in February 2008 that included a note that “the underwater training events listed in Table 6.2 will not be implemented until further notice.” (Tab AA-10) Treading water “TW” is listed in Table 6.2, but it is not an underwater event. (Tab R-12.17) Treading water was permitted at the CCSC. (Tabs V-10.3, V-14.11, AA-32) Treading water was permitted at the CCSC but not listed in the Student Handbook (dated Aug 08). Additionally, the students would not have been surprised by the order to tread water, since they received training and familiarization with it on Tuesday and Wednesday. (Tab R-12.12, R-15.5) Thus, the instructors did not deviate from any standards by directing the students in CCSC 09-003 to tread water.

The 342 TRS DMT states students will not be subjected to an “excessive number” of disciplinary drops during training. (Tab O-3) “Excessive number” is not defined in the DMT or in any other guidance provided to the instructors. On the day of the mishap, it is estimated that the maximum number of flutter kicks the CCSC students performed was 200. Only the students who were the strongest on flutter kicks would have completed every repetition. It is estimated most of the students completed far fewer.

The 342 TRS DMT also states that drop sets may be “repeat[ed] as necessary with sufficient rest time between sets.” “Sufficient rest time” is not defined in the DMT or in any other guidance provided to instructors. On the day of the mishap, there were three sets of drops performed with a short period of rest time in between each set. The students were told several times to restart the count due to not sounding off properly or not exercising in unison as a team.

## **12. NEWS MEDIA INVOLVEMENT**

37 TRW Public Affairs (PA) issued a press release on 13 January 2009 announcing a brief synopsis of the mishap, location of the mishap and identity of the deceased. (Tab BB-3)

The GAIB gathered 12 media articles from 37 TRW/PA and online. There has been one Air Force Times article that covered the incident, and other media coverage has been limited to local coverage in San Antonio, Texas (near LAFB), and Valdosta, Georgia (near Moody AFB). (Tab BB-3 thru BB-33) Also, there were two short news video clips. No members of the media visited the accident site.

## **13. ADDITIONAL AREAS OF CONCERN**

None.

5 May 2009



PAUL H. HARRIS, Lieutenant Colonel, USAF  
President, Ground Accident Investigation Board