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MEMORANDUM

From: *Sally Brice-O'Hara*
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VCG

To: Distribution

Subj: FINAL ACTION ON THE ADMINISTRATIVE INVESTIGATION INTO THE
MSST NEW YORK PERSONNEL CASUALTY THAT OCCURRED ON THE
JAMES RIVER NEAR PORTSMOUTH, VIRGINIA ON 13 OCTOBER 2010

1. Overview:

On the evening of 13 October 2010, Maritime Enforcement Specialist Third Class (ME3) Shaun Lin, a member of Marine Safety and Security Team (MSST) 91106 (New York), participated in training for Hook and Climb (H&C) delivery on the James River near Portsmouth, Virginia. At approximately 2047 hours (all times are local), as ME3 Lin was climbing the caving ladder to board the U.S. Coast Guard Cutter (USCGC) FRANK DREW, from the port side, he fell from the ladder, struck a glancing blow off CG 255023, the boat from which he had climbed, and fell into the water.

After entering the water, ME3 Lin was seen momentarily on the surface and Coast Guard assets on scene immediately initiated rescue procedures to recover him. FRANK DREW sounded the man overboard alarm, deployed a datum marker, and reported a man overboard to Sector Hampton Roads Command Center at 2048. CG-255023 also deployed a datum marker in approximately the same position as the FRANK DREW's, cleared the caving ladder and peeled away from the port side of FRANK DREW in an attempt to recover ME3 Lin. CG-36100, a second small boat that had been participating in the training, also broke away from the starboard side of FRANK DREW upon hearing the man overboard call in an attempt to recover ME3 Lin.

After falling into the water, ME3 Lin attempted to activate one of two inflation bladders in the inflatable flotation device he was wearing, but it did not inflate because it was missing its compressed CO₂ cartridge. ME3 Lin was unable to shed his approximately 30-pound ballistic protection vest because he was unable to completely actuate its cable-release mechanism, likely because it was restricted by a retaining tab and the nylon strap and carabiner attached to his safety harness. ME3 Lin sank beneath the surface and drowned. His body was recovered on the bottom of the James River in approximately 50 feet of water.

This document sets forth the facts that led to and evolved into this incident, states my conclusions and orders certain actions designed to minimize the likelihood of similar casualties

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in the future. Appropriate commanders have the responsibility to determine whether any disciplinary action will result from this incident.

2. Findings of Fact and Opinions:

The Coast Guard Special Missions Training Center (SMTC) at Camp Lejeune, NC, provides the Coast Guard's only resident Basic Tactical Operators Course (BTOC), which is a seven-week course on specialized maritime interdiction skills and advanced marksmanship. Among the skills taught at BTOC is Hook and Climb (H&C), a method of boarding a non-compliant target vessel from a boat by means of a lightweight, flexible caving ladder. Students also train to board a target vessel by vertical insertion (VI), controlled descent from a helicopter hovering above the deck of the vessel.

On 9 July 2010 the Deployable Operations Group (DOG) requested that FORCECOM provide 160 quotas over five BTOC classes to meet Fiscal Year 2011(FY11) mission qualification needs for Deployable Specialized Forces (DSF) units. The SMTC's maximum throughput for FY11 was 128 training quotas over four classes, and SMTC's staffing level precluded training additional students. SMTC informed DOG it lacked the resources to hold a fifth BTOC. On 17 September 2010, Coast Guard Force Readiness Command (FORCECOM) approved the DOG's request to conduct its own BTOC, as a temporary solution to the throughput gap. BTOC 01-11 commenced on 26 September 2010 at U.S. Training Center, Moyock, NC, a private facility, as a FORCECOM-approved, DOG-sponsored and Maritime Security and Response Team (MSRT)-hosted course. Instructor staff for BTOC 01-11 included a mix of active duty military, government civilian, and contractor personnel. Having successfully met DOG Tier I physical fitness standards on 16 July 2010 and completed required weapons training on 03 August 2010, ME3 Lin received orders to attend BTOC 01-11.

At 1600 on 26 September 2010, BTOC 01-11 began with a student self-inspection of the gear required by SMTC's published standard to be worn during non-compliant boardings. Major items of gear include a weapons belt, a Tactical Hoist Harness (THH, which facilitates insertion of the member by helicopter onto the target vessel or attachment of a safety line), a Ballistic Protection System (BPS, a vest fitted with ceramic plates to protect the wearer from hostile fire), and a Tactical Flotation Support System (TFSS, an inflatable life vest that is activated by removable compressed CO₂ cartridges, inserted into side pouches, or by blowing into an inflation tube.) ME3 Lin had brought the required gear with him from New York to BTOC 01-11, and MSST NY supply records reflected that he had been issued standard Maritime Law Enforcement (MLE) gear on 28 July 2010. Standard MLE does not include the BPS or TFSS, and MSST NY's supply records failed to record when or how ME3 Lin received those items. However, the MSST NY's Supply Petty Officer stated that he gave ME3 Lin four to six CO₂ cartridges on 23 or 24 September, and four unexpended CO₂ cartridges were found in ME3 Lin's gear bag ashore after the mishap.

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The 26 September BTOC 01-11 gear inspection consisted of students physically inventorying each piece of required gear themselves, as the MSRT training officer read from an itemized equipment list. Students also were required to hold up each item of equipment as it was called out, so that an instructor could see that each student had the item. However, the list included a specific line item for the TFSS but not for the removable CO₂ cartridges. An instructor could not be sure, merely by seeing the TFSS held up by a student, that the CO₂ cartridges were present in their pouches.

At an SMTC-conducted BTOC, an instructor would inspect each piece of required gear with each student. The instructor's inspection would include having the student pack the TFSS with CO₂ cartridges, inflate them, and repack them. This unwritten SMTC policy was not communicated to staff running BTOC-01-11.

Following the BTOC 01-11 student self-inspection of gear, the MSRT training officer provided the BTOC 01-11 officer in charge (OIC) an email list of the missing items that had been noted. Discrepancies included one student (not ME3 Lin) who was missing CO₂ cartridges for his TFSS, and 15 students (ME3 Lin not among them) who were missing safety carabiners (a gated snap hook attached to the safety strap). ME3 Lin was recorded as missing only his rain gear.

On 27 September, BTOC training included a two-hour presentation on the configuration and wear of the gear, and the students were reminded to check their TFSS. On 28 September an instructor asked the class if each student had had their TFSS inspected, and if each student had checked their own TFSS. ME3 Lin replied affirmatively to the instructor's question.

On 28 September, H&C and VI training was conducted by certified MSRT instructors. Part of the training consisted of a four-hour slide presentation reviewing the H&C gear and climbing procedures. Training also included a practical climbing exercise on a static display consisting of three containers stacked approximately 30 feet high. During this static training, the instructors explained how to rig the caving ladder and the positions and roles of the primary climber, secondary climber, pole man, and ladder man. Also during this static training, the instructors demonstrated and assisted students on proper climbing technique. Each student conducted seven day climbs and seven night climbs on the static display. For both the day and night climb sessions, the first climb was conducted without gear and the remaining six climbs were conducted with the students wearing full "assaulter" gear without weapons. The combined weight of the BPS, and all gear and clothing carried by BTOC-01-11 students conducting H&C training, was approximately 60 pounds.

ME3 Lin had previously received training on the in-water release of a BPS carrier and deployment of the TFSS. ME3 Lin conducted a survival swim that included the in-water release of a BPS carrier and the in-water deployment of the TFSS as part of Patrol Forces Southwest Asia (PATFORSWA) pre-deployment training conducted between February and April 2009. This pre-deployment training also included inspection, maintenance, and repacking of the TFSS with CO₂ cartridges. On 15 July 2010, ME3 Lin successfully completed the BTOC prerequisite

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water survival training that included manual (i.e., pulling the lanyards to actuate the CO₂ cartridges) and oral inflation of the TFSS and release of a BPS carrier, while treading water in a swimming pool. This training included the repacking of the TFSS with CO₂ cartridges. It is unknown if the TFSS used by ME3 Lin during pool training on 15 July, 2010, was the same TFSS he used at the time of the accident.

Each BTOC student at the course wore a THH on his torso used for VI and H&C operations. In the H&C iteration, the students are equipped with a safety carabiner attached to the end of a nylon strap for clipping to the caving ladder to prevent falling, should the climber become fatigued. Students are instructed to attach the strap to the front of the THH, under and out the neck area of the BPS carrier, to prevent inverting when clipped in and hanging from the safety strap. When not in use, the strap with its carabiner is stowed by tucking it into the armpit section of the BPS carrier. The BPS also has a cable release attached to a loop on the front vest section which, when pulled and fully extended, disconnects the front and back sections of the BPS, enabling it to fall free of the wearer's body. The cable release loop is protected by a retaining strap which includes a Velcro flap that, when closed, keeps the cable release from being pulled accidentally. When closed, the assembly is called a "pull pillow."

During the static climbs, each student was required to hook into the caving ladder with the safety carabiner, let go of the ladder and practice hanging in order to gain confidence in the equipment. ME3 Lin was wearing a THH equipped with nylon safety strap and carabiner at the time of the incident. ME3 Lin did not display any difficulty during the static training on 28 September and was a physically fit and strong performer.

The underway practical portion of the H&C and VI training was conducted on 12 and 13 October. Both VI and H&C training were to be conducted on the James River in an area between the James River Bridge and the Hampton Roads Bridge Tunnel, using the FRANK DREW as the target vessel. Delivery platforms for the H&C training included two boats from MSRT Chesapeake, CG-255023, a Response Boat Small (RB-S) which is 25 feet in length, and CG-36100, a 24 foot Special Purpose Craft Boarding Team Delivery (SPC-BTD).

FRANK DREW, a cutter roughly 174 feet long and displacing approximately 900 tons, had served as the MSRT training platform twelve times prior to BTOC 01-11. On 12 October, the hook point for the caving ladder from which to board the FRANK DREW was located on the starboard quarter. After completing their climbs, students disembarked from the FRANK DREW's starboard-side buoy deck via a Jacob's ladder onto one of the smaller boats. All H&C evolutions on 12 October were completed without incident.

On 13 October the class mustered at approximately 1400 to conduct medical and training pre-briefs for VI and H&C training. The medical pre-brief was conducted by the designated BTOC emergency medical technician. None of the students voiced any medical issues or concerns or indicated that they were experiencing sore muscles or joint pain as a result of the previous day's VI and H&C training. The training pre-brief covered the number of climbs to be conducted, the

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designated hook point on FRANK DREW, and review of proper climbing techniques and equipment.

The hook point for the H&C training for 13 October was the port side of FRANK DREW, which had the advantage of avoiding spray from the starboard overboard discharge affecting the ladder men in the delivery boat, who control the caving ladder during the assaulter's ascent. The disembarkation point, back to a small boat, from FRANK DREW was the starboard-side buoy deck, via Jacob's ladder. The schedule for 13 October included two day and two night H&C deliveries from each boat and three day and three night VI deliveries from a Coast Guard MH60T helicopter.

ME3 Lin and his fellow students completed both daylight H&C training evolutions from CG-36100 without incident. At the conclusion of the daylight training, the H&C students took an approximate two hour dinner break on board FRANK DREW, while other students completed the night VI portion of their training. To increase visibility of the students during the night evolutions, green chemical lights were taped to the top of their ballistic helmets.

ME3 Lin conducted his first night climb from CG-36100 without incident and transferred to CG-255023 for his second night climb. A certified H&C instructor was onboard CG-255023 at that time. ME3 Lin volunteered to serve as the ladder tender for the second night climb as he had not yet served in that position.

The H&C Tactics, Techniques and Procedures (TTP) require that the delivery boat be "shadowed" by a primary rescue boat. The H&C TTP require the first boat to complete H&C delivery serve as the primary rescue boat in case anyone falls overboard. At the time of the casualty, CG-36100, having completed H&C delivery, should have been shadowing CG-255023 as it conducted H&C operations. Instead, as CG-255023 made its final night H&C delivery approach on FRANK DREW's port side, CG-36100 was positioned alongside FRANK DREW's starboard buoy deck. This was because, after completing its final night H&C delivery, the Commanding Officer (CO) of FRANK DREW requested, and the BTOC OIC directed, CG-36100 to move to the starboard side of FRANK DREW to disembark the students it had delivered.

Conditions for the second night climb were choppy but were still within acceptable operating parameters. On scene weather was reported at the time of the final climb as: wind speed 10 knots; air temp 67° F; water temp 68° F; tide flooding; wave height 1 foot. Sunset occurred at 1831 and the end of civil twilight was 1857.

All climbers prior to ME3 Lin completed their second climb without incident. When ME3 Lin was 3 or 4 rungs up the caving ladder, CG 255023 moved slightly forward of the hook point, causing the ladder to form a slight arc and to twist, such that ME3 Lin was on the underside of the arc, facing the bow of FRANK DREW. As CG 255023 returned to position beneath the hook point, the ladder corrected itself and ME3 Lin continued climbing. When ME3 Lin was 5 or 6 rungs from the top, CG-255023 again moved slightly forward of the hook point, causing the

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ladder to again form a slight arc. ME3 Lin was exhibiting correct technique, of reaching behind the ladder and climbing with his palms toward his face until the ladder arced and twisted. At that point, his legs extended which exaggerated the arc in the ladder, his body came away from the ladder and he broke technique by moving his right hand around to the front of the ladder. With only one hand on the ladder, and his legs no longer bearing his weight, ME3 Lin lost his grip and fell from the ladder at a position east of the Monitor Merrimac Bridge Tunnel at 36° 57.24 N 076° 24.05 W. ME3 Lin's left arm struck the taffrail on the starboard quarter of CG 255023, before he entered the James River.

FRANK DREW sounded the man overboard alarm, deployed a datum marker, and reported a man overboard to Sector Hampton Roads Command Center at 2048. The crew of CG-255023 also deployed a datum marker. Both the datum marker from FRANK DREW and CG-255023 were deployed in approximately the same position.

After entering the water, ME3 Lin surfaced and was seen by a CG-255023 crewmember struggling to tread water with his head above the surface. H&C instructors and students yelled to ME3 Lin as he drifted down the port side of FRANK DREW to activate his TFSS. CG-255023 cleared the caving ladder and peeled away from FRANK DREW in an attempt to reach and recover ME3 Lin. CG-36100, positioned on the opposite side of FRANK DREW from where PO Lin had fallen, also broke away from FRANK DREW upon hearing the man overboard call, and transited astern of FRANK DREW from the starboard to the port side.

A crewmember of CG-255023 identified the visible glow stick attached to ME3 Lin's helmet; however, ME3 Lin was no longer wearing his helmet. ME3 Lin was observed a few feet from his helmet when the coxswain of CG-255023 made his approach, and a throw bag and rescue line was thrown toward him. However, ME3 Lin disappeared beneath the surface of the water immediately after the bag was thrown. CG-36100 arrived on scene as the throw bag was deployed and recovered ME3 Lin's helmet. ME3 Lin likely had removed his helmet to shed weight, as students are taught to pull the lanyard to inflate their TFSS, then ditch their helmet, and then release their BPS, if they still need to shed weight in order to maintain buoyancy.

The search for ME3 Lin was coordinated by Sector Hampton Roads with FRANK DREW serving as the On Scene Coordinator (OSC). Both boats conducting H&C training immediately began conducting surface searches in the area ME3 Lin was last seen. Station Portsmouth was directed to launch boats at 2053. Air support was requested at 2053 and CG6040, the MH-60T helicopter that had completed VI training with FRANK DREW earlier in the evening was diverted at 2120 to return to the scene. CG6040 landed at AIRSTA Elizabeth City, loaded SAR gear, took on a rescue swimmer, and departed AIRSTA Elizabeth City approximately three minutes after landing. Two boats from Station Little Creek launched to assist in the search at 2121. CG6040 arrived on scene at 2142. Units from Virginia Marine Resource Commission, Newport News Fireboat, Newport News Police Department, and Hampton Fireboat also launched to respond shortly after ME3 Lin fell overboard. USCGC MAKO arrived on scene and assumed OSC from FRANK DREW at 2301. At 0118 on 14 October, local assets equipped with

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side-scan SONAR capabilities from Newport News Fire Boat, Virginia Beach Police Boat, and Norfolk Police, were on scene.

At 1454 on 14 October, a Coast Guard boat outfitted with SONAR equipment located what they believed to be the body of ME3 Lin underwater. At 1616 on 14 October, Navy EOD divers found ME3 Lin's body at the bottom of the James River, and two Coast Guard MSRT divers recovered and brought ME3 Lin to the surface. ME3 Lin was pronounced dead upon arrival at Naval Medical Center Portsmouth. Facial and extremity injuries, including a 1" by 1.5" contusion on the right forearm, were observed but were not determined to be incapacitating by the medical examiner. ME3 Lin's cause of death was ruled as drowning.

When ME3 Lin's body was recovered, his M4 assault rifle, 229 RDAK (SIG) Service Pistol, TFSS and BPS were attached to his body. The BPS carrier's cable release pull pillow (which protects and allows access to the cable release) was outside its Velcro pocket and the BPS' cable release appeared to have been partially pulled. The BPS nylon retaining strap was found secured by Velcro to the back of the cable release pull pillow. ME3 Lin's safety carabiner was hanging on the front vest section near the BPS cable release pull pillow, with the carabiner in the locked position, and the strap stowed. ME3 Lin's left TFSS activation lanyard had been pulled and the activation pin had been fully extended; however, there was no CO₂ cartridge in the pouch containing the inflation bladder. The activation lanyard on the right TFSS had not been pulled, and also did not contain a CO₂ cartridge. Both inflation bladders were fully intact.

All equipment worn by ME3 Lin at the time of the incident, with the exception of weapons, was inspected by the Administrative Investigation Board, particularly his TFSS, his BPS, and some buoyant "closed cell" foam that he had inserted into his equipment. The inspection confirmed that both the right and left halves of the TFSS on ME3 Lin's weapons belt contained no CO₂ cartridges. The left TFSS pouch was open and the activation lanyard had been pulled. The right TFSS pouch was closed and its activation pin was still inserted in the grommet and loop closure system. A functional test of ME3 Lin's TFSS was conducted. CO₂ cartridges were installed and the activation lanyards pulled. Each TFSS inflated properly during the test.

3. Findings and Directed Action:

A. I find that ME3 Shaun M. Lin's death occurred in the line of duty and not due to his own misconduct.

I base this finding on the following facts:

1. ME3 Shaun M. Lin was an active duty Coast Guard member assigned to MSST New York 91106, Staten Island, New York. He reported on 23 June 2010.
2. On 16 July 2010, ME3 Lin had completed the minimum Basic Tactical Operations Course training and fitness prerequisites prior to the commencement of BTOC 01-11.

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3. ME3 Lin received orders to attend BTOC training in Chesapeake, Virginia, from 26 September 2010 to 05 November 2010.
4. As part of the PATFORSWA pre-deployment training from 02 February 2009 to 3 April 2009, ME3 Lin conducted a survival swim that included the in-water release of a BPS carrier and the in-water deployment of the TFSS. PATFORSWA training also included inspection, maintenance, and repacking the TFSS with CO₂ cartridges.
5. On 15 July 2010 while assigned to MSST NY, ME3 Lin successfully completed the BTOC prerequisite water survival training that included in-water manual and oral inflation of the TFSS, the in-water release of a BPS carrier, and repacking the TFSS CO₂ cartridges.
6. At the time of the mishap, ME3 Lin was performing the climb in a normal manner consistent with his training.
7. There is no evidence that ME3 Lin's actions constituted gross negligence, recklessness or willful misconduct.

B. Causal Factors. (A factor is considered “causal” when, if removed in the sequence of events, it most likely would have broken the chain of errors and the casualty would not have occurred.)

1. I find that a causal factor of this casualty was that ME3 Lin’s left TFSS inflation bladder did not inflate when he attempted to actuate it because it did not have the required CO₂ cartridge installed.

I base this finding upon the following facts:

- a. The TFSS Model 5326 Overt (O) was an approved flotation system for tactical operations in accordance with the Rescue and Survival Systems Manual, COMDTINST M10470.10F.
- b. The TFSS-5326 is a manually activated inflatable aid to flotation designed for specialized forces, combat swimmers and maritime airborne operations personnel.
- c. The TFSS-5326 is a system of independent units, one left and one right, which is worn on the weapons belt and consists of reusable inflation bladders encased in a nylon pouch with a color coded bead inflation lanyard attached to the pouches’ outside top.
- d. Each inflation bladder of the TFSS-5326 is primarily inflated by manual activation of a single 38 gram CO₂ cartridge by pulling the attached inflation lanyard away from the pouch. An oral inflation tube provides a secondary means of inflation.

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- e. When both inflation bladders are inflated, the TFSS-5326 is designed to provide 45 lbs of positive buoyancy in seawater at a depth of 33ft, 57 lbs of positive flotation at a depth of 15ft, and 80 lbs of flotation on the surface.
- f. ME3 Lin was wearing the TFSS-5326 at the time of the incident.
- g. The PATFORSWA TFSS pre-deployment training included inspection, maintenance, in-water deployment of the TFSS, and repacking the TFSS with CO₂ cartridges.
- h. On 15 July 2010 while assigned to MSST NY, ME3 Lin successfully met the BTOC prerequisite water survival training that included in-water manual and oral inflation of the TFSS, the in-water release of a BPS carrier, and repacking the TFSS CO₂ cartridges.
- i. ME3 Lin was provided CO₂ cartridges for BTOC 01-11. Four unexpended CO₂ cartridges were found in his gear bag ashore after the incident.
- j. BTOC-01-11 students were required to physically inventory each piece of required equipment on the equipment list at the start of the course, and to hold up each item as the training officer called it out. There was a line item on the equipment list for the TFSS but not for the CO₂ cartridges.
- k. BTOC-01-11 instructors did not personally conduct gear checks with individual students, to include testing and packing the CO₂ cartridges into the TFSS, as was the practice at BTOC classes conducted at SMTC.
- l. The instructor supervising the BTOC-01-11 gear check provided the course OIC with an email list of missing items noted during the gear inspection. Safety gear discrepancies included missing CO₂ cartridges for one student, not ME3 Lin. ME3 Lin reported only that he was missing his rain gear. All noted equipment discrepancies were corrected by the MSRT prior to H&C training.
- m. On 27 September, students were provided a two-hour presentation on the assaulter kit configuration and wear. On 28 September, an instructor asked if every student had their TFSS inspected and if each student had checked their own TFSS. ME3 Lin replied in the affirmative.
- n. Post recovery inspection of ME3 Lin's TFSS system confirmed that neither the right nor left TFSS units on his weapons belt at the time of the incident contained a CO₂ cartridge.
- o. The left TFSS pouch was open and the activation lanyard had been pulled. The right TFSS pouch was closed and its activation lanyard had not been pulled.

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p. A functional test of ME3 Lin's TFSS was conducted with CO₂ cartridges installed. When the activation lanyards were pulled, both the left and right inflation bladders inflated properly.

Action: As a result of this finding, I direct:

- a. DCO to work with DCMS to implement appropriate changes to doctrine, TTP, and training to ensure physical verification that each TFSS in use by each member is properly configured prior to each evolution for which the TFSS is required. Gear check shall specifically include a minimum two-person physical check of each CO₂ canister.
- b. DCO and DCMS to develop a certification process for personnel serving as H&C training instructors on the correct operation, maintenance and inspection of the TFSS BPS and THH.
- c. DCO to conduct an analysis and implement a solution that adequately addresses the issues related to buoyancy for both conscious and unconscious personnel who enter the water during H&C evolutions. Solutions shall include doctrine, TTP, training and equipment, to include auto-inflation flotation systems.

2. I find that a causal factor in this casualty was ME3 Lin's inability to jettison his Ballistic Protection System.

I base this on the following facts:

- a. ME3 Lin was wearing a Coast Guard authorized BPS, the Maritime Combat Integrated Releasable Armor System, that included a cable release connected at the top front center of the carrier vest to a "pull pillow," consisting of a retaining strap and flap, affixed with Velcro to the inside of the front vest, to prevent accidental release of the cable.
- b. When pulled and fully extended, the cable release disconnects the front and back sections of the BPS, enabling it to fall free of the wearer's body.
- c. Post recovery examination of ME3 Lin's BPS carrier revealed that it did not fall free of his body because the cable release was only partially extended, i.e., only about 4" of cable were exposed. The cable release required approximately 4" more to be pulled out before the BPS carrier would release.
- d. The BPS did not release because the safety strap with carabiner, used to clip to the caving ladder, was routed through the inside of ME3 Lin's BPS and out the front center of the carrier vest, where the cable release pull pillow was located, rather than out of the neck area. The retaining strap also was incorrectly routed through the BPS cable release loop, under the pull pillow. ME3 Lin was able to locate and access his BPS cable release,

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however, he was able to pull the cable only as far as the retaining strap allowed, which was approximately half the length needed to release the BPS.

e. On 15 July 2010 while assigned to MSST NY, ME3 Lin successfully met the BTOC prerequisite water survival training that included in-water inflation of the TFSS, the in-water release of a BPS carrier, and repacking the TFSS CO₂ cartridges. It is unknown whether the gear ME3 Lin trained in on 15 July 2010 was the same type of BPS he wore on 13 October 2010.

f. On 27 September, BTOC 01-11 students were encouraged to practice releasing their BPS carrier after class on their personal time.

Action: As a result of this finding, I direct:

a. DCO to standardize the type and configuration of BPS release mechanisms. Equipment used in training must be identical to equipment used in operations.

b. DCO to immediately discontinue the use of all BPS that are not of a type and configuration described in an appropriate equipment standard.

c. DCO to work with FORCECOM to investigate, test and evaluate release mechanisms for the BPS, including tactile-differentiating devices, such as distinctively shaped beads or similar devices.

d. DCO to establish policy that prior to each evolution for which the BPS is required, an appropriately certified instructor, H&C master, or fast-rope master must inspect and verify that each BPS in use by the tactical delivery team members is properly configured to release without interference by misrouted straps or other equipment.

e. DCO to conduct an analysis and implement a solution that adequately addresses the issues related to buoyancy for both conscious and unconscious personnel who enter the water during H&C evolutions. Solutions shall include doctrine, TTP, training and equipment, to include auto-inflation flotation systems.

3. I find that a causal factor to this casualty was that the primary rescue boat was not shadowing the delivery platform, but was engaged in activity on the opposite side of the boarding platform when ME3 Lin fell into the water.

I base this finding on the following facts:

a. DOG Instruction M16247.3, Tactics, Techniques and Procedures for H&C boarding operations, requires that the first boat to complete H&C delivery serve as the primary rescue boat in the case of a man overboard.

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- b. As the first boat to complete H&C delivery during the training iteration, CG-36100 should have been positioned behind CG-255023, the delivery boat. Instead, after completing its final night H&C delivery, FRANK DREW's commanding officer requested, and the BTOC OIC directed, CG-36100 to move to the starboard side of FRANK DREW to disembark H&C students from the buoy deck for transfer back to BSU Portsmouth.
- c. ME3 Lin's second night climb was conducted from CG-255023 on FRANK DREW's port side.
- d. When ME3 Lin fell into the water off the port side of FRANK DREW, CG-36100 was located on the starboard side of FRANK DREW disembarking H&C students.
- e. Upon hearing the man overboard call, as it was not in a position for the crew to see the accident, CG-36100 broke away from FRANK DREW, but had to transit to FRANK DREW's port side, where ME3 Lin had fallen.
- f. The coxswain of CG-255023 also maneuvered in an attempt to recover ME3 Lin from the water, but first had to get clear of the caving ladder.
- g. FRANK DREW was unable to immediately maneuver because of the location of the boats on its port quarter and starboard beam.
- h. None of the on-scene vessels, CG-255023, CG-36100 and FRANK DREW were able to reach ME3 Lin before he sank beneath the surface of the water.

Action: As a result of this finding, I direct:

- a. DCO to promulgate policy that prohibits the designated rescue boat in an H&C training evolution from conducting any operation that interferes with its ability to respond to a man overboard from the delivery vessel or the TOI.
- b. DCO to clarify within doctrine the roles and responsibilities of all applicable CG personnel during man overboard and other potential contingencies associated with H&C and VI.
- c. DCO and FORCECOM to review and validate all H&C TTP, personnel qualification standards (PQS), competencies, and certification requirements.

C. Contributory Factors. (A factor is considered "contributory" when it is not singularly responsible for the casualty; however, when combined with causal or other contributory factors it influenced the progression of the casualty)

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1. I find that a contributing factor to this casualty was the use of the RB-S as a delivery platform for H&C.

I base this finding upon the following facts:

- a. ME3 Lin was delivered by RB-S CG-255023 at the time of the casualty.
- b. The cabin configuration of the RB-S obstructs the coxswain's line of sight to the H&C ladder position, requiring an RB-S crewmember to deliver conning commands to the coxswain to keep the RB-S in proper position during H&C delivery.
- c. During the second night climb, the water was choppy than during the earlier climbs and required CG-255023's crew to give more conning commands to the coxswain in order to maintain proper position for the delivery.
- d. As ME3 Lin ascended the caving ladder, it twisted and corrected itself, and towards the end of his ascent, developed an arc, primarily because CG-255023 was slightly forward of the hook point, causing ME3 Lin to take action that ultimately resulted in his fall.

Action: As a result of this finding, I direct:

- a. DCO to conduct further analysis of revised delivery TTP and any appropriate mitigation measures to determine delivery platforms for H&C training and operations in the future.
- b. DCO to finalize the decision on future employment of the SPC-BTD as a suitable delivery platform for H&C training and operations.

2. I find that a contributing factor to this casualty was the manner in which BTOC 01-11 was conducted.

I base this finding upon the following facts:

- a. BTOC is a seven-week initial training course that provides instruction on specialized maritime interdiction skills and advanced marksmanship to prepare personnel for certain unique operations.
- b. BTOC is designated for Coast Guard personnel assigned to or with orders to the Maritime Security Response Team, a Maritime Safety and Security Team, or a Tactical Law Enforcement Team.
- c. SMTC is the only resident schoolhouse training provider for BTOC.

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- d. Based on the existing BTOC course curriculum at the time of the incident and available training resources, SMTC's maximum BTOC throughput for FY11 was determined to be 128 training quotas over 4 convenings.
- e. On 8 July 2010, the FORCECOM Commander sent a warning to DCO stating that SMTC was understaffed (by 22 personnel) to meet desired throughput levels, and if this resource shortage was not addressed, it would have an adverse effect on SMTC's ability to conduct training.
- f. On 9 July 2010, DOG requested that FORCECOM provide 160 quotas over five BTOC convenings to meet the FY11 mission qualification needs of DSF units.
- g. On 4 August 2010, DOG made a formal request to FORCECOM to host its own BTOC in the early Fall as a temporary solution to the throughput gap.
- h. FORCECOM had approved a previous DOG-sponsored BTOC in 2009 as a solution to the previous year's training throughput gap.
- i. On 17 September 2010, FORCECOM formally approved a DOG-sponsored BTOC (BTOC 01-11) as a temporary solution to the throughput gap.
- j. FORCECOM's approval of DOG-sponsored BTOC 01-11 was contingent upon:
 - 1. SMTC would not be required to provide instructor or equipment resources for course execution;
 - 2. FORCECOM would be provided full disclosure of all disenrollments and drops from the course; and
 - 3. FORCECOM staff, including representatives from SMTC, would be provided an open invitation to observe and evaluate all portions of the training.
- k. BTOC 01-11 commenced 26 September 2010 at U.S. Training Center in Moyock, NC, as a FORCECOM-approved, DOG-sponsored, and MSRT-hosted course as a result of a training throughput shortfall.
- l. There was limited communication between the staffs of DOG and SMTC.
- m. BTOC 01-11 used the SMTC BTOC lesson plans that were approved at the time of BTOC 01-11.
- n. Students historically had reported to BTOC conducted at SMTC not knowing their gear. Students had frequently shown up without CO₂ cartridges in their TFSS, or with improperly packed or unserviceable TFSS. There is no indication that this information was passed to the staff running BTOC 01-11.

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- o. The equipment list obtained from the SMTC website included a specific line item for TFSS but did not include a specific line item for CO₂.
- p. Although a written policy did not exist, common practice during SMTC-run BTOCs was for one student at a time to go before an instructor for a thorough gear inspection. That gear inspection required students to pack their TFSS with CO₂ cartridges, inflate them, and repack them in front of an instructor. There is no indication that this information was passed to the staff running BTOC 01-11.
- q. A physical check of student safety gear, by an instructor or other cadre, was not conducted prior to the training in BTOC 01-11. Only a visual check to confirm students were wearing the required safety equipment was conducted.
- r. The lack of a physical check of the TFSS by an instructor meant that training cadre relied on the students to ensure that their TFSS had CO₂ cartridges installed, and that other required safety equipment was present, properly rigged and operable.

Action: As a result of this finding, I direct:

- a. DCO and FORCECOM to formally adopt a definition of “high-risk training;” establish Coast-Guard -wide high-risk training doctrine and TTP that ensure adequate controls are in place to systematically mitigate risk associated with high-risk training evolutions.
- b. DCO and FORCECOM to review and validate all TTP, PQS, competencies, physical fitness standards and certification requirements for all high-risk training (to include hook and climb and fast-rope master certifications).
- c. DCO and FORCECOM to establish and resource SMTC as the Coast Guard’s center of excellence for deployable specialized force training to promote standardized training, TTP, evaluation, and systematic capture and integration of lessons learned into operations and training.
- d. DCO and FORCECOM to establish and resource SMTC as the only unit authorized to conduct BTOC.

D. Additional Observations. Although not considered causal or contributory factors in this casualty, two additional matters were raised during the course of this investigation that warrant attention.

- 1. Providing Buoyancy to an Injured or Unconscious Member. Two pieces of green closed cell foam were found in the front and back of ME3 Lin’s BPS and eight pieces of white closed cell foam were located in his kit bag. This foam did not provide neutral or positive buoyancy to ME3 Lin while he was wearing full equipment. However, it highlights the absence of an effective, passive safeguard that might prevent a member from drowning

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who enters the water unconscious or injured and unable to activate his TFSS or shed his equipment. Since the promulgation of Change-1 of H&C TTP, dated 11 December 2009, closed cell foam has not been required nor prohibited to be inserted into the BPS carrier during H&C operations for several valid reasons. Coast Guard policy prohibits use of the passively buoyant and highly flammable foam aboard rotary aircraft. The amount of closed cell foam needed to maintain neutral buoyancy of a fully loaded climber is not clearly established, but would almost certainly add an unacceptable amount of bulk and heat retention to the wearer, which would restrict freedom of movement and effectiveness. Ongoing assessment of an auto/manual selectable passive flotation system that can provide positive buoyancy to an unconscious or incapacitated tactical operator should continue.

2. The utility of placing a chemical light on a tactical operator's helmet, a piece of gear he or she is trained to discard when in distress in the water, should be reassessed.

4. **Summary:**

This mishap was preventable. It resulted from the cumulative effects of a series of failures to consistently follow safety procedures and exercise sound judgment, both systemically, by failing to provide clear, comprehensive doctrine and TTP to those responsible for the training, and individually, by failing to follow or enforce established safety procedures and accurately assess foreseeable risks.

The Coast Guard failed to adequately staff the SMTC, the schoolhouse responsible for conducting BTOC, such that it could not meet the throughput needs of the DOG. This resulted in the DOG asking to conduct the training in the field, away from SMTC, which FORCECOM, the command responsible for training, approved. A specialized, potentially dangerous portion of BTOC was conducted without performing an instructor's check of the TFSS that typically was done at SMTC. That instructor's check "best practice" was not shared by SMTC with the personnel responsible for conducting BTOC 01-11.

Compounding this omission were individual failures to follow established safety procedures. The training OIC did not ensure that officers in command of CG-36100 and FRANK DREW followed the procedure that a rescue boat shadow the delivery platform during a boarding so that it could readily see and quickly respond to a man overboard incident.

The student, an experienced petty officer, who had previously worn TFSS and deployed its safety features, failed to properly configure his personal protective equipment, to wit: specifically check whether a critical component of his TFSS was present, and he inaccurately reported to his instructor that his equipment was in order.

Confidence in our abilities and those of our shipmates is essential to Coast Guard operations. Overconfidence, lack of attention to detail and unnecessary risk-taking can have tragic consequences. Safe operating procedures are made to be followed. A more rigorous risk

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assessment would have identified the danger of conducting simultaneous boarding and off-loading from moving vessels, including the rescue boat, in conditions of darkness in a training environment. A rigorous check of personal protective equipment likely would have identified and corrected missing CO₂ cartridges and the improper configuration of the BPS, which would have improved ME3 Lin's ability to remain afloat until help arrived.

The Coast Guard is grateful for ME3 Shaun Lin's service. His tragic loss is a painful reminder that Coast Guard men and women go into harm's way each day, and we must diligently commit and direct our efforts to perform operations and training as safely and effectively as possible.

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