UNITED STATES AIR FORCE
AIRCRAFT ACCIDENT INVESTIGATION BOARD REPORT

HH-60G, T/N 88-26106

129TH RESCUE SQUADRON
129TH RESCUE WING
MOFFETT FEDERAL AIRFIELD, CA

LOCATION: SEQUOIA NATIONAL FOREST, SPRINGVILLE, CA

DATE OF ACCIDENT: 12 SEPTEMBER 2013

BOARD PRESIDENT: BRIGADIER GENERAL BARRE SEGUIN

Conducted in accordance with Air Force Instruction 51-503

EXECUTIVE SUMMARY
AIRCRAFT ACCIDENT INVESTIGATION

HH-60G, T/N 88-26106
SEQUOIA NATIONAL FOREST, SPRINGVILLE, CA
12 SEPTEMBER 2013

On 12 September 2013, at approximately 1010 local time, a member of the High Sierra Volunteer Trail Crew (HSVTC), hereinafter referred to as the civilian fatality (CF), fell 40 feet to the ground during a hoist operation on an HH-60G, tail number (T/N) 88-26106, sustaining fatal injuries. The mishap occurred approximately 30 miles east of Visalia, California, as part of a California Joint Task Force Domestic Support, Counterdrug (JTFDS-CD) operation. The Mishap Crew (MC) was assigned to the 129th Rescue Squadron (129 RQS), and the Mishap Aircraft (MA), was assigned to the 129th Rescue Wing (129 RQW), California Air National Guard, Moffett Federal Airfield, California. The MC consisted of the Mishap Pilot (MP), the Mishap Co-Pilot (MCP), the Special Missions Aviation Right Seat (MSR), and the Special Missions Aviation Left Seat (MSL). The CF was the highly respected Executive Director and founder of the HSVTC. His dedication to the community and spirit of volunteerism led to his receipt of the honorable 2012 U.S. Forest Service's Regional Forester's Volunteer of the Year Award.

On the day of the mishap, the CF mistakenly attached the MA hoist connection to his self-procured Condor tactical vest (CTV) non-load bearing plastic D-ring. Approximately 25 minutes into the Mishap Sortie (MS), the CF was lifted out of the MA via the MA hoist, which was connected to his CTV non-load bearing plastic D-ring. Once clear of the MA, the non-load bearing plastic D-ring broke and the CF fell approximately 40 feet to the ground, sustaining fatal injuries. There were no military injuries, no damage to the MA, and all the MA equipment was inspected and found to be in working order.

The Accident Investigation Board President found, by clear and convincing evidence, the cause of the mishap was the CF mistakenly connecting the MA hoist connection to his CTV non-load bearing plastic D-ring rather than his Yates harness (YH) load bearing metal D-ring.

Additionally, the Board President found, by the preponderance of evidence, the following factors substantially contributed to the mishap:

(1) the 129 RQW, JTFDS-CD, and the California National Guard's approval of an unauthorized civilian, CF, to fly on the MA;

(2) the MC's inadequate oversight during flight and hoist operations; and
(3) the use of personal equipment which excessively cluttered the area around the YH load bearing metal D-ring and interfered with safe connection and visual inspection.

SUMMARY OF FACTS AND STATEMENT OF OPINION
HH-60G, T/N 88-26106
12 SEPTEMBER 2013

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ACRONYMS AND ABBREVIATIONS

129 RQS	129th Rescue Squadron
129 RQW	129th Rescue Wing
ACC	Air Combat Command
ADCON	Administrative Control
AEF	Air Expeditionary Forces
AF	Air Force
AFB	Air Force Base
AFE	Aircrew Flight Equipment
AFI	Air Force Instruction
AFPAM	Air Force Pamphlet
AFSC	Air Force Specialty Code
AFTO	Air Force Technical Order
AGL	Above Ground Level
AIB	Accident Investigation Board
AIE	Alternate Insertion / Extraction
AMXS	Aircraft Maintenance Squadron
ANG	Air National Guard
ARMS	Aviation Resource Management System
BP	Board President
BR2	Board Recorder 2
CA ANG	California Air National Guard
CA NG	California National Guard
Capt	Captain
CD	Counterdrug
CDC	Counterdrug Coordinator
CDFW	California Department of Fish & Wildlife
CEA	Career Enlisted Aviators
CF	Civilian Fatality
CNG	California National Guard
Col	Colonel
CSAR	Combat Search and Rescue
CTV	Condor Tactical Vest
DNIF	Duties Not Including Flying
DO	Director of Operations / Operations Officer
DoD	Department of Defense
EMT	Emergency Medical Technician
FE	Flight Engineer
HF	Medical Officer / Human Factors
HSVTC	High Sierra Volunteer Trail Crew
IAW	In Accordance With
IG	Inspector General
IMDS	Integrated Maintenance Data System
ITO	Invitational Travel Order
JTFDS-CD	Joint Task Force Domestic Support-Counterdrug
KDMC	Kaweah Delta Medical Center
KFAT	Fresno Yosemite International Airport
KVIS	Visalia Airport
L	Local Time
LA	Legal Advisor
LE	Law Enforcement
LEA	Law Enforcement Agent
Lt Col	Lieutenant Colonel
LZ	Landing Zone
MA	Mishap Aircraft
Maj	Major
MAJCOM	Major Command
MC	Mishap Crew
MCP	Mishap Co-Pilot
MEDEVAC	Medical Evacuation
MEP	Mission Essential Personnel
MFE1	Mishap Flight Engineer, Left
MFE2	Mishap Flight Engineer, Right
MM	Maintenance Member
MP	Mishap Pilot
MS	Mishap Sortie
MSL	Mishap Special Missions Aviation, Left
MSR	Mishap Special Missions Aviation, Right
NASA	National Aeronautics and Space Administration
NGB	National Guard Bureau
NM	Nautical Miles
NOTAMs	Notices to Airmen
OG	Operations Group
Ops Tempo	Operations Tempo
ORM	Operational Risk Management
PA	Public Affairs
PHA	Physical Health Assessment
PM	Pilot Member
RA	Reenactment Actor
REC	Recorder
S/N	Serial Number
SAR	Search and Rescue
SMSgt	Senior Master Sergeant
SOF	Supervisor of Flying
T.O.	Technical Order
T/N	Tail Number
TACON	Tactical Control
TAG	The Adjutant General
TBA	Training Business Area
TCTO	Time Compliance Technical Orders
TSgt	Technical Sergeant
U.S.	United States
USAF	United States Air Force
USFS	United States Forest Service
YH	Yates Harness

The above list was compiled from the Summary of Facts, the Statement of Opinion, the Index of Tabs, and Witness Testimony (Tab V).

SUMMARY OF FACTS

1. AUTHORITY AND PURPOSE

a. Authority

On 17 September 2013, General Gilmary Michael Hostage III, Commander, Air Combat Command (ACC), appointed Brigadier General Barre R. Seguin, Board President (BP) to conduct an aircraft accident investigation of a mishap that occurred on 12 September 2013 involving an HH-60G Pave Hawk aircraft in the Sequoia National Forest in Springville, California (Tab Y-3 to Y-12). The HH-60G aircraft accident investigation was conducted in accordance with (IAW) Air Force Instruction (AFI) 51-503, Aerospace Accident Investigations, [Chapter 11,] at Moffett Federal Airfield, California, from 15 October 2013 through 8 November 2013. The following Accident Investigation Board (AIB) members were also appointed: Legal Advisor (LA), Pilot Member (PM), Medical Officer/Human Factors (HF), Board Recorder (REC), Maintenance Member (MM), and Special Missions Aviation Functional Area Expert (AIB FAE) (Tab Y-3 to Y-12).

b. Purpose

This is a legal investigation convened to inquire into the facts surrounding the aircraft or aerospace accident, to prepare a publicly-releasable report, and to gather and preserve all available evidence for use in litigation, claims, disciplinary actions, administrative proceedings, and for other purposes.

2. ACCIDENT SUMMARY

On 12 September 2013, at approximately 1010 local time (L), the Mishap Crew (MC), aboard an HH-60G, tail number (T/N) 88-26106, assigned to the 129th Rescue Wing (RQW), California Air National Guard (CA ANG), Moffett Federal Airfield, California, was lowering personnel from the mishap aircraft (MA) hoist as part of California Joint Task Force Domestic Support, Counterdrug (JTFDS-CD) operations, approximately 30 miles east of Visalia, California (Tabs V-10.3, V-12.9). The JTFDS-CD operation's purpose was the reclamation, or environmental clean-up and restoration, of a contaminated marijuana grow site in the Sequoia National Forest (Tab CC-29). During the Mishap Sortie's (MS) second hoist iteration, a member of the High Sierra Volunteer Trail Crew (HSVTC), Shane Krogen, hereinafter referred to as the civilian fatality (CF), fell from the mishap aircraft (MA) while being hoisted into an illegal marijuana grow site where reclamation operations were being performed (Tabs V-5.2 to V-5.3, V-8.3 to V-8.4). The CF fell from the MA from an approximate forty-foot hover to the ground and suffered fatal injuries (Tabs V-5.2 to V-5.3, V-8.3 to V-8.4, X-3, Z-64). The MA was piloted by the Mishap Copilot (MCP) and the hoist was being operated by the Mishap Special Missions Aviation, Right Seat (MSR) at the time of the mishap (Tab V-5.3, V-12.9). There were no military casualties and no damage to military or civilian property (Tabs D-3, V-5.3, V-12.10).

3. BACKGROUND

The MA belonged to the 129th Rescue Squadron (129 RQS), 129 RQW (Tab V-21.3). The 129 RQW is a component of the CA ANG (Tab CC-155).

a. Air Combat Command

ACC, with headquarters at Langley Air Force Base, Virginia, is a major command created June 1, 1992, by combining its predecessors Strategic Air Command and Tactical Air Command (Tab CC-151). ACC is the primary provider of air combat forces to America's war fighting commanders (Tab CC-151). To support global implementation of national security strategy, ACC operates fighter, bomber, reconnaissance, battle-management, and electronic-combat aircraft (Tab CC-151). It also provides command, control, communications and intelligence systems, and conducts global information operations (Tab CC-151).

b. Air National Guard

The Air National Guard (ANG) is administered by the National Guard Bureau (NGB), a joint bureau of the departments of the Army and Air Force (AF), located in the Pentagon, Washington, D.C. (Tab CC-153). It is one of the seven Reserve components of the United States Armed Forces that augments the Active Components in the performance of their missions (Tab CC-153). ANG has both a federal and state mission. The dual mission, a provision of the U.S. Constitution, results in each guardsman holding membership in the National Guard of his or her state and in the National Guard of the United States (Tab CC-153) All ANG Wings are operationally gained by Air Force major commands (Tab CC-153).

c. 129th Rescue Wing

Located in the heart of the Silicon Valley, the 129 RQW's mission is to train and prepare to perform its wartime mission of combat search and rescue (CSAR) anywhere in the world (Tab CC-155). The 129 RQW has performed a wide variety of civilian search and rescue missions, including distressed persons aboard ships, lost or injured hikers, and medical evacuations (Tab CC-155). The 129 RQW is an ANG unit and operationally gained by ACC (Tab CC-153).

State Missions

As an ANG unit, many of the 129 RQW’s missions have involved support of the Governor's office during state emergencies (Tab CC-155). The wing is the 'go to' unit due to its specialized capabilities in a wide range of environments, such as fires, floods, earthquakes, and hurricanes

(Tab CC-155). The 129 RQW has often been tasked with the medical evacuation of patients from merchant vessels at sea (Tab CC-155).

Federal Missions
The federal mission of the 129 RQW is to rapidly deploy worldwide to conduct CSAR operations, over land or water, in both hostile and permissive environments (Tab CC-155). The unit has performed rescue missions in Iraq, Afghanistan and other locations around the globe (Tab CC-155). The 129 RQW continues its search and rescue mission anytime, anywhere, living up to the unit motto, "These Things We Do...That Others May Live" (Tab CC-155).

Counterdrug Mission
The California National Guard (CA NG) Joint Task Force Domestic Support, Counterdrug (JTFDS-CD) conducts drug interdiction and drug demand reduction operations throughout the state in support of local, state and federal law enforcement agencies and community-based organizations in California (Tab CC-155). The 129 RQW's JTFDS-CD detachment, Team Hawk, utilizes the HH-60G Pave Hawk helicopter, aircrew, Pararescuemen and maintainers to support local law enforcement agencies in the eradication of illegal narcotics and the cleanup of national forests environmentally damaged by marijuana production (Tab CC-155).

d. 129th Rescue Squadron

The 129 RQS's mission is to train, equip, and provide helicopter aircrew to perform it's CSAR mission in any environment and condition encountered (Tab CC-155). The 129 RQS performs it's state mission by training, equipping and providing helicopter aircrew to perform firefighting, civil search and rescue (SAR), CD support, disaster relief, and long range, over water rescue missions (Tab CC-155).

e. The High Sierra Volunteer Trail Crew

The HSVTC is a 26 U.S.C. § 501(c)(3) charitable organization devoted to developing and empowering volunteers of all ages and socioeconomic backgrounds to enjoy in the participation of preservation, stewardship and restoration of public lands and facilities (Tabs CC-60 to CC-73). As such, the HSVTC often works with federal, state, and local agencies in working preservation and restoration issues (Tabs CC-60 to CC-73). The HSVTC was founded by Shane Krogen, the CF, and has contributed thousands of hours to nature preservation and reclamation (Tabs CC-60 to CC-73). The CF's dedication to the community and spirit of volunteerism led to his receipt of the honorable 2012 U.S. Forest Service's Regional Forester's Volunteer of the Year Award.

f. HH-60G Pave Hawk

The primary mission of the HH-60G Pave Hawk helicopter is to conduct day or night personnel recovery operations into hostile environments to recover isolated personnel during war (Tab CC-157). The HH-60G is also tasked to perform military operations other than war, including civil SAR, medical evacuation, disaster response, humanitarian assistance, security cooperation or aviation advisory, National Aeronautics and Space Administration (NASA) space flight support, and rescue command and control (Tab CC-157).

The Pave Hawk is a highly modified version of the Army Black Hawk helicopter which features an upgraded communications and navigation suite that includes integrated inertial navigation/global positioning/Doppler navigation systems, satellite communications, secure voice, and Have Quick communications (Tab CC-157).

The Pave Hawk is crewed by a pilot, co-pilot, and two special missions aviation personnel (Tab CC-157). Rescue equipment includes a hoist capable of lifting a 600-pound load (270 kilograms) from a hover height of 200 feet (60.7 meters) (Tab CC-157). The hoist is used to raise and lower personnel to and from terrain where the helicopter is not capable of landing and is operated by the special missions aviation crew member (Tab CC-157). The HH-60G is also equipped with a personnel locating system that is compatible with the PRC-112 survival radio and provides range and bearing information to a survivor's location (Tab CC-157).

4. SEQUENCE OF EVENTS

a. Mission

The mishap sortie (MS) was an operational mission conducted under Title 32 of the United States Code in support of JTFDS-CD operations (Tabs V-12.2 to V-12.4, BB-36, CC-28 to CC-37). The Counterdrug Coordinator (CDC), JTFDS-CD, and the 129 RQW authorized the mission to provide rotary wing airlift support over a 5-day period for marijuana grow sites' reclamation in the Sequoia National Forest (Tabs CC-28 to CC-37, CC-44 to 46). The mishap crew (MC) based the MA at Fresno Yosemite International Airport (KFAT) and conducted flying operations from a California Department of Fish and Wildlife (CDFW) unimproved landing zone (LZ) known as Springville LZ, located in the Sequoia National Forest in Springville, California (Tabs V-12.8, V-22.7 to V-22.8). The MS occurred on day four of flying operations, during which the CF had been previously flown and hoisted. (Tab V-12.5, V-12.7, CC-55 ADD CITES). Planned tasks for the mission included hoisting CA NG members, Law Enforcement (LE) personnel, and HSVTC members into and out of remote, illegal marijuana grow sites to remove toxic substances, horticulture equipment, and debris (Tabs V-12.8, V-12.12, CC-28 to CC-37, CC-55, Z-62). The CA NG, LE, the CF and other HSVTC members were flying on the MA as Mission Essential Personnel (MEP) (Tab V-22.3, CC-44 to CC-45,

CC-54). Individuals who are not designated as aircrew, but are required to perform unique ground support duties that are directly related to the unit's mission can be approved as MEP (Tab BB-16). However, civilian volunteers, like the members of the HSVTC, cannot serve in MEP roles nor be passengers on JTFDS-CD operations in accordance with (IAW) AFI 11-401and DoD 4515.13-R, para C10.13 (Tab BB-16, BB-24, BB-30).

b. Planning

On Monday, 9 September 2013, three days prior to the mishap, the MS was planned and briefed at Moffett Federal Airfield, California (Tab V-12.12). The briefing was conducted IAW AFI 11-2HH-60, Volume 3, *HH-60 Operations Procedures* and was adequate for the mission (Tabs V-12.12, BB-14). The mishap pilot (MP) used this brief to cover all flying operations planned for the duration of the JFTDS-CD operation and conducted daily mission update briefings to address changes and administrative items (Tabs V-12.7 to V-12.8, V-12.12). On the day of the mishap, the MP gave the daily mission update briefing and the MC conducted a coordination briefing at Springville LZ with the HSVTC (including the CF) and MEP to address specific hoist and debris removal operations (Tabs V-4.5, V-5.4, V-8.5, V-12.12).

c. Preflight

On the day of the mishap, the MCP reviewed and briefed the MC on current weather (WX) and Notices to Airmen (NOTAMs), which are general aviation advisories relevant to the area of operation (Tab V-10.3, V-12.8). The MC departed from KFAT at 0850L and flew for 30 minutes before they landed the MA at Springville LZ at 0920L and performed normal shut down operations (Tabs D-8, V-5.2, V-8.3, V-12.13). The MP then conducted a coordination brief with the planned hoist operations participants, to include the CF (Tabs D-8, V-5.2, V-8.3, V-12.13, V-22.8). The coordination briefing addressed the planned sequence of events for the MS (Tabs D-8, V-5.4, V-8.4, V-12.12 to V-12.13). The MS sequence of operations was finalized during the coordination brief, which detailed the hoisting of six CA NG, LE and HSVTC personnel into the marijuana grow site, known as the Dunn Grow site, for reclamation operations, but did not review hoist operation specifics (Tabs V-5.2, V-5.4). The MA would then return to the Springville LZ to pick up the CF and hoist him into the Dunn Grow site (V-5.2, V-8.3).

d. Summary of Accident

On 12 September 2013, the MA departed from Springville LZ at approximately 0945L with six CA NG, LE and HSVTC personnel on board (Tabs D-8, V-12.8 to V-12.9, V-22.8 to V-22.9). The CF was not on board this flight (Tabs V-5.2 to V-5.3, V-12.8 to V-12.9). The flight time from Springville LZ to the Dunn Grow site was approximately 5 minutes (Tabs V-22.8 to V22.9, Z-56). The six individuals were hoisted into the Dunn Grow site via three hoists, in which members were lowered two at a time using a United States Forest Service (USFS) provided A-Frame hoisting device (Tab V-5.2 to V-5.3, V-5.5, Z-8). The A-Frame is an inverted V-shaped device consisting of a four-inch diameter steel O-ring and two one-foot long heavy-duty lanyards extending from the O-ring to a clasp at the end of each lanyard, illustrated in Figure 4.1 (Tabs V-17.4, V-5.5, Z-8, Z-10,). At approximately 1000L, the hoists were completed, and the MA flew and landed at the Springville LZ to pick up the CF (Tabs D-8, V-12.8 to V-12.9, V-22.8 to V-22.9, Z-56).

On the day of the mishap, the CF utilized self-procured and non-standardized personal equipment (Tab V-17.5, V-25.5, V-31.5). The CF was wearing a Yates harness (YH) securely around his legs, torso, and shoulders, and a Condor tactical vest (CTV) with water bottles, radio, and a handgun over the YH (Tab R-60, Z-4, Z-12, Z-14). The CF used a large orange carabiner connected to a cloth loop on one side of the vest and a plastic, non-load bearing D-ring on the other to secure the vest around his abdomen (Tab Z-6). The CTV's D-ring overlaid the YH load bearing D-ring (Tab Z-6, Z-30). The CF's equipment configuration is illustrated in Figure 4.3 and 4.4 (Tabs Z-4, Z-6). Additionally, the CF was wearing reinforced work gloves during the MS (Tabs Z-54, Z-64).

The CF was trained by 129 RQW personnel on hoist operations on 5 August 2013 (Tabs V-5.10, V-10.9, V-12.13, V-17.3). During this training, the CF was instructed to secure himself to the aircraft by attaching a personnel restraint strap, which was attached to the cabin floor of the aircraft, to his YH (Tabs V-17.4, V-25.7 to V-25.8). Further, the CF was instructed to connect the A-Frame clasp, which was connected to the aircraft hoist hook, to his YH prior to disconnecting the personnel restraint strap in preparation for hoist operations (Tabs V-17.4, V-24.2, V-25.7 to V-25.8). However, on the day of the mishap, the MSR configured the MA cabin and secured the CF in a manner that was inconsistent with the CF's training to expedite hoisting the CF into the Dunn Grow site (Tabs V-23.5, V-24.2 to V-24.3, Z-10). The MSR connected the personnel restraint strap from the MA cabin floor to the A-Frame steel O-ring, which was attached to the MA hoist hook, instead of having the CF connect the personnel restraint strap to his YH (Tab V-24.4, V-24.10, Z-10). This configuration eliminated two opportunities for the CF to realize and correct the situation by eliminating the step of the CF attaching the A-Frame clasp to the correct D-ring and then the second step of un-attaching the personnel restraint strap from the same D-ring on the YH (Tabs V-23.5, V-24.2 to V-24.3, Z-10). Additionally, the CF gave the MSR a three-foot climbing rope with carabiners on each end connected to a military-style duffel bag, containing water bottles, which the MSR connected to the A-Frame metal O-ring (Tabs V-5.5, V-24.5 to V-24.6, Z-10, Z-66). Refer to Figure 4.1 below for an illustration of the MS cabin configuration on the day of the mishap (Tabs V-24.10, Z-10).

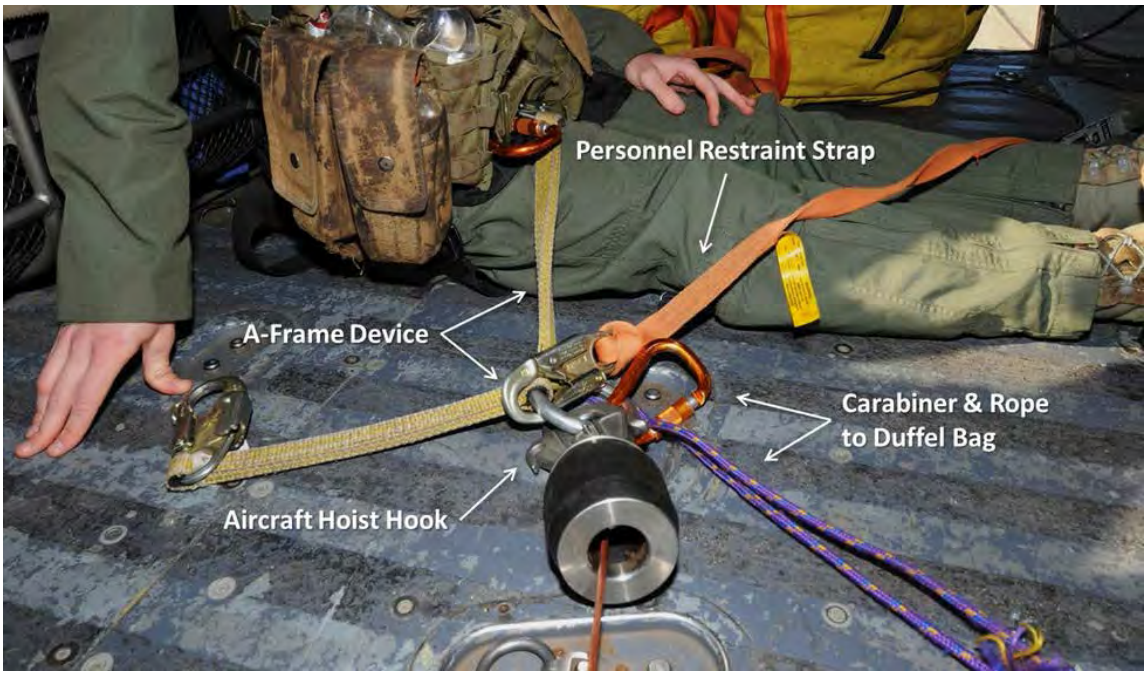

Figure 4.1. YH with CF's CTV attached to hoist (2) (Tab Z-10)

When the CF entered the MA cabin, the MSR handed the CF the A-Frame clasp to connect to the CF's YH load bearing D-ring (V-24.4, V-24.10, Z-8, Z-10). However, the CF mistakenly connected the A-Frame clasp to his CTV non-load bearing plastic D-ring (Tabs V-5.10, Z-20, Z-22, Z-28). The MSR then completed a visual inspection to ensure the CF was properly secured (Tabs V-5.4 to V-5.5, V-24.5). AFI 11-2HH-60V3, para 6.12.2 directs the designated Safetyman, in this case, the MSR, to "continuously evaluate the safety of the operation, and immediately inform the rest of the crew, and take the necessary action to avert a hazardous situation" (Tabs BB-14, V-24.3 to V-24.4). A visual inspection minimally met the requirement of the AFI for the MSR, as Safetyman, to "take the necessary action to avert a hazardous situation" (Tab BB-14). Due to the extremely close proximity of the YH load bearing D-ring in relation to the CTV non-load bearing D-ring, and the concealment of both D-rings by the cluttered pouches on the CTV, which included a handgun, the MSR incorrectly concluded the CF was properly secured (Tabs R-60, V-5.4 to V-5.5, Z-6, Z-30).

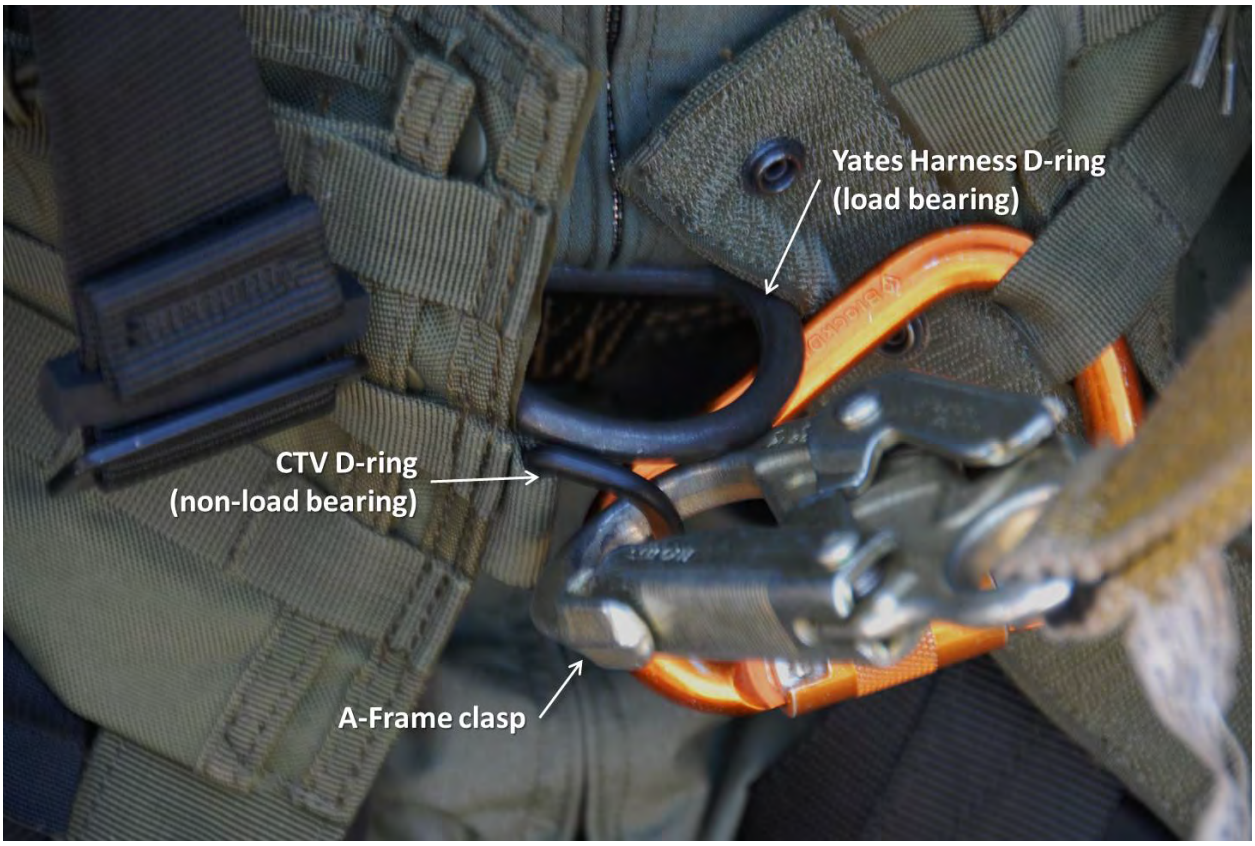

Figure 4.2. Reenactment of A-Frame connection to CTV D-ring to show how CF was secured and the proximity of the CTV D-ring to the YH D-ring (2) (Tab Z-30)

At approximately 1005L, the MA departed from Springville LZ and returned to the Dunn Grow site (Tab V-22.9). On final approach to the site, the MSR motioned for the CF to prepare for hoist operations and disconnected the personnel restraint strap from the A-Frame metal O-ring (Tab V-5.3). The CF then moved to a seated position in the right cabin door of the MA with his feet hanging out of the right cabin door in preparation for hoist operations (Tabs V-5.3, Z-64). The MCP established the MA in a stable, 40-foot hover over the hoist operation point (Tab V-10.3, Z-64). The MSR manipulated the hoist controls to remove cable slack and began lifting the CF out of the MA cabin (Tabs V-5.3, V-10.3). The MSR felt tension consistent with a load (weight) being applied to the cable during the initial lift of the hoist operation (Tab V-5.9). During the process of hoisting the CF out of the MA cabin, the CTV non-load bearing plastic D-ring, which connected the CF to the hoist, broke (Tabs V-5.10, Z-6, Z-20, Z-22, Z-28, Z-48, Z-50, Z-60). The broken D-ring, which was not intended to support the CF's weight, caused the CF to become disconnected from the hoist (Tab Z-60). Upon disconnection from the hoist, the CF fell approximately 40 feet to the terrain below and sustained fatal injuries (Tabs V-12.9, V-12.17, X-3, Z-64). Refer to section 6, page 13, of this document for mishap hoist reenactment findings (Tab Z-60).

Figure 4.3. CF configured in YH and CTV, 2 days prior to mishap (Tab Z-4)

Figure 4.4. CF CTV D-ring intact, close-up, taken 2 days prior to mishap (Tab Z-6)

e. Impact

At approximately 1010L, on 12 September 2013, the CF fell from the MA (Tab V-12.10). The MA was established in a level hover 40 feet above the ground when the CF became disconnected and fell from the MA's hoist connection (Tab Z-64). The CF was in a prone position, face and chest down, when he impacted the ground in an underbrush-laden, slightly sloping ridgeline mountain crest directly below the MA (Tab Z-64). The blunt force trauma sustained by the CF during ground impact resulted in fatal injuries (Tab X-3). The MC and LEA in the immediate vicinity witnessed the fall and were immediately aware the CF had impacted the ground (Tab Z-64). Rescue operations began within seconds of the impact (Tab Z-64).

f. CF's Personal Equipment

The CF wore a personally procured YH, which is a harness certified and employed by the USFS for helicopter hoist operations (Tabs V-17.5, V-25.5, V-31.5). The YH design and quality are similar to the load bearing harnesses employed by USAF personnel performing helicopter hoist operations (Tab V-12.16). The CF wore the YH correctly during the MS (Tabs V-5.5, V-8.6, Z-4). The CF wore a personally procured CTV over the YH on the MS (Tab Z-14). The CF used the CTV to fasten water bottles and various equipment to his person (Tab Z-4). The CTV was not designed to be used as a load bearing harness nor support weight-bearing hoist operations (Tab Z-60).

g. Search and Rescue (SAR)

A CDFW member, who was also a qualified Emergency Medical Technician (EMT) and was hoisted into the site on the first iteration, immediately assessed the CF's injuries post-fall and began cardiopulmonary resuscitation efforts (Tabs R-19, V-12.10, Z-64). The EMT coordinated via radio with the MC immediately after the CF fell, at approximately 1010L, for a Stokes litter to be lowered with the hoist from the MA to expedite the CF's medical evacuation (MEDEVAC) to appropriate medical care (Tabs V-12.10, Z-64, R-19). The MSR inspected the MA's hoist and determined there was no damage and it was safe to use for MEDEVAC efforts (Tabs V-23.13, V-24.7). The MC hoisted a Stokes litter from the MA down to the EMT and the CF was secured to the Stokes litter at approximately 1020L (Tabs V-12.9 to V-12.10, Z-64). The CF and the EMT were hoisted up and into the MA via separate hoist iterations and the MP coordinated for an ambulance to meet the MA at Visalia Airport (KVIS) (Tabs V-12.10, Z-64). The EMT provided cardiopulmonary resuscitation throughout the flight until resuscitation efforts were transferred to ambulance personnel who provided treatment until care was transferred to the emergency room personnel (Tab V-12). The flight to KVIS was approximately 17 minutes, arriving at KVIS around 1042L (Tabs D-8, V-12.10, Z-56). Upon arrival at KVIS, the CF was transferred by ambulance to the Kaweah Delta Medical Center (KDMC) in Visalia, California (Tabs V-12.10 to V-12.11). After attempting life-saving efforts, the medical staff at KDMC officially pronounced the CF dead at 1115L after arrival at KDMC (Tab X-3).

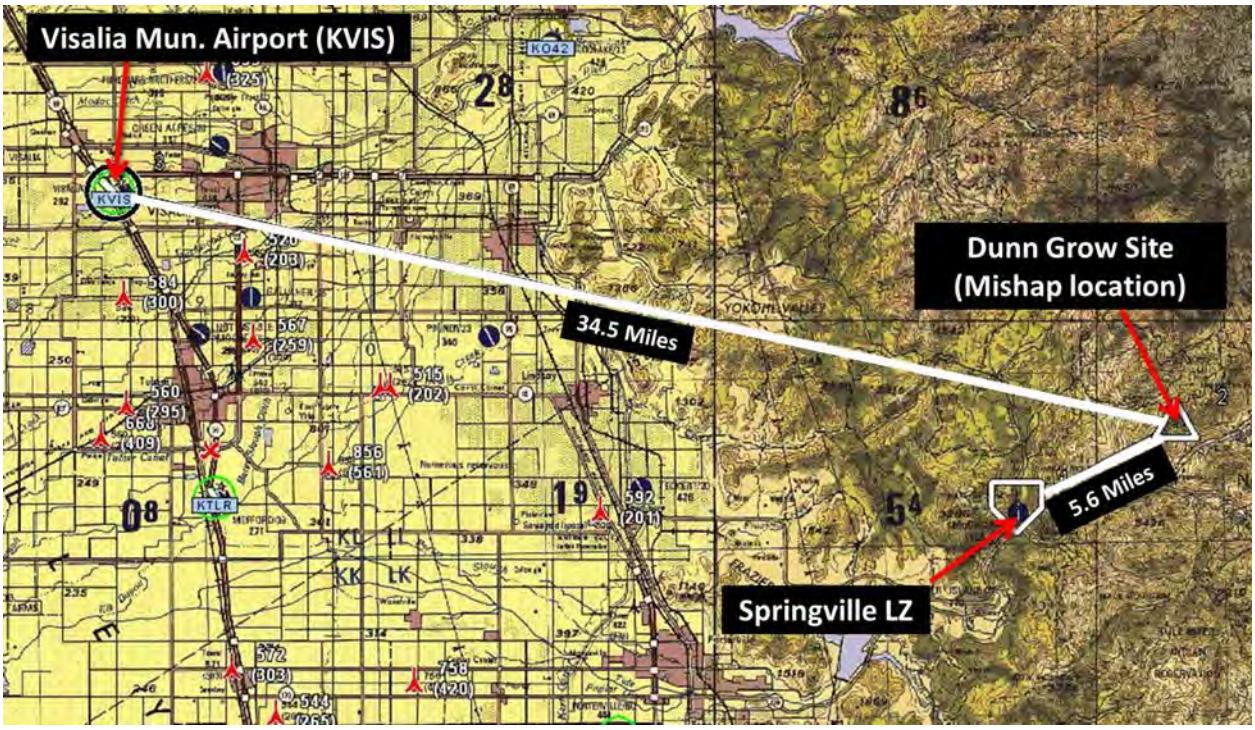

Figure 4.5. MS Route of Flight Map (Tab Z-56)

h. Recovery of Remains

Not applicable.

5. MAINTENANCE

a. Forms Documentation

The 129th Aircraft Maintenance Squadron (AMXS), 129 RQW, maintained the aircraft forms for the MA (Tabs BB-20, BB-32). All maintenance was documented on Air Force Technical Order (AFTO) 781 series forms and in the Integrated Maintenance Data System (IMDS) (Tabs D-2, BB-32, U-22). The AFTO 781 series forms were used to document various maintenance actions performed on an aircraft (Tab BB-32). Pursuant to Technical Order (T.O.) 00-20-1, IMDS is an automated database, which maintains aircraft discrepancies, maintenance repair actions, inspection cycles and flying history (Tabs U-22, BB-32).

A detailed review of the AFTO 781 series forms and the IMDS historical records for the 90 days preceding the mishap revealed no evidence of MA mechanical, structural, or electrical discrepancies (Tabs D-2, U-22). Time Compliance Technical Orders (TCTOs) are inspections or maintenance procedures mandated by higher headquarters that are required before specific dates or a particular flight (Tabs BB-20, BB-32). The AFTO 781 forms and IMDS track TCTO compliance times and dates (Tabs BB-20, BB-32). Records revealed all required TCTOs were accomplished IAW applicable guidance (Tabs U-3, U-22, BB-32). There were no major maintenance discrepancies that prevented the MA from accomplishing the JTFDS-CD mission on 12 September 2013 (Tab D-2). Additionally, records did not reveal any recurring maintenance problems (Tab U-22).

b. Inspections

Phase inspections are scheduled major inspections performed on Air Force aircraft at specific flying hour intervals and HH-60G Helicopters require a 600-hour phase inspection cycle to inspect aircraft components and airframe for damage, structural integrity, and correct systems operations (Tab BB-34). The MA accumulated 555.1 hours since the last required 600-hour inspection and was within the required inspection interval at the time of the mishap (Tabs D-2, U-3, U-19).

Maintenance T.O. 00-20-1 states that the pre-flight inspection (PR) is a flight preparedness inspection done IAW T.O. 1H-60(H)G-6 (Tab BB-34). A timely PR inspection was accomplished on 12 September 2013 at 0600L, and the reviewed and approved the forms (Tabs D-2, U-8).

The MSR and MSL inspected the MA rescue hoist as part of the aircraft preflight inspection at approximately 0815L on 12 September 2013 to determine serviceability (Tabs V23.7 to V23.8). No defects were noted (Tabs V-23.7, V-24.8).

c. Maintenance Procedures

A thorough review of the MA AFTO 781 series forms and IMDS revealed all maintenance actions on the MA were accomplished in compliance with standard, approved, maintenance

procedures and T.O.s (Tabs D-2, U-22, BB-20, BB-32, BB-34). There is no evidence to suggest that maintenance procedures were relevant to the mishap.

d. Maintenance Personnel and Supervision

All maintenance activities reviewed were normal and all personnel involved in the PR, launch and recovery of the MA were qualified and proficient in their duties (Tab U-8). Maintenance training records, or Training Business Area (TBA), were reviewed and revealed no training deficiencies (Tab U-8).

e. Fuel, Hydraulic and Oil Inspection analyses

Not applicable.

f. Unscheduled Maintenance

Not applicable.

6. AIRFRAME, MISSILE, OR SPACE VEHICLE SYSTEMS

a. Structures and Systems

A comprehensive visual inspection of the aircraft post-mishap determined that all structures and systems were operating properly (Tabs Z-58, Z-60). In addition, the MC determined that the hoist was serviceable immediately after the CF departed the MA and the hoist was used to lift the CF and the Stokes litter from the ground up and into the MA (Tabs V-23.13, V-24.7, V-12.10, Z-64).

b. Evaluation and Analysis - Mishap Hoist Reenactment

The photographs in Figures 4.3 and 4.4 were taken on 10 September 2013 and show the CF wearing his self-procured equipment (Tab Z-4, Z-6). The CF's equipment included a tightly secured YH around his torso with a CTV over the YH (Tabs Z-4, Z-12, Z-14). The pictures of the CF show the CTV had an intact plastic D-ring as of 10 September 2013 (Tabs Z-4, Z6). This plastic D-ring is designed as a fastener and is not made of materials intended nor sufficient to support a person's weight (Tabs Z-20, Z-22, Z-58, Z-60). An examination of CF's CVT after the mishap found the same plastic D-ring to be broken (see left D-ring in Figure 6.1 below) (Tabs Z-22, Z-48). Using these photographs as a baseline, an identically constructed CTV was purchased and used to reenact the CF falling from the MA (Tabs Z-16, Z-46).

For the reenactment, a reenactment actor (RA) of similar weight and girth as the CF, was outfitted in an intact YH, provided by the USFS, with the identically constructed new CVT over the YH (Tabs Z-24 to Z-44, Z-58, Z-60). The actual MA was also used for the reenactment (Tabs Z-58, Z-60). However, the reenactment was performed on the ground instead of in a hover for safety reasons (Tabs Z-58, Z-60). Power was applied to the MA to enable use of the hoist (Tabs Z-58, Z-60). The RA was seated in the right door of the MA (Tab Z-34, V-58, Z-60). The

MA hoist hook was connected to the A-Frame steel O-ring, and the A-Frame clasp was connected to the RA's CTV non-load bearing plastic D-ring (Tabs Z-32, Z-34, V-58, Z-60). The hoist was activated and the RA's CVT non-load bearing plastic D-ring proved strong enough to lift the RA out of the MA (Tabs Z-38, Z-58, Z-60). However, once clear of the MA, the RA's CTV non-load bearing plastic D-ring broke and the RA fell, but was supported by two safety observers (Tabs Z-40, Z-42, Z-58, Z-60). The break in the reenactment CTV D-ring was identical to the break found in the CF's CTV D-ring (see Figure 6.1 below) (Tabs Z-20, Z-22, Z-52). As in the photograph of the CF, the non-load bearing plastic D-ring was in extremely close proximity to the load bearing metal D-ring during the reenactment (Tabs Z-4, Z-6, Z-24).

The reenactment demonstrated the ease with which an individual could mistakenly attach the A-Frame clasp to the CTV plastic non-load bearing D-ring instead of the intended YH metal load bearing D-ring (Tabs Z-4, Z-6, Z-24). Furthermore, it demonstrated that the non-load bearing D-ring on the CTV was strong enough to lift the CF out of the MA, but not strong enough to sustain the fully suspended weight of the CF (Tabs Z-40, Z-42, Z-58, Z-60). The reenactment is depicted in Figure 6.2, from left to right, showing the RA seated on the MA cabin floor, the RA being lifted out of the MA cabin, and finally the RA's CTV D-ring breaking and the RA falling while being supported by the two safety observers (Tabs Z-40, Z-42, Z-58, Z-60).

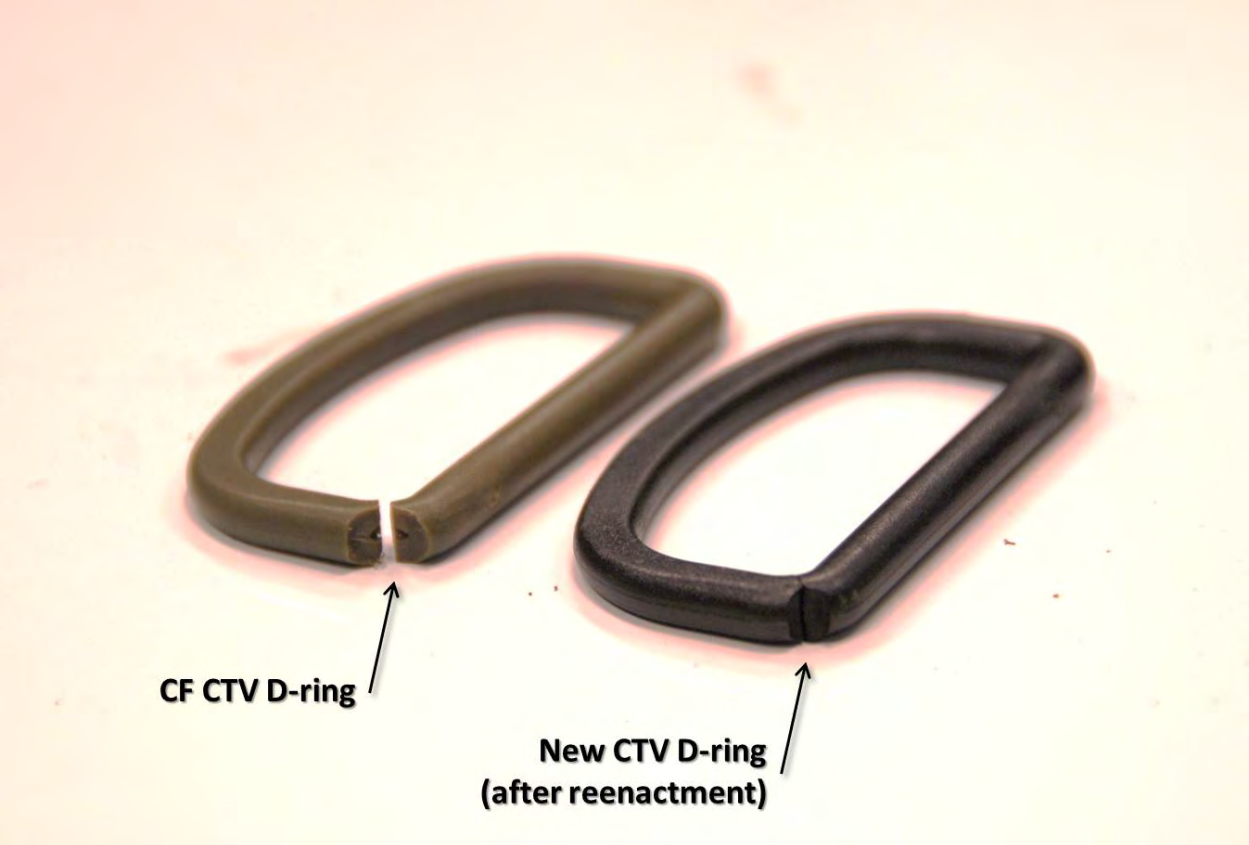

Figure 6.1. CF's CTV D-ring and New CTV D-ring after reenactment with identical breaks (5) (Tab Z-50)

Figure 6.2. Reenactment sequence showing 230 pound RA lifted out of MA and being suspended for a period of seconds before non-load bearing plastic CTV D-ring broke which aligns with witness testimony on how CF departed the MA.

7. WEATHER

a. Forecast Weather

The MCP received a National Weather Service verbal briefing from 1-800-WX-BRIEF (Tab F-3). 1-800-WX-Brief is contracted to Lockheed Martin (Tab F-3). Weather was not a factor in this mishap.

b. Observed Weather

The only available aviation weather reporting from the immediate area of the MS was the hourly observations from Visalia Municipal Airport (KVIS), which is located approximately 22 miles to the West of the mishap location, and video footage provided by the on-scene film crew (Tabs F-3, Z-64). The observed weather at KVIS at 1015L, approximately five minutes after the mishap, was clear skies, visibility of ninemiles, and calm winds (Tab F-3). The video documentation substantiated the observed weather (Tab Z-64). Weather was not a factor in this mishap.

c. Space Environment

Not applicable.

d. Operations

Observed weather, cloud ceilings, and visibility were well above the minimums required by AFI 11-2HH-60 Vol 3 to conduct the MS (Tab BB-14). The MS was conducted within its prescribed operational weather limitations. (Tabs F-3, Z-64)

8. CREW QUALIFICATIONS

a. Mishap Pilot

MP was a current and qualified Instructor Pilot in the HH-60G Pave Hawk with the rating of "Senior Pilot" (Tabs G-3, G-7). He had 2,965.9 hours total Active Duty and CA ANG military helicopter flying time, with 1,958.9 hours in the HH-60G and 1,007.0 hours in various UH-1 Iroquois models (Tab G-4). As of the date of the mishap, the MP had 196.4 instructor hours in the HH-60G and 153.7 combat flight hours, earned from multiple deployments (Tab G-4).

Recent flight time is as follows (Tabs D-5 to D-7, G-4 to G10):

	Hours	Sorties
Last 30 Days	54.5	36
Last 60 Days	71.5	46
Last 90 Days	71.5	46

b. Mishap Copilot

The MCP was a current and qualified Copilot in the HH-60G with the rating of "Pilot" (Tab G-21). He had 500.2 hours as a Copilot, and 60.3 hours of combat flight hours, accumulated while deployed, with all of his flight time in the HH-60G (Tabs D-5 to D-7, G-18).

Recent flight time is as follows (Tabs D-5 to D-7, G-18 to G-26):

	Hours	Sorties
Last 30 Days	57.2	39
Last 60 Days	98.7	61
Last 90 Days	98.7	61

c. Mishap Special Missions Aviation, Left

The MSL was a current and qualified Evaluator Special Missions Aviation in the HH-60G with the qualification "Senior Airman Aircrew Member" (Tab G-51). He had 2,910.2 hours total military helicopter flying time, with 2,893.3 hours in the HH-60G and 2.4 in the UH-1N Iroquois (Tabs D-5 to D-7, G-48). As of the date of the mishap, the MSL had 58.7 hours evaluation flight hours, 279.4 instruction flight hours, and 213.3 combat flight hours accrued through multiple deployments, all in the HH-60G (Tabs D-5 to D-7, G-48).

Recent flight time is as follows (Tabs D-5 to D-7, G-49 to G-54):

	Hours	Sorties
Last 30 Days	34.8	21
Last 60 Days	49.5	32
Last 90 Days	49.5	32

d. Mishap Special Missions Aviation, Right

The MSR was a current and qualified Instructor Special Missions Aviation in the HH-60G with the qualification "Senior Airman Aircrew Member" (Tabs G-31, G-35). He had 2,500.4 hours total military helicopter flying time, with 1,820.9 hours in the HH-60G and 679.5 in the UH-1N Iroquois (Tabs D-5 to D-7, G-32). As of the date of the mishap, the MSR had 104.9 Instructor hours in the HH-60G and 221.8 combat flight hours accrued from multiple deployments (Tabs D-5 to D-7, G-32).

Recent flight time is as follows (Tabs D-5 to D-7, G-33 to G-40):

	Hours	Sorties
Last 30 Days	54.3	37
Last 60 Days	89.9	57
Last 90 Days	105.9	63

There is no evidence to suggest crew qualifications were a factor in this mishap.

Note: As of 1 November 2012, all United States Air Force helicopter Career Enlisted Aviators (CEA) were reclassified from the 1A1X1, Flight Engineer and 1A7X1, Aerial Gunner, Air Force Specialty Codes (AFSC) into 1A9X1, Special Missions Aviation AFSC. This data is not reflected in ARMS. Both the MSL and the MSR were legacy 1A1X1 Flight Engineers and hoist operators. The terms Mishap Flight Engineer 1 or 2 (MFE), and Mishap Special Missions Aviation right or left (MSR/MSL), are interchangeable throughout the AIB report.

e. Civilian Fatality Training and Experience

The CF was the founder, executive director, and member of the HSVTC (Tabs V-25.4, CC-61 to CC-72). The HSVTC did not require or maintain training histories or proficiency levels for hoist operations (Tab V-25.6 to V-25.7). Anecdotally, the CF was an avid outdoorsmen and rock climber with some previous experience working with non-military helicopters prior to the MS (Tab V-32.2, V-32.5). The only documented hoist training occurred on 5 August 2013, when the CF was trained by members of the 129 RQW on HH-60G helicopter hoist operations (Tabs CC-38, CC-43, CC-81, V-25.4 to V-25.5). During the 5 August 2013 training, the CF was instructed on how to enter the aircraft, how to secure himself with the personnel restraint, and how to attach the A-Frame receiving clasp and detach the personnel restraint clasp in preparation for hoist operations (Tabs CC-38, CC-43, CC-81, V-25.4 to V-25.5). The CF was also flown to a stable hover where he was hoisted from the aircraft to the ground as part of his training (Tabs CC-38, CC-43, CC-81, V-25.4 to V-25.5). The CF's experience with military helicopters was limited to his training on 5 August and several hoists during the JTFDS-CD operations immediately preceding the MS on the 3 days prior. (Tabs V-24.3, V-25.4 to V-25.5).

9. MEDICAL

a. Qualifications

At the time of the mishap, the MP, the MCP, the MSR, and the MSL were medically qualified for flight duty. (Tabs X-8, X-10, X-12, X-14).

By military standards, the CF was not medically qualified to fly as a crewmember or operational support personnel (Tab BB-38). However, there are no USAF guidelines specifically outlining medical standards for a non-contracted civilian flying and performing duties on a USAF aircraft, as non-contracted civilians are not authorized flight on USAF aircraft in a flight duty capacity (Tab BB-38). The only volunteer status medical requirement within the CDFW is to "possess a valid California Driver's License with acceptable driving records and medical approval" (Tab CC-84). The HSVTC does not have any official medical standards or guidelines (Tab V-25.6).

b. Health

All medical records of the MP, MCP, MSR, and MSL were reviewed (Tabs X-8, X-10, X-12, X-14). The crewmembers' health was not contributory to the mishap (Tabs X-8, X-10, X-12, X-14). Toxicology reports of each crewmember were reviewed and were all negative (Tabs X-16, X-18, X-20, X-22).

The CF was taking one long-term prescription medication that had potential side effects of confusion, lightheadedness, or loss of consciousness (Tab X-33). Additionally, he was battling a head cold in the days prior to the incident and was prescribed two different cold medications that had the rare side effects of confusion, impaired coordination, dizziness, vertigo, or blurred vision (Tab V-32.4 and X-49). However, there is insufficient information to conclude that the CF's health or medications were a factor in the mishap.

c. Pathology

Autopsy results showed the CF died of injuries sustained from blunt force trauma consistent with a fall from 40 feet. (Tab X-3). The alcohol and toxicology screens were both negative (Tab X-3).

d. Lifestyle

Lifestyle factors were not relevant to the mishap (Tabs V-32.3 to V-32.4).

e. Crew Rest and Crew Duty Time

All crewmembers had adequate crew rest on the day of the mishap (Tabs AA-3, G-5, G-19, G-33, G-49). There was no evidence to indicate crew rest was a factor in the mishap (Tabs AA-3, G-5, G-19, G-33, G-49).

10. OPERATIONS AND SUPERVISION

a. Operations

Since October 2012, the 129 RQS deployed to Soaring Angel, a field training exercise at Fort Hunter Liggett, California, for one week; Hurricane Sandy, search and rescue support in New Castle, Delaware for one week; Drug Demand Reduction missions with JTFDS-CD at five elementary schools in Northern California; site restoration missions with JTFDS-CD at various locations in California National Forests for four multi-day missions; Air Expeditionary Forces (AEF) pre-deployment spin-up at Twenty Nine Palms, in San Bernardino County, for two weeks; an AEF deployment to Afghanistan for four months; Focused Operation, a site restoration mission in Southern California with JTFDS-CD, for four weeks; Rim Fire, firefighting support with California Department of Forestry and Fire Protection for almost three weeks; normal unit upgrade and continuation training (Tab CC-149).

Beginning August 2013, the MC was involved in JTFDS-CD operations preceding the MS in the Sequoia National Forest near Visalia, California (Tabs CC-57 to CC-58). The MP flew 36 sorties, totaling 54.5 hours (Tabs D-5 to D-7, G-5). The MCP flew 39 sorties, totaling 57.2 hours (Tabs D-5 to D-7, G-19). The MSL flew 21 sorties, totaling 34.8 hours (Tabs D-5 to D-7, G-33). The MSR flew 37 sorties, totaling 54.3 hours (Tabs D-5 to D-7, G-49). All sorties and hours flown were in support of JTFDS-CD operations and unit continuation training in the 30 days prior to the MS (Tabs D-5 to D-7, G-5, G-19, G-33, G-49).

In the past 12 months, while operations tempo was higher than normal for the unit due to the AEF deployment, there was no evidence to indicate that it was a factor in this mishap (Tab CC-149).

b. Supervision

The MC conducted the MS as part of Team Hawk (Tabs V-12.2 to V-12.5). Team Hawk is a subset of the JTFDS-CD and supports helicopter operations for state run CD operations (Tabs V-12.2, V-21.2, V-29.2 to V-29.3). All Team Hawk operations are coordinated and approved through the Counterdrug Coordinator (CDC) and the 129 RQW (Tabs V-12.2, V-16.3 to V-16.4, V-18.3, V-21.2 to V-21.3). The CDC works directly for the CA NG Adjutant General as the titular head of JTFDS-CD and is responsible for JTFDS-CD operations (Tabs V-12.2 to V-12.4, V-29.2 to V-29.3). As such, the CDC maintains the authority to direct Team Hawk maneuvers within the counterdrug operational missions. (Tabs V-12.2 to V-12.4, V-21.3 to V-21.4). However, Team Hawk are also members of the 129 RQS and the 129 RQS Commander maintains overall direction and exercises authority Team Hawk members with regards to non-counterdrug missions (Tabs V-12.2 to V-12.4, V-21.3 to V-21.4). While Team Hawk performs state missions and works closely with LEAs, the HH-60G helicopters used by Team Hawk are 129 RQW assets and Team Hawk personnel are required to adhere to all applicable AFIs and military flying regulations (Tabs V-12.6, V-21.3 to V-21.4). The 129 RQW, CDC, and CA NG authorized the MS (Tabs CC-44 to CC-46, CC-53). In addition, the MP contacted the 129 RQS/DO the morning of the MS and obtained approval for the required pre-mission decision making process to evaluate and identify risks, benefits and courses of actions, Operational Risk Management (ORM), and the mission events (Tab V-12.8). The MC assessed their ORM to be low for the MS, with the top three risk factors being high density altitude operations, working with LEA, and fatigue (Tabs K-11, K-12). The crew identified risk mitigation factors for each risk factor on the ORM worksheet (Tabs K-11, K-12).

The 129 RQW, JTFDS-CD, and CA NG approved HSVTC integration into flying operations (Tabs CC-46, CC-53). The CA NG was aware the HSVTC members were unpaid when approving their participation in the JTFDS-CD operations, to include flight approval on a military helicopter, between 5 August 2013 and the date of the mishap (Tab V-4.5 to V-4.6). In an email to the MP, a CDFW officer misrepresented the CF as a CDFW employee and the 129 RQW and CA NG misidentified the CF as a CDFW employee (Tab CC-53, CC-86 to CC-87). A contract between the HSVTC and the CDFW specifically indicated the HSVTC were not employees of the CDFW (Tab CC-134). The contract only provided for working around helicopters and sling loading of debris (Tab CC-121). On the day of the mishap, the contract had expired and the HSVTC were working as non-contracted volunteers (Tabs CC-120 to CC-121). Non-contracted volunteers were not authorized on this mission (Tabs BB-14). However, due to the MC's erroneous belief that the CF was a CDFW employee, they allowed him to participate in the MS (Tabs CC-44 to CC-46, CC-86 to CC-87).

11. HUMAN FACTORS

a. Introduction

AFI 91-204, *Safety Investigations and Reports*, 24 September 2008, Attachment 5, contains the Department of Defense Human Factors Analysis and Classification System which lists potential human factors that can play a role in aircraft mishaps (Tab BB-8).

b. Applicable Factors

(1) Error due to Misperception

Error due to misperception is a factor when an individual acts or fails to act based on an illusion. Misperception or disorientation causes an individual to act or fail to act and creates an unsafe situation (Tab BB-6).

The CF mistakenly hooked himself to the CTV non-load bearing plastic D-ring (Tabs Z-18, Z-20, Z-22, Z-36, Z-38, Z-40, Z-42, Z-58). As seen in a photo taken two days prior to the mishap (see Figure 4.3 above), the CF wore a CTV over his load bearing YH (Tab Z-4). The CTV was connected in front via an orange carabiner attached on the left side of the vest to a fabric loop and a plastic D-ring on the right side (Tabs Z-4, Z-6). As viewed in reenactment photos (see Figure 4.2 above), when seated with this gear configuration, the CTV non-load bearing plastic D-ring is directly adjacent to the YH load bearing metal D-ring (Tabs Z-24, Z-28, Z-30). Given the close proximity of the two D-rings and the extremely cluttered CTV equipment configuration, which included a handgun, water bottles, and pouches filled with various other items, a quick visual safety check might not reveal the incorrect connection (Tab Z-6).

(2) Personal Equipment Interference

Personal equipment interference is a factor when the individual's personal equipment interferes with normal duties or safety (Tab BB-6).

The CF's personal equipment substantially contributed to this mishap (Tabs Z-18, Z-20, Z-22, Z-36, Z-38, Z-40, Z-42, Z-58). The CF inadvertently attached the A-Frame clasp to his self-procured CTV non-load bearing plastic D-ring (Tabs Z-18, Z-20, Z-22, Z-36, Z-38, Z-40, Z-42, Z-58). The non-load bearing plastic D-ring broke, causing the CF to fall and sustain fatal injuries (Tabs Z-18, Z-20, Z-22, Z-36, Z-38, Z-40, Z-42, Z-58). The CF's CTV also had multiple pouches to carry his personal equipment, which included a handgun, snacks, and water bottles (Tab Z-6). These items excessively cluttered the area around the YH load bearing D-ring, which is where the CF intended to secure the A-Frame clasp (Tabs Z-6, Z-24).

(3) Overconfidence/Complacency

Overconfidence is a factor when the individual overvalues or overestimates personal capability, the capability of others or the capability of aircraft/vehicles or equipment and this creates an unsafe situation (Tab BB-6).

Complacency is a factor when the individual's state of reduced conscious attention due to an attitude of overconfidence, under-motivation or the sense that others "have the situation under control" leads to an unsafe situation (Tab BB-6).

The CF had performed several hoist operations over the preceding days, but during the MS the CF was being hoisted solo, as opposed to in pairs as he had been hoisted on the majority of previous hoists (Tab V-5.4, V-5.5, V-5.13, V-12.5, V-22.4). The MSR performed an insufficient visual check of the connection with the mindset the CF successfully completed multiple hoists in the preceding days. Although not required, the MSR did not mitigate the solo hoist risk by physically checking the CF's connection (Tab V-5.13, BB-14). Instead, he conducted a visual check. When hoisted in pairs, there was an enhanced "buddy check" due to the close proximity of the two individuals (Tab V-25.10). The "buddy check" is not a required check, but hoist participants were trained to "buddy check," or check each other over, prior to commencing hoist operations (Tab V-25.10). Due to the short flight from the LZ to the Dunn Grow site and in order to expedite the solo hoist, the MSR connected the CF to the MA in a non-standard manner, which was not how the CF was trained, which further indicated complacency (Tabs V-23.3 to V-23.5, DD-16 to DD-17, DD-25, DD-34).

(4) Cross-Monitoring Performance

Cross-monitoring performance is a factor when crew or team members failed to monitor, assist or back-up each other's actions and decisions (Tab BB-6).

The MSR did not perform a thorough check of the CF's connection to the A-Frame clasp (Tab V-5.13). The CF had primarily been hoisted in pairs prior to the incident (Tabs V-22.4, V-24.8). On the day of the mishap, he was being hoisted solo and, therefore, did not have a "buddy" to complete the "buddy check" he was trained to accomplish (Tab V-25.10). The MSR conducted a visual check, but given the extreme clutter of the area where the load bearing D-ring was located and the extremely close proximity of the CTV non-load bearing plastic D-ring to the YH load

bearing metal D-ring, a quick visual check led the MSR to misperceive the A-Frame was connected properly (Tabs V-5.5, V-5.13, Z-6).

12. GOVERNING DIRECTIVES AND PUBLICATIONS

a. Publically Available Directives and Publications Relevant to the Mishap

(1) AFI 11-2HH-60, Vol 3, *HH-60--Operations Procedures*, 5 January 2011
(2) AFI 11-2HH-60, Vol 3, *HH-60--Operations Procedures, Chapter 8, 129 RQS Local Operating Procedures.* 23 December 2009
(3) AFI 11-202, Vol 3 *General Flight Rules*, 22 October 2010
(4) AFI 11-202, Vol 3 *General Flight Rules, Air Combat Command Supplement*, 28 November 2012
(5) AFI 11-401, *Aviation Management*, 10 December 2010
(6) AFI 11-401, *Aviation Management, Air National Guard Supplement*, 26 November 2012
(7) AFI 16-1202, *Pararescue Operations, Techniques, and Procedures.* 3 May 2001
(8) AFI 21-101, *Aircraft and Equipment Maintenance Management*, 19 April 2013
(9) AFI 24-101, *Passenger Movement*, 19 October 2012
(10) AFI 48-123, *Medical Evaluations and Standards*, 29 Jan 2013
(11) AFI 51-503, *Aerospace Accident Investigations*, 26 May 2010
(12) AFI 51-503, *Aerospace Accident Investigations*, Air Combat Command Supplement, 5 September 2013
(13) AFI 91-204, *Safety Investigations and Reports*, 24 September 2008, Attachment 5
(14) NGR 500-2/ANGI 10-801, *National Guard Counterdrug Support*, 29 August 2008
(15) DoD 4515.13-R, *Air Transportation Eligibility*, November 1994, (change 3, 9 April 1998)

NOTICE: All directives and publications listed above are available digitally on the Air Force Departmental Publishing Office website at: http://www.e-publishing.af.mil.

b. Other Directives and Publications Relevant to the Mishap

(1) T.O. 00-20-1-ACC-WA-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures,* Air Combat Command Supplement, 28 Aug 2013
(2) T.O. 1H-60(H)G-1, *Flight Manual,* USAF Series HH-60G Helicopter, 24 June 2013
(3) T.O.1H-60(H)G-6-WA-1, *Scheduled Inspection and Maintenance Requirement, HH-60G Series Helicopter* 15 June 2013

c. Known or Suspected Deviations from Directives or Publications

The CF did not have a valid contract or employment status with any government agency and should not have been authorized for flight IAW AFI 11-401, attachment 1, Terms, Mission Essential Personnel, and DoD 4515.13-R, para C10.13 (Tabs CC-120 to CC-121). AFI 11-401, attachment 1, Terms, Mission Essential Personnel, states, "MEP may include military staff

personnel; U.S. Government employees; government contract employees (IAW the terms and conditions of a current government contract); and foreign military, civilian, and contract employees (IAW the terms and conditions of a current government contract); when those individuals are required for the mission" (Tab BB-30). DoD 4515.13R, para C10.13 further states "Department of Defense is authorized to transport personnel, supplies and equipment of Federal, State, local, or foreign law enforcement agencies on a non-reimbursable basis for the purpose of facilitating CD activities within or outside the United States" (Tab BB-30). The CF was a member of the HSVTC at the time of the mishap and was not employed by, nor legally contracted with, any Federal, State, local, or foreign law enforcement agency and, therefore, by regulation was not authorized to be on the MA (Tabs CC-120 to CC-121, V-4.5, V-25.5 to V-25.6).

All commanders involved in the MS Invitational Travel Order (ITO) process failed to exercise prudent judgment by not conducting a legal status review of the HSVTC before its members were incorrectly classified as CDFW employees on the ITO (Tabs V-21.6, V-22.3, V-29.4, CC-44 to CC-47, CC-53, CC-86 to CC-87). DoD 4515.13R, para C1.3.3 states, "The commanders at all levels shall exercise prudent judgment to ensure that only authorized traffic is transported and that they do not misuse the authority delegated to them by this regulation." (Tab BB-30).

The CF was also armed with a personal handgun, which was not approved by the MC. (Tabs R-60, R-62,V-10.4, V-12.18, Z-5 to Z-6). This was in violation of AFI 11-2HH60V3 para 2.15, "The aircraft commander is the final approving authority for armed passengers" (Tab BB-14).

13. ADDITIONAL AREAS OF CONCERN

Not Applicable.

03 NOVEMBER 2013

BARRE R. SEGUIN
Brigadier General, USAF
President, Accident Investigation Board

STATEMENT OF OPINION
HH-60G, T/N 88-26106
SEQUOIA NATIONAL FOREST, SPRINGVILLE, CA
12 SEPTEMBER 2013

Under 10 U.S.C. § 2254(d) the opinion of the accident investigator as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report, if any, may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.

1. Opinion Summary

On 12 September 2013, at approximately 1010 local time, a member of the High Sierra Volunteer Trail Crew (HSVTC), hereinafter referred to as the civilian fatality (CF), fell 40 feet to the ground during a hoist operation on an HH-60G, tail number (T/N) 88-26106, sustaining fatal injuries, approximately 30 miles east of Visalia, California, as part of a California Joint Task Force Domestic Support, Counterdrug (JTFDS-CD), operation. The Mishap Crew (MC) was assigned to the 129th Rescue Squadron (129 RQS), and the Mishap Aircraft (MA) was assigned to the 129th Rescue Wing (129 RQW), California Air National Guard, Moffett Federal Airfield, California. The Mishap Crew (MC) consisted of the Mishap Pilot (MP), Mishap Co-Pilot (MCP), Special Missions Aviation Right Seat (MSR) and Special Missions Aviation Left Seat (MSL).

I find, by clear and convincing evidence, the cause of the mishap was the CF mistakenly connecting the MA hoist connection to his Condor tactical vest (CTV) non-load bearing plastic D-ring rather than his Yates harness load bearing metal D-ring. The CF was lifted out of the MA via the MA hoist, which was connected to his CTV non-load bearing plastic D-ring. Once clear of the MA, the non-load bearing D-ring broke and the CF fell approximately 40 feet to the ground, sustaining fatal injuries. There were no military injuries, no damage to the MA, and all the MA equipment was inspected and found to be in working order.

Additionally, I find, by the preponderance of evidence, the following factors substantially contributed to the mishap:

(1) the 129 RQW, JTFDS-CD, and the California National Guard's (CA NG) approval of an unauthorized civilian, CF, to fly on the MA;

(2) the MC's inadequate oversight during flight and hoist operations; and

(3) the use of personal equipment which excessively cluttered the area around the YH load bearing metal D-ring and interfered with safe connection and visual inspection.

2. Mishap Cause

The cause of the mishap, supported by clear and convincing evidence, was the CF improperly securing his hoist connection. During the mishap sortie, the CF was wearing a YH securely around his legs, torso, and shoulders, and a CTV with water bottles, radio, and a handgun over the YH. The CTV was held together in his lower abdomen waist area with a large orange carabiner connected to a cloth loop on one side of the vest and an exposed plastic, non-load bearing D-ring on the other. The CTV's D-ring overlaid the YH load bearing metal D-ring.

Upon entering the MA at the Springville Loading Zone (LZ), the MSR handed the CF a hoist connected A-Frame clasp. The CF mistakenly attached the A-Frame clasp to his CTV non-load bearing plastic D-ring. The miscellaneous items on the CTV, combined with the gloves the CF was wearing and his hunched over or seated position within the MA cabin, obstructed visibility, feel, and access to the YH load bearing metal D-ring. Due to the close proximity of the YH and CTV D-rings, the MSR visually confirmed the CF as connected properly, which was inadequate to detect the incorrect connection. When the MSR commenced hoisting operations, the CF was lifted out of the MA via the hoist hook and A-Frame connection to the CF's CTV non-load bearing plastic D-ring. Once outside the MA, the CTV non-load bearing D-ring broke and the CF fell approximately 40 feet to the ground, sustaining fatal injuries.

A picture of the CF, taken on 10 September 2013, shows the CF wearing a YH and CTV with radio, handgun, bottles of water, and other miscellanea. The picture clearly shows the CTV plastic D-ring intact. Upon examining the CF's CTV, a break in the upper corner of the D-ring was discovered. The picture also clearly shows how close the CTV plastic D-ring was to the YH load bearing metal D-ring. This configuration, combined with the CF attaching the A-Frame clasp to the D-ring by feel with the gloves he had on, led the CF to confuse the two D-rings.

A hoist reenactment was conducted with an individual of approximately the same weight and girth as the CF. The member was wearing a YH and a CTV, the same model the CF wore, with the plastic non-load bearing D-ring intact. The same orange carabineer connected the CTV in the same manner the CF had his CTV connected. Utilizing the MA hoist and A-Frame, the CTV non-load bearing plastic D-Ring had sufficient strength to hoist the member out of the aircraft before it broke. The plastic D-Ring in the reenactment had an identical break in the upper corner. Additionally, the reenactment hoist member indicated it was extremely difficult to visually verify the A-Frame clasp was attached to the correct D-ring.

3. Substantially Contributing Factors

A. The first contributing factor is the 129 RQW, JTFDS-CD, and the California National Guard's (CA NG) approval of an unauthorized civilian, CF, to fly on the MA.. The guiding regulation is DoD 4515.13-R para. C10.13, which explicitly states, "Under Section 1004(b)(3), National Defense Authorization Act for Fiscal Year 1991, as amended, the Department of Defense is authorized to transport personnel, supplies and equipment of Federal, State, local, or foreign law enforcement agencies."

The California Department of Fish and Wildlife (CDFW), which is a state law enforcement agency, misrepresented the CF as a CDFW employee in an email to the 129 RQW. This misrepresentation was based on a contract the CDFW awarded the CF, as the HSVTC Executive Director, to help with marijuana grow site reclamation. Based on the CDFW's misrepresentation of the CF as a CDFW employee, the 129 RQW/CC, JTFDS-CD Counterdrug Coordinator, and the Assistant Adjutant General, Air, CA NG approved the CF to fly on 129 RQW aircraft without requesting a copy of the contract. The non-Department of Defense contract was insufficient to permit the CF flight on military aircraft. Per AFI 24-101 para. 3.26, only Department of Defense contractors, with a valid authorization letter, are allowed passage on military aircraft. Additionally, the contract duration was 5-31 August 2013. The mishap sortie occurred on 12 September 2013, after the contract expired. Thus, at the time of the mishap, the CF was a civilian volunteer. IAW DoD 4515.13-R C10.13, volunteers are not allowed flight on CD operations. The CF's contract with the CDFW did not allow for helicopter transportation and the contract had expired at the time of the MS. In addition, the CF's presence on the MA was counter to guidance in AFI 24-101 and DoD 4515.13-R. DoD 4515.13-R which only allows law enforcement personnel on CD flights. The CF was not a law enforcement personnel and should not have been allowed on the MA.

B. The second contributing factor was the MC's inadequate oversight during flight and hoist operations. First, the MC allowed for a complicated, non-standard, connection of the CF to the aircraft. This connection projected a level of expertise and confidence in the CF beyond his experience level and eliminated a redundant safety step. The MSR attached the personnel restraint strap from the MA cabin floor to the A-Frame O-ring. The CF was trained to attach the personnel restraint strap from the MA cabin floor to his YH load bearing metal D-ring. Attaching the personnel restraint strap to the A-Frame O-ring eliminated two opportunities for the CF to detect he had mistakenly connected the A-Frame clasp to his CTV non-load bearing plastic D-ring instead of the YH load bearing metal D-ring. These opportunities would have occurred when the CF connected, and subsequently disconnected, his personnel restraint strap from his YH load bearing metal D-ring. Additionally, the MSR only visually checked the CF's connections, which merely confirmed the A-Frame clasp was attached to the CF, but was insufficient to determine if it was attached correctly.

Second, the MSR did not appropriately mitigate solo hoist risk based on the CF's hoist operations experience level. Two individuals were normally hoisted simultaneously, which inherently provided a "buddy check" of equipment and connections due to the close proximity of the individuals being hoisted. However, during the mishap sortie, the CF was hoisted solo.

Lastly, the CF, who was not a Licensed Peace Officer (LPO) nor acting in a law enforcement capacity, carried an unauthorized handgun onto the MA without requisite MP approval. Holstering of this handgun on the CF's CTV restricted visibility of the CTV and YH D-rings and, therefore, directly contributed to the CF improperly connecting the A-Frame clasp to the CTV non-load bearing plastic D-ring.

C. This ties into the third substantially contributing factor, the use of personal equipment which excessively cluttered the area around the YH load bearing metal D-ring and interfered with safe connection and visual inspection. In addition to the handgun and its holster, miscellanea, to

include water bottles and pouches containing food items, were attached to the CTV and excessively cluttered the area surrounding the two D-rings. Further complicating hoist operations was the extremely close proximity of the YH load bearing D-ring relative to the CTV non-load bearing D-ring. The personal equipment clutter, combined with the fact that the CF was using gloves, led the CF to confuse the two D-rings. The proximately of the D-rings and the obscured visual path also led the MSR to incorrectly concluded the CF was properly secured (Tabs R-60, V-5.4 to V-5.5, Z-6, Z-30).

4. Conclusion

I developed my opinion by inspecting the mishap site, inspecting the CF and MA equipment, witness testimony, and event reenactment with the type equipment the CF was wearing. I find by clear and convincing evidence the cause of the mishap was the CF inadvertently connecting the A-Frame clasp to the CTV non-load bearing plastic D-Ring instead of the YH metal load bearing D-Ring. I find by a preponderance of the evidence the 129 RQW, JTFDS-CD, and the California National Guard's (CA NG) approval of an unauthorized civilian, CF, to fly on the MA substantially contributed to the mishap.

I further find, by a preponderance of the evidence, the MC's inadequate oversight during flight and hoist operations substantially contributed to the mishap. Specifically, the MC was complacent in connecting the CF in a non-standard manner to the MA and conducted an insufficient visual inspection of CF's connections.

Finally, I find by a preponderance of the evidence the use of personal equipment which excessively cluttered the area around the YH load bearing metal D-ring and interfered with safe connection and visual inspection substantially contributed to the mishap.

03 NOVEMBER 2013

BARRE R. SEGUIN
Brigadier General, USAF
President, Accident Investigation Board

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