DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE ATLANTIC
1279 FRANKLIN ST.
NORFOLK, VIRGINIA 23511-2494

5830
Ser N01L/103
16 May 13

From: Commander, Naval Air Force Atlantic
To: File

Subj: ACTION OF THE FINAL REVIEWING AUTHORITY REGARDING THE COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING HM-15 CLASS ALPHA MISHAP OF ACFT 16, BUNO 162514 WHICH OCCURRED IN OMAN ON 19 JULY 2012 RESULTING IN THE DEATHS OF AWSC(NAC/AW) SEAN P. SULLIVAN, USN, AWS1(NAC/AW) JOSEPH P. FITZMORRIS, USN AND THE INJURIES OF THREE OTHERS

Ref: (a) (b)(6) , USN, ltr of 6 Sep 12 w/encls and ends
(b) (b)(6) , USN, ltr of 25 Feb 13 w/encls and ends
(c) JAG Manual Chapter II

1. References (a) and (b) have been reviewed in accordance with reference (c). Further endorsement is unnecessary; therefore, the investigation is final and will be retained at this command for a period of two years from the date of this action. Any further correspondence regarding this matter should be forwarded accordingly. The subject line has been modified to ensure proper identification of the investigation for administrative purposes. The investigative report is bifurcated as the original report did not contain a detailed explanation regarding cause of death for the fatalities of the crash. On 25 February 2013, the Investigating Officer submitted an addendum addressing those matters.

2. Summary. On 19 July 2012, Aircraft 16, BUNO 162514, a MH-53E, attached to Helicopter Mine Countermeasures Squadron ONE FIVE (HM-15) was involved in an aircraft mishap. The mishap aircraft was scheduled to conduct a heavy lift mission near Royal Air Force Oman (RAFO) Al Musanna Air Base to assist the host nation to recover a downed RAFO Eurocopter NH-90. There were five crewmembers on board the aircraft at the time of the mission and the mishap resulted in two deaths and three crewmembers being injured. The estimated cost of damage is $49.6 million. The investigation revealed that the mishap occurred because the power required to lift the downed aircraft

exceeded the power available, which resulted in the loss of tail rotor authority. The investigation also revealed that this mishap was preventable had the crew followed NATOPS procedures and maintained flight discipline.

3. The following corrections, modifications, and comments on the findings of fact, opinions, and recommendations are provided:

a. The investigation lists AWS1 Joseph P. Fitzmorris as an AWS1 and an AWS2. The appropriate pay grade is AWS1.

b. The pages associated with reference (b) are hereby renumbered 55-63, vice 1-9, as reference (b) is a continuation of the original investigation contained in reference (a).

c. Amplification is provided for Finding of Fact 13. While the Investigating Officer correctly noted that (b)(6) (b)(6) s orders did not specifically indicate that he was "in a flying status involving flying," he was clearly assigned to a position within the squadron which involved flying. Therefore, (b)(6) was in a flying status involving flying at the time of the mishap.

d. Finding of Fact 16 is disapproved.

e. Finding of Fact 43 is approved in part. The first sentence is approved. The remainder of the finding of fact is disapproved.

f. Finding of Fact 450 is disapproved as it conflicts with Findings of Fact 499-503.

g. Opinion 8 is modified to read: " (b)(6) 1's injuries occurred in the line of duty not due to his own misconduct." The remaining verbiage in the opinion is disapproved.

h. Opinion 13 is disapproved as it constitutes speculation and no findings of fact support this opinion.

(b)(5)

Findings of Fact 146 and 147 pertain.

i. Opinion 37 is disapproved. While the crew chief may not have utilized all means possible to determine the quantity of fuel, this fact did not contribute to the mishap and is therefore not relevant to the cause of this mishap.

j. Opinion 39 is disapproved in total.

k. Recommendations 1, 3, and 7 are approved. Commander, Helicopter Sea Combat Wing Atlantic (CHSCWL) is directed to advise this Command when action on those recommendations has been completed.

l. Comment on Recommendation 2. I support CHSCWL in funding the standup and initial training required to ensure that mountain flying expertise is resident within HM14/15 and AWST as well as the annual training requirements needed to sustain that capability.

m. Recommendation 5 has been accomplished. See paragraph 4 below.

n. I concur with the previous endorsers regarding recommendations 4 and 6. They are therefore disapproved.

4. In his First Endorsement, CO, HM-15, recommends that (b)(6) (b)(6) and (b)(6) be removed from their respective positions within the squadron. (b)(6) is no longer serving as the Executive Officer, HM-15, and (b)(6) is no longer serving as a department head. Additionally, CO, HM-15, and the Wing Commander each recommend that neither aviator pilot a naval

aircraft again. The appropriate avenue to address such matters is the Field Naval Aviator Evaluation Board process.

5. Subject to the foregoing, the findings of fact, opinions, and recommendations of the Investigating Officer as commented on by subsequent endorsers, are approved.

(b) (6)

Copy to:
COMNAVSAFECEN (complete)
COMHELSEACOMWINGLANT
HM-15
(b) (6)

DEPARTMENT OF THE NAVY
COMMANDER, HELICOPTER SEA COMBAT WING ATLANTIC
610 "A" STREET STE 150
NORFOLK, VIRGINIA 23511-4011

IN REPLY REFER TO:

5830
Ser N00/184
29 Mar 13

SECOND ENDORSEMENT on (b)(6), USN, ltr of 25 Feb 13

From: Commander, Helicopter Sea Combat Wing Atlantic
To: Commander, Naval Air Force Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED ON 19 JULY 2012

1. I have reviewed the command investigation report regarding the class alpha mishap incident that happened on board Helicopter Mine Countermeasures Squadron FIFTEEN and concur with the commanding officer's and the investigating officer's recommendations and actions.

(b) (6)

Copy to:
HM-15

DEPARTMENT OF THE NAVY
HELICOPTER MINE COUNTERMEASURES SQUADRON FIFTEEN
1130 CV TOW WAY DRIVE
NORFOLK VA 23511-2324

IN REPLY REFER TO:
5830
N00/105
MAR 2 2 2012

FIRST ENDORSEMENT on Command Investigation ltr dtd 25 Feb 13

From: Commanding Officer, Helicopter Mine Countermeasures Squadron FIFTEEN
To: Commander, Naval Air Force Atlantic
Via: Commander, Helicopter Sea Combat Wing Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED 19 JULY 2012

1. Forwarded, concur with recommendations.

(b) (6)

Reviewed 12 Mar 2013

25 Feb 13

From: (b)(6), USN
To: Commander, Naval Air Force Atlantic
Via: (1) Commanding Officer, Helicopter Mine Countermeasures Squadron FIFTEEN
(2) Commander, Helicopter Sea Combat Wing Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED ON 19 JULY 2012

Ref: (a) JAGMAN, Chapter II

Encl: (208) Command Investigation convening ltr dtd 8 Feb 13
(209) (b)(6) MISHAP aircraft commander, Voluntary Statement, dtd 13 Feb 13
(210) (b)(6) MISHAP aircraft commander, Voluntary Statement, dtd 12 Feb 13
(211) (b)(6), HM-15 acft 03 aircraft commander, Voluntary Statement, dtd 20 Feb 13
(212) (b)(6) HM-15 acft 03 copilot, Voluntary Statement, dtd 20 Feb 13
(213) (b)(6) MISHAP Ground Safety Observer, Voluntary Statement, dtd 13 Feb 13
(214) (b)(6) MISHAP ground crew grounding man, Voluntary Statement, dtd 13 Feb 13
(215) (b)(6) MISHAP left window crewman, Voluntary Statement, dtd 12 Feb 13
(216) (b)(6), MISHAP left window crewman, Voluntary Statement, dtd 15 Feb 13
(217) (b)(6) MISHAP ground crew left observer, Voluntary Statement, dtd 13 Feb 13
(218) (b)(6) MISHAP flight surgeon, MISHAP safety observer, Voluntary Statement, dtd 22 Feb 13
(219) (b)(6) MISHAP Ground Safety Observer, Voluntary Statement, dtd 22 Feb 13
(220) (b)(6) AMB President, Voluntary Statement, dtd 22 Feb 13

Preliminary Statement

Evidence discovered during this investigation was not sufficient to confirm that AWSC Sullivan and AWS2 Fitzmorris were both wearing required restraint devices, gunner's belts, and other aircrew survival equipment in accordance with safety procedures and instructions. There is no reason for me to conclude that they were not properly restrained at the time when 162514 crashed.

During the course of the investigation it was not possible to determine time precisely therefore, all times are estimates based on statements from witnesses.

In the initial report the second HM-15 aircraft observing the lift mission was reported to be Aircraft 03. This was in error. The second HM-15 aircraft should have been reported as Aircraft 15.

Rename enclosures 156-157 and 159-163 in the preliminary report due to further detail available from AMB based on information garnered by Armed Forces Institute of Pathology examination of human remains recovered from the wreckage of 162514. Dental records were utilized to confirm the identity of both sets of remains recovered by the AMB team members. The photos were taken by (b)(6) The AMB President, (b)(6), and AMB flight surgeon, (b)(6) were present at the time the photos were taken. The photo of the gunner's belt buckle depicted in enclosures 156-157 and 159 does not indicate that it was being worn by any of the crewmembers at the time of the crash. There is no way to determine how the buckle ended up in that location after the crash.

(156-157, 159) AMB photo of burned and charred skull and bone fragment remains of AWS2 Joseph Patrick Fitzmorris found in wreckage debris field of 162514's cabin fuselage area in close proximity to the #3 engine. Photo taken by AMB member (b)(6) at 162514 crash site in Oman on Friday, 20 July 2012 using Cannon Powershot SD 1100 IS camera.

(160-163) AMB photo of burned and charred bone fragment remains of AWSC Sean Patrick Sullivan found in wreckage debris field of 162514's mid-cabin fuselage area in close proximity to the single point cargo hook system "A" frame assembly. Photo taken by AMB member (b)(6) at 162514 crash site in Oman on Friday, 20 July 2012 using Cannon Powershot SD 1100 IS camera.

Findings of Fact

490. The nearest road into the area was over three NM away across very steep, rugged mountainous terrain. Oman base camp near the NH-90 lift site, approximately 500 yards from the crash site across two deep ravines. (encl 71, 72, 98, 144) (212)

491. 162514 was intact and operating normally when the main rotor and tail rotor blades impacted the ridgeline above the canyon where the wreckage was discovered after the crash. (encl 145, 178)

492. 162514's main and tail rotor blades were broken away from the aircraft with great force. Most of the blades went into the canyon and landed on the canyon floor while the others were slung over 400 yards from the canyon. (encl 145, 183, 184, 186, 187, 188, 204)

493. 162514's vertical and horizontal tail assembly and tail gear box were torn from the fuselage while the 162514 was in flight and after the rotor blades came into contact with the ridge line above where the wreckage was discovered after the crash. (encl 180, 181, 182)

494. 162514's main fuselage section came to rest upside down in the canyon. The main gear box collapsed through the cabin overhead. (encl 209, 210, 212, 214, 215)

495. 162514 caught fire immediately after impact with the canyon floor and the cabin area filled with smoke. (encl 209, 210, 212)

496. 162514's fuselage and main/nose gear box casings were burned away due to the intense heat. (encl 167, 168)

497. 162514's fuselage transition section components were not completely burned away and were found to the eastern end of the wreckage debris field. (encl 167, 168)

Inside the aircraft:

Crash to 1 minute after the crash

498. (b)(6) was thrown around the cabin while 162514 was tumbling down into the canyon. He was restrained by a gunner's belt and remained within 3 feet of the left gunner's window in the cabin of 162514. (encl 215)

499. After the violent motion stopped, (b)(6) was lying on the cabin overhead three feet aft of the left gunner's window near the Helicopter in Flight Refueling filter. He was lying on top of AWS2 Fitzmorris. (encl 215)

500. AWS2 Fitzmorris was not conscious. (encl 215)

501. AWS2 Fitzmorris did not appear to be "pinned" in the aircraft. (encl 215)

502. AWS2 Fitzmorris did not appear to be bleeding. (encl 215)

503. (b)(6) was not able to remove AWS2 Fitzmorris from 162514 because he feared that he would not be able to make it out if he tried. He feared that the aircraft would roll off the cliff. Smoke and flames were in the cabin area. (encl 215, 217)

504. AWSC Sullivan was not visible anywhere in 162514. (encl 209, 210, 215)

505. AWSC Sullivan was crushed by the main gear box during the impact with the canyon at the time of the crash. (encl 210)

506. Within approximately 30-45 seconds of the crash, smoke started to fill the cabin area. Flames were visible in the cabin area. (encl 209, 210, 215)

507. (b)(6) released his harness and fell to the cabin overhead. He attempted to release the right cockpit emergency escape window but it would not move. (b)(6) assisted from outside 162514. (encl 209)

508. (b)(6) directed (b)(6) to egress 162514 through a hole in the left pilot window. (b)(6) followed (b)(6) out the window opening. Flames and smoke were visible in the cabin from the cockpit. (encl 209)

509. (b)(6) released his harness, fell to the cockpit overhead and crawled out a hole in the left pilot window. Flames were visible in the cabin near the cockpit and smoke was visible in the cabin and cockpit. Smell of electrical components burning was detected. (encl 210)

510. It was not possible to see into the cabin area aft of the cockpit due to smoke, lack of light and wreckage. (encl 209, 210)

Outside the aircraft:

Crash to 5 minutes after the crash

511. Upon notification by (b)(6) that 162514 had crashed all ground personnel immediately ran toward the crash site. (encl 213, 214, 217)

512. Aircraft 15 immediately transmitted a Mayday call to Al Musanna tower but did not get a response. (encl 212)

513. None of the five crewmembers in 162514 were thrown from 162514 during the crash. (encl 215, 156-157, 159-163)

514. Within approximately 30-45 seconds after the violent motion of the crash stopped (b)(6) egressed 162514 through the right crew door and assisted the pilots with egress. (encl 209, 210, 215)

515. During this time aircraft 15 was circling over head and was using radio communications to direct ground crews to the crash site. (b)(6) and (b)(6) (b)(6) had radios on the ground. (encl 211, 212, 213)

516. Smoke and fumes filled the cabin and started to enter the cockpit area. Flames were building in the cabin behind the right pilot seat. (encl 209, 210, 215)

517. Within approximately 1 minute after the violent motion of the crash stopped (b)(6) , (b)(6) and (b)(6) were clear of the wreckage and waited about 30 seconds for AWS2 Fitzmorris and AWSC Sullivan to get out. (encl 215)

518. (b)(6) sent HM-15 commanding officer a text message indicating that 162514 had crashed. (encl 209, 215)

519. Within approximately 1.5 minutes (b)(6) (b)(6) e and (b)(6) (b)(6) moved away from the crash to the west toward the open end of the canyon. Flames and smoke were intensifying inside the cabin and outside on the fuselage. (encl 209, 210, 211, 212, 215)

520. Within approximately 3-5 minutes (b)(6) , (b)(6) and (b)(6) (b)(6) were 200-300 yards to the west of the wreckage. Fire on the wreckage was intense and smoke was thick. (encl 210, 211, 212, 215, 217)

521. Within approximately 3 minutes flames were beginning to rise up along the canyon walls. (encl 197, 210, 214)

522. Within approximately 5 minutes flames were above the ridgeline and smoke was heavy. Small explosions could be heard coming from the crash. (encl 197, 213, 214, 217)

523. (b)(6) was directed to the crash site by aircraft 15 and crossed the canyon to the east of the crash searching for survivors. (encl 212, 213)

524. (b)(6) spoke to (b)(6) on his cell phone and told him that he was enroute to the crash site and would call back when he had more information. (encl 213)

6 to 20 minutes after the crash

525. Within approximately 8 minutes (b)(6) was the first on scene, arriving from the northwest direction, at the canyon directly over the wreckage and began rescue operations. (b)(6) is knocked down by an explosion. (encl 211, 214, 217)

526. Within approximately 8 minutes 162514 exploded and became completely engulfed in flames and the canyon is filled with thick black smoke. (encl 197, 213, 214, 217)

527. Within approximately 9 minutes (b)(6) arrived, from the northwest, at the canyon directly over the wreckage and began rescue operations. (encl 214, 217)

528. Within approximately 10 minutes (b)(6) a reached the three survivors and began first aid. (b)(6) had a (b)(6) and all three where suffering from (b)(6) (encl 209, 210, 214)

529. 162514 was still completely engulfed by intense flames at this point. (encl 197, 211, 212)

530. During this time (b)(6) obtained first aid items from (b)(6) (b)(6) and moved down into the canyon. He treated all three survivors for and one survivor for (b)(6) (encl 217, 218)

531. Within approximately 12-20 minutes (b)(6) reaches (b)(6) and the three survivors and takes over first aid while (b)(6) runs to the east up the canyon toward the crash scene. (encl 217, 214)

532. Within approximately 8-20 minutes (b)(6) enters the canyon and meets up with (b)(6) where they move toward the wreckage from the west. (encl 213, 214)

533. At some point during this time frame, (b)(6) communicated by radio with (b)(6) who approached the crash site from the east side of the canyon. (b)(6) patrolled the perimeter of the crash site and determined that there was no way for him to reach the wreckage. (encl 211, 213)

20 to 60 minutes after the crash

534. Within approximately 13-25 minutes (b)(6) and (b)(6) are stopped 50 feet short of the wreckage due to fire and intense heat. (encl 213, 214)

535. Within approximately 30-45 minutes all three survivors were evacuated from the area by an Oman military helicopter. (encl 209, 214, 215)

536. After the survivors were evacuated from the area, (b)(6) and (b)(6) (b)(6) discussed the status of the search for AWSC Sullivan and AWS2 Fitzmorris. (encl 218, 219)

537. During the discussion (b)(6) concluded that the area around the crash was searched to the maximum extent possible and that AWSC Sullivan and AWS2 Fitzmorris were in the wreckage in an area that was consumed by smoke and flames and did not survive. (encl 218, 219)

538. (b)(6) conducted operational risk assessment of the rescue effort and decided to end the search operations because it was determined that no one could have gone any closer to the wreckage without risking life and limb due to the extreme fire, smoke and heat being generated by the burning helicopter. (encl 156-157, 159-163, 197, 218, 219)

539. (b)(6) concluded that the ground crew was not equipped to spend the night at the scene and feared that the crew would be injured or possibly killed if they attempted to remain overnight. (encl 218, 219)

540. (b)(6) had a concern that the Oman military pilots were not proficient flying at night so the ground crew was flown back to Al Musanna just after sunset. (encl 218, 219)

541. Within approximately 60 minutes the search was halted and the HM-15 ground crew was mustered and accounted for by (b)(6) . The ground crew was flown by an Oman military helicopter from the area to Al Musanna air base just after sunset. (encl 218, 219)

542. At this time the wreckage was still engulfed in flames. (encl 218, 219)

543. (b)(6) made the decision to gather the ground crew and depart the area due to the intensity of the fire and the fact that they would have to be off the mountain before dark. (encl 218, 219)

Post search and rescue events

544. The two sets of remains found in the wreckage of 162514 were those of AWSC Sullivan and AWS2 Fitzmorris. (encl 156-157, 159-163)

545. Remains of AWSC Sullivan. (b)(6)

(b)(6)

(b)(6) (encl 160-163)

546. Remains of AWS2 Fitzmorris. (b)(6)

(b)(6)

(encl 156, 157, 159)

547. The AMB arrived on scene on 20 July 2012 and began their investigation. (b)(6) and (b)(6) placed the remains of AWSC Sullivan and AWS2 Fitzmorris into containers for transport to Armed Forces Institute of Pathology in Dover, DE. (encl 220)

548. There was no firefighting or crash and salvage equipment available in the immediate area at the time of the crash. (encl 211, 212, 213, 214, 218)

Opinions

50. 162514's main fuselage was still intact when the main and tail rotor blades hit the rock at the ridge of the canyon. Based on the length of the debris field and condition of 162514's components, it is likely that the transition section began to break away from the cabin and cockpit section just prior to impacting the canyon floor. The debris field appeared longer than the actual length of an MH-53E fuselage. [FF (491-494, 497)]

51. Pieces of wreckage that made up the transition section of 162514 were located about 30 feet to the east, but in line with of the wreckage from the cabin and cockpit fuselage wreckage. The transition section wreckage of 162514 was in better condition and more recognizable than the components of the cabin and cockpit wreckage. It appeared that the heat from the fire was not as intense in the area where the transition section was found as many of the frames and stringers that make up that part of the aircraft were whole. [FF (496, 497)]

52. In comparison, most of the components that make up the cabin and cockpit area of the fuselage were nonexistent as most of it was not recognizable because it was consumed by intense heat and became molten then ran to a low point in the canyon where it solidified after the wreckage cooled. The only recognizable components were those composed of steel and titanium most of the composite fiber, aluminum, and magnesium was burned and melted beyond recognition. [FF (496)]

53. Based on statements from the survivors and the fact that the crewmen were found in very close proximity to their assigned station in the aircraft indicates that they were likely wearing their required safety equipment, specifically gunner's belts, in accordance with applicable procedures and instructions. [FF (479, 482, 513, 544-546)]

54. The ground crews conducted search and rescue operations in the area in and around the crash site and determined that the two remaining crewmen were in the wreckage. Without firefighting and crash and salvage equipment they were unable to get closer than 50 feet from the wreckage due to intense fire and smoke. [FF (511, 512, 515, 516, 519, 524-536)]

55. Given the narrow dimensions and sheer walls of the canyon where the wreckage was located and the types of fluids and metals that were burning the heat from the burning wreckage must have been intense. This would have made it very difficult for anyone to gain access to the immediate crash site until many hours after the crash. Also, anyone who would have egressed from 162514 after the crash would have had to move to the east or to the west of the wreckage to avoid being overcome by fire and smoke. [FF (164-166, 175, 197, 533, 534)]

56. The wreckage was allowed to burn itself out because the crash site was very remote. It was impossible to get any vehicles into the area and therefore would have been impossible to get firefighting vehicles to the site after the crash. Given limitations on rotary wing aircraft operating in the high altitude environment of the crash site it would have been impossible to use aircraft to transport enough firefighting equipment to extinguish the fire after the crash. [FF (72, 548, 542)]

57. Even if firefighting equipment were present in the area near the crash site it is not likely that the fire could have been extinguished in time to save the lives of AWSC Sullivan and AWS2 Fitzmorris due to the fact that magnesium fires burn very intensely, over 5,000 degrees F, and are very difficult if not impossible to extinguish quickly. [FF (168, 197)]

58. Additionally, any equipment would likely have been stationed at the Oman base camp near the NH-90 lift site, approximately 500 yards from the crash site across two deep ravines. It would not have been possible to transport the firefighting equipment to the crash area in time to extinguish the fire before it completely engulfed the wreckage. Firefighting equipment would not have been close enough to the crash site to aid in saving the lives of AWSC Sullivan and AWS2 Fitzmorris. [FF (144, 167, 168, 197, 217, 492)]

59. The firefighting equipment in 162514's cabin area may have been thrown from its location during the crash and may not have been available to (b)(6) (b)(6) after the crash. [FF (494, 498, 510)]

60. AWSC Sullivan was killed when 162514 hit the bottom of the canyon during the crash. He could not have been thrown clear of 162514 during the crash. AWSC Sullivan was crushed during the crash by 162514's main gear box as he was stationed directly under it during the mission and would not have moved from there when 162514 entered the canyon because it was his duty to report the position and status of the NH-90 load being lifted. Additionally, the condition of his remains would indicate that something crushed his bones into small fragments. His remains were found in close proximity to where he would have been stationed in the aircraft during the mission. [FF (494, 544, 545, 547)]

61. AWS2 Fitzmorris was not thrown clear of 162514 during the crash and was seen in 162514's forward cabin area after the crash. (b)(6) had the opportunity to attempt to remove AWS2 Fitzmorris from the wreckage after the crash occurred, but did not make an attempt due to fire, smoke, and fumes in the cabin area of the wreckage. There is no way to determine if AWS2 Fitzmorris was killed during the crash, but he was not conscious during the 30 second after the crash and would have been killed by smoke and fire within minutes. [FF (499-503, 544, 546, 547)]

62. (b)(6) and six enlisted personnel were the only United States Navy personnel on scene after aircraft 15 departed the area (due to low fuel state). Between 30 and 45 minutes after the crash occurred, (b)(6) gathered his search and rescue team and conducted operational risk management in order to assess the status of the search and rescue effort. Based on the intensity of the fire, amount of smoke and heat, and equipment available, he correctly determined that the probability that something more could be done to save AWSC Sullivan and AWS2 Fitzmorris. The risk that his personnel would be killed or injured clearly outweighed the benefits gained by ordering his personnel to continue with the search and rescue effort through the night. [FF (537-543)]

63. The fire which consumed the wreckage of 162514 burned itself out overnight as there is no evidence to suggest that personnel, Oman military or United States Navy, attempted to extinguish the fire. [FF (542, 538)]

Recommendations

7. Provide a copy of this report to all Navy rotary wing squadrons and require it to be briefed to all pilots and aircrew. Also, make this report available other Department of Defense and Federal Agency rotary wing commands.

(b) (6)

DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE ATLANTIC
1279 FRANKLIN ST.
NORFOLK, VIRGINIA 23511-2494

5830
Ser N01L/ 034
8 Feb 13

From: Commander, Naval Air Force Atlantic
To: (b)(6) U.S. Navy
Via: Commander, Helicopter Sea Combat Wing Atlantic

Subj: COMMAND INVESTIGATION OF THE HELICOPTER SEA COMBAT SQUADRON FIFTEEN CLASS A MISHAP WHICH OCCURRED IN OMAN ON 19 JULY 2012

Ref: (a) JAG Manual

1. This appoints you, per Chapter II of reference (a), to further inquire into the facts and circumstances surrounding the helicopter mishap that occurred in Oman on or about 19 July 2012. The Command Investigation is re-convened to more thoroughly explore the immediate aftermath of the mishap.

2. You are directed to discuss potential additional questions with (b)(6), USN, who previously assisted you in your original investigation. Adhering to the same letter reporting format, your addendum report will continue to cite additional enclosures, findings of fact, opinions, and recommendations, building upon your original report. This appointment order will be cited as enclosure (208).

3. Your addendum report will be submitted for endorsement no later than 19 February 2013, unless an extension is received.

(b)(6)

Copy to:
CO, HM-15

Encl (208)

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA
DATE:
13 FEB 2013

I, (b)(6), make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 13 FEB 2013 with (b)(6)

After the aircraft hit the side of the canyon I felt like the aircraft was tumbling. All I could see was brown dust and debris. It felt like the aircraft was rolling.

After the aircraft stopped moving I could not believe that I was still alive.

It smelled like the aircraft was on fire…smoke and fumes were coming in the cockpit so I started to get out of the aircraft.

I grabbed the window handle to release but it was the wrong handle…it was the yellow one that opens the window not the jettison handle. I could not find the jettison handle.

I saw (b)(6) outside the aircraft looking in at me and attempting to release the window.

was looking down toward where (b)(6) was (across the cockpit) and told him to go that way toward his window…it s broken out.

My leg was caught briefly as I exited through the window.

Ran for 30 yds stopped to catch my breath. (b)(6) said we should keep moving.

In the cockpit I was looking down at (b)(6) and up at (b)(6) I was "hanging" in the straps. Not sure if I was completely inverted.

It was about 30 seconds from the time the violent motion stopped until I was out of the aircraft moving away.

After egress from the aircraft I sent a text to the Skipper saying that we had crashed.

The Wadi was on an incline and we walked down hill to the end of the Wadi where it opened up. Took about 5-10 minutes. We paused during the walk a couple times to take water from (b)(6) and to look at (b)(6)

(b)(6) Petty Officer) was the first one (rescue party member) down to us (b)(6) (b)(6) and (b)(6) There were other people on top of the Wadi.

(b)(6) got to us when we got to the medevac site…the 5-10 minute walk ended there.

I asked (b)(6) about Fitzmorris and Sullivan.

(b)(6) did not leave us and did not say who was looking for Fitzmorris (Petty Officer) and Sullivan (Chief). I asked a couple times about Sully and Fitz but do not remember exactly when during the egress (from the crash site to the medevac site) or if I asked (b)(6) or (b)(6)

w a flare in the direction of where the wreckage was.

Encl (3a)

I do not recall any discussion about the fire bottle (from the aircraft) nor the location of the fire bottle.

I did not see any firefighting equipment used (while I was egressing from the crash site).

took about 20-30 minutes to get to the medevac site where the Puma picked us up. We waited at the area for the Puma to arrive...about 15 minutes

The Aircraft (16) was burning...on fire. No discussion about going back into the aircraft (to look for Sullivan and Fitzmorris).

People were looking for Fitzmorris and Sullivan based on discussions with (b)(6) .not any first hand information.

The people on the ridge (above the Wadi) were trying to get down to us.

It did not take very long to get out of site of the wreckage...within a couple of minutes the wreckage was out of site we could not see flames, but could still see smoke. Looked back 2 or 3 times until the wreckage was out of site and the fire looked the same (intensity) each time I looked back.

I do not recall any radios being used. People were on the scene right away no need to use communications devices to call for help. People were on the ridgeline above the Wadi within minutes of the crash...about 3 minutes.

We did not attempt to reenter the aircraft (after the crash) because it was on fire.

I could feel the heat from the fire while I was in the cockpit...saw flames as I was getting out.

I don't know if anyone could have been thrown from the aircraft (during the crash).

I do not recall looking back (during the flight) to see if gunner's belts were on (the crewmen).

After the crash I could make out the nose of the aircraft back to the windscreen. I was not able to see the NH-90 (Oman helicopter being lifted by the MH-53E).

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 03APR13 Time: 0900

Subscribed and sworn to before me
On this day, April 3, 13, at
NG Norfolk VA

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____.

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
12 FEB 2013

I, (b)(6), make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 18 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a face-to-face interview conducted 12 FEB 2013 with (b)(6)

Chief Sullivan said "in the ravine" just before I heard the sound of the rotor blades hitting then the tail broke off and the fuselage rolled inverted.

The aircraft landed upside down in the canyon and I pulled the Speed Control Levers to off because I could still hear the engines running.

I released my harness and fell down onto the cockpit overhead . I remember looking back in the cabin and all I saw was black...couldn't see anything except smoke and fire behind XO (b)(6) and a wire bundle that had blue flames around it. There was smoke in the cockpit.

Looking back into the cabin area it appeared that the main gear box may have collapsed into the cabin.

The right side of the cockpit was higher than the left but the XO (sitting on the right side) was unable to release his window so we crawled out the left pilot window. I saw (b)(6) attempting to jettison the right pilot window (XO s window) from the outside but was unsuccessful.

XO and I exited through the left pilot window which was broken out. We had to "low crawl" due to the position of the aircraft in relation to the canyon.

(b)(6) had been stationed at the left gunner window during the flight.

It took less than 45 seconds for (b)(6) to egress the aircraft because it took XO and I about 45 seconds to egress after the violent motion of the crash stopped.

XO and I met up with (b)(6) off the nose of the aircraft.

We paused for about 60 seconds to check ourselves then we egressed the (crash) area toward the open end of the ravine. Looking at the wreckage I could make out the nose landing gear assembly, fuel probe, bottom of the cockpit section of the fuselage forward of the cabin. I could not make out the fuselage aft of the cockpit section, fuel sponsons, main landing gear assemblies or tail section. I could see metal but could not make out any part of the fuselage aft of sta 162 (cockpit).

We walked for about 3 to 5 minutes down the right side of the canyon away from the crash site. I glanced back 4 or 5 times as we egressed the area looking for Fitz (Petty Officer Fitzmorris).

After moving for 1 minute (b)(6) Petty Officer) met us followed shortly after by (b)(6) (Petty Officer). They guided us to an emergency landing site.

After meeting up with (b)(6) and (b)(6) I saw someone shoot a pencil flare...Dicks shot it from the ridge line above the crash site.

After 3 minutes the crash site was in flames which extended up the sides of the ravine. When I looked back there were flames around the fuselage aft of the cockpit section.

After 5 minutes of walking we arrived at the emergency landing site (medevac LZ). Bobby Anderson? CMC?

After 5 or 10 minutes at the emergency landing site the Puma arrived to take XO, Anderson and myself to the hospital.

all had radios but did not use them because the rescue party was with them.

All of the crewmen were wearing their gunners belts. I did not see them attach their belts to the aircraft attach points.

The only way that Chief (Sullivan) would have been able to get out of the cabin would have been through the hell hole (single point external lift fuselage opening), but that was directly under the main gear box.

(b)(6) was initially above the wreck site then he met up with us 5 minutes after shooting the flare and got on his radio to coordinate the rescue.

(After we egressed the aircraft) I asked (b)(6) if he had seen Fitz or Chief Sullivan and he said that he had not. After that conversation we heard a popping sound from the wreckage, sounded like when wood pops in a camp fire, then saw flames getting bigger so we decided to move away from the area.

I wanted to go back into the aircraft to look for Fitz and Sully but flames and smoke made it impossible.

The MEDEVAC flight on the Puma lasted about 10-15 minutes. They put us in separate ambulances at the hospital helo pad then drove 50 yards to the emergency room entrance. We were put in the ER and examined. Xrays were taken, blood was drawn and I got an IV of saline. Several shots were administered in the ER...my arm was like a "pin cushion". Not sure what the shots were. I was given pain pills on check out.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 22FEB13 Time: 1138-93

Subscribed and sworn to before me

On this day, February 22, 13, at

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
20 FEB 2013

I, (b)(6) make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 20 FEB 2013 with (b)(6)

I was circling to the right around the wreck at 150 feet above the rim of the canyon and after the first pass I did not see anyone. Smoke was coming up from the wreckage... "camp fire like". I do not recall seeing flames.

On the second pass I saw flames and three survivors within 10-20 yards of the wreckage moving "down" the canyon away from the crash (toward the open end of the canyon) but did not see any of them egress the wreckage.

The second pass was within 2 minutes of the crash.

On the third pass I saw a lot of smoke and it was being blown toward the closed end of the canyon. I was not comfortable being so close because of the build up of smoke and fire.

I saw crews on the ground reach the canyon within 5 minutes of the crash. They began going down into the canyon to reach the survivors.

thin 10 minutes after the crash the entire aircraft was engulfed in flames.

On the first pass I could still tell that it was a H-53 that had crashed. I did not look too closely at the wreckage but the aircraft appeared to be whole.

I was talking to (b)(6) on the radio. There were one or two others that had radios.

I was relaying information to (b)(6) in order to direct the rescue crew onto the survivors and crash scene.

The Oman military helicopter (flying in the area at the time of the crash) was calling the Oman SAR asset to come and assist with the search and rescue efforts.

I tried to land but there was no place to land a H-53 up there.

After about 20 minutes I had to return to base due to low fuel. I told Dicks that there was nothing else we could do due to fuel state.

There were personnel searching the area on the opposite side of the crash from (b)(6) (who was in the canyon approaching the wreckage from the open end).

I saw no firefighting equipment used that day.

I saw no crash and salvage equipment on site.

Fire extinguishers were taken up the next day to put out any remaining fire.

When we left the fire was still very intense and had not died down.

ENCL (21)

This statement was typed by (b)(6) I have been given the opportunity to make any changes I sire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 22 Feb 2013 Time: 1007

Subscribed and sworn to before me

On this day, February 22, 13, at

~~NC Norfolk VA~~

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____.

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
20 FEB 2013

I, (b)(6) make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 20 FEB 2013 with (b)(6)

When the aircraft crashed we made a Mayday call to Base at Al Musanna Air Base...no response.

We circled the crash site over head in a clockwise direction and I could see flames in the wreckage. I could not believe anyone got out of the aircraft due to how violent the crash was.

One minute after the crash I saw Anderson then 30 seconds later I saw(b)(6) then (b)(6)

We coordinated with the ground crew to direct them onto the site. I saw (b)(6) near the aircraft, within 10 feet of the crew door but did not see anyone egress the aircraft.

(b)(6) had a radio...someone else did too. I told him where the aircraft was and how to get down to it.

(b)(6) and (b)(6) were the only ones able to get to the three survivors.

I tried to find a place to land but could not.

ied to contact the Oman Puma to let them know what was going on...no joy.

We kept looking on the ground for the other two crewmen.

We held a hover and directed ground crews to the crash site using the fuel probe as a pointer so that they could see from the ground where to go.

The three survivors were 200-300 yards from the crash when (b)(6) and (b)(6) got to them.

On the first orbit around the crash site the aircraft was upside down in the canyon and the main rotor blades were scattered all over. Smoke was coming out of the wreckage.

On the 2nd and 3rd orbits the flames were medium in intensity, about 20 feet high, 1/3 the way up the canyon wall. I could see a general silhouette of the aircraft but could really only make out the fuselage forward of the main gear box.

On the 4th or 5th orbit the flames were very intense and I could only make out the cockpit and fuel probe area.

I was not able to see the NH-90.

As the Puma was landing for medevac of the survivors we had to Bingo.

We were on station for about 20 minutes.

It took about 30 second for one orbit.

ing the time that we were hovering the flames and smoke intensified and did not diminish while we were on station.

When we left the three survivors were recovered and the other two were unknown.

FNM (215)

c Al Musanna tower status of the crash site and survivors.

I do not know for sure if there was any firefighting equipment or rescue equipment used that day, but do not think that there was any lable.

NO radio calls requesting firefighting equipment or rescue equipment was made.

It was about 500 yards from the lift site to the crash site.

I estimate that I could have run to the crash site in about 2-3 minutes.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 27FEB13 Time: 1132

Subscribed and sworn to before me
On this day, February 27, 13, at
[redacted]

(b)(6)

(b)(6)
AUTH ART 136 (b)(4)

(b)(6)

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
13 FEB 2013

I, (b)(6), make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 13 FEB 2013 with (b)(6)

During the NH-90 lift I was in the Wadi (lift zone) at 7 o'clock position (relative to acft 16). (b)(6) informed me that the aircraft (16) crashed. I started moving toward the crash site then.

I had radio communications with acft 15 and (b)(6) (Petty Officer).

(b)(6) went out the open end of the Wadi (lift zone) and (b)(6) (Petty Officer) went straight up the Wadi wall both went toward the crash site.

I went toward the crash site and crossed the Wadi (crash site) behind acft 16 (wreckage) at the closed end of the canyon. I climbed down the canyon wall on the left and met up with (b)(6) who had climbed down the right side near the open end of the canyon (where the wreckage was).

(b)(6) was there as well but he stayed with (b)(6), (b)(6) and (b)(6) while we ran up the canyon toward the crash site.

got to the crash site and saw the NH-90 tail but flames and heat prevented us from going further.

When I crossed the canyon earlier there was too much smoke to get down into the canyon from that end, but I was able to see a little bit of the transition section of the helicopter (16). There was smoke and flames preventing me from seeing anything when I was above the crash site on the ridge to the left of the crash site...flames had engulfed the entire wreck.

Felt like forever for me to get to the crash site...6-7 minutes from the time of the crash until I met with (b)(6) I took 2 minutes to get from the canyon directly aft of the crash to when I met with (b)(6)

I observed Omanis (military members) and others running to the crash site (as I made my way to the site).

There was not any fire fighting equipment on the Omani base camp...no fire bottles or crash and salvage gear.

I launched a flare from the emergency landing zone (medevac site) to get the Puma (Oman helicopter) attention.

Hand held radios were used by me and (b)(6) to communicate with acft 15. LT Kisler (in acft 15) directed me to the crash site...helped navigate me.

I could hear explosions as I was running over (to the crash)...very loud popping sounds and could see smoke rolling over the edge of the Wadi.

(when (b)(6) and I arrived at the crash site) I could feel the flames when I got to where the crash was. We got close enough to make out the tail section of the NH-90 but had to turn back due to flames and smoke.

(b)(6) told me that (b)(6) said he thought he saw someone crawling toward the ramp or lying near the ramp.

erson was being looked at by Oman medics when (b)(6) and I walked back out of the Wadi (after being leaving the crash site).

FNH 1213

ot know if anyone tried to access the wreckage after we attempted from the front (of the wreckage). I communicated with erson as they walked around the crash site from the ridge lines above the crash site when the main gear box caught fire. (b)(6) termined that there was no way to enter the crash zone.

aircraft was completely destroyed...was not much left of it.

5-7 minutes after the Puma took off (medevac the survivors) the fire from the wreckage was not as bad as it was at first.

When I met up with (b)(6) after leaving the crash site (with (b)(6) aborted rescue attempt) he seemed to be in an "ok" state of mind. (b)(6) told me that someone was trying to exit the aircraft by the ramp. (b)(6) did not say much. (b)(6) kept saying that he should have pulled more power.

I asked (b)(6) and (b)(6) if they saw Fitzmorris or Sullivan... (b)(6) said no and (b)(6) would not answer.

I got a call (cell phone) from (b)(6) (HM-15 ASO) and told him that 16 went down and that I was on my way to the site on foot. He tried to get more information from me.

I tried to call the CO after the Puma left with the survivors...was unable, but got (b)(6) and I reported the status of the survivors and he asked me to get pictures. I reported that Fitz and Sully were unaccounted for and that we were attempting to continue the search.

(b)(6) (b)(6) (b)(6) , (b)(6) (b)(6) and myself were working to effect rescue of Fitzmorris and Sullivan.

(b)(6) (from Bahrain) called me but the signal was bad.

None of the survivors mentioned using the fire bottle inside acft 16.

(b)(6) described his egress of the aircraft and thought that we would not be able to gain access to the aircraft due to the fire. (b)(6) said that there was a lot of smoke filling the cabin and that he could not see into the cabin past the crew door.

ught that the Omani s were trying to get fire fighting equipment up to the site. Don't recall where I heard that.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 27 FEB 13 Time: 0755

Subscribed and sworn to before me
On this day, February 27, 13 at
VS Norfolk, VA

(b)(6)

(b)(6)
AUTH ART 136 (b)(4)

(b)(6)

Interview with (b)(6)
Via telephone from (b)(6)
1350 EST, 13 FEB 2013

I was the hook up man during the NH-90 lift. When the crash occurred I was informed by (b)(6) (b)(6) He was in a position to see the aircraft (16) go below the ridge line (where the crash occurred). He yelled down to me that 16 "went down". I did not know that the aircraft had crashed until I go to the top of the ridge (above the lift zone).

I was out of the lift zone and on the ridge within 25 seconds and could see smoke two ridge lines over. I ran to the smoke and it took a couple minutes to get over to the wreck. I saw the tail gear box from 16 on top of the ridge when I reached the ravine where 16 had crashed.

I estimate that it took me 10 minutes to get to the crash site (on the ridge over looking the crash). I was the first one on the scene and there was smoke and flames coming from the wreckage just before the tanks (fuel) went up (exploded). The explosion knocked me off my feet to the ground. I was standing directly over the crash (acft 16 and the NH-90).

No one else was there yet (when the fuel tanks exploded) and I looked down into the ravine and saw helmets. (facing the wreckage from above on the right ridge line oriented facing the open end of the Wadi) I turned to the right and looked for a way down into the ravine. Where I was standing the walls of the ravine were straight down (sheer cliff) 300 feet.

I saw the survivors and they were moving away from the flames.

When I got down to them, (b)(6) and (b)(6) were shook up.. (b)(6) was in shock and had a bad gash on his leg.

I patched up (b)(6) with medical supplies from his vest. I gave (b)(6) and (b)(6) water from my camel bak. I asked if they were all right.. (b)(6) said that he was fine.. (b)(6) said that he was not hurt. (b)(6) said that he did not know if he was hurt.

I forced (b)(6) to sit down so I could administer first aid on his leg.

I asked if they knew where Chief Sullivan and JP (Fitzmorris) were. (b)(6) and (b)(6) were out of it. (b)(6) said that he thought he saw JP trying to get out the back (of the helicopter)....didn't see Chief Sullivan.

I was not going to leave the survivors alone. 8 minutes after I got to them, (b)(6) showed up. (b)(6) took the survivors and lead them out of the ravine and I went toward the crash to look for Chief Sullivan and Fitzmorris. As I walked I was yelling for Sully and Fitz and after about 3 minutes I

heard (b)(6) coming down the ridge line above and on the opposite side (that I came down) of the crash site.

We continued toward the crash and it took another 5 minutes for us to get within 50 yards of the crash. (b)(6) and I continued running toward the wreckage but could not get past the tail of the NH-90...too much smoke and heat from the flames. I could hear pencil flares popping off. I went up the side of the canyon (on the left of the wreckage) to get above the flames but (b)(6) told me not to go any further...too dangerous.

(b)(6) was talking (on the radio) to (b)(6) who was on the opposite side of the crash.

We turned back and went back the way we came when (b)(6) got a phone call from the command...I (b)(6) (b)(6) possibly.

We got back to (b)(6) and I picked him up and carried him to the Puma extract site (medevac site). On the way we caught up with (b)(6) and (b)(6) who were being led by (b)(6)

I did not see any crash and salvage gear or fire fighting equipment.

Flames were going ¾ the way up the 300 foot cliff (canyon).

(b)(6) said that he was not sure he saw Fitzmorris trying to get out the back (of the helicopter). He could not be sure due to all the smoke in the cabin. He said that he knew that Chief was under the main gear box. He said that he was up by the personnel door (after the crash).

When I was above the wreckage I could make out the H-53 completely engulfed in flames.

(b)(6) coordinated rescue efforts with Ackerson and was also assisted by acft 15.

It was about 45 minutes between the crash and when the Puma flew the survivors out of the area. After the Puma launched we discussed getting back to the site to look for survivors.

(b)(6) was on the opposite end of the crash site but could not get close because of the smoke and flames...had radio comms with (b)(6)

(b)(6) shot a flare to signal the Puma...from the (medevac) landing site.

Acft 15 tried to land but had to waive off. 15 left the area before the Puma extracted the survivors.

(b)(6)

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
12 FEB 2013

I, (b)(6) make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a face-to-face interview conducted 12 FEB 2013 with (b)(6)

As the aircraft went below the top of the canyon I looked out the gunner window toward the tail of the aircraft because I was concerned about the tail hitting.

I do not remember anything after being thrown around the cabin when the tail hit the canyon until I woke up lying on the left side of the aircraft near the main gear box chip panel, approximately 6 feet aft of the cockpit area. When I came to I remember that I was lying on the HIFR filter assembly (the HIFR filter is mounted to the cabin overhead). I saw Fitz (Fitzmorris) lying on the cabin over head aft of where I was located, he was not conscious.

I got up and ran across the cabin to the right side and out the crew door.

The cabin area forward of the main gear box drip pan area up to the cockpit was intact. The area aft of the drip pan was collapsed.

I remember smelling fumes of an electrical fire and hot fluids and seeing a fire in the aft cabin area. I saw fire just prior to exiting the aircraft.

I exited and met up with (b)(6) and (b)(6) at the 10-11 o'clock position off the nose of the aircraft. Before exiting I attempted to release right pilot window using the external release handle while standing at the crew door with my feet on the rescue hoist assembly. e release handle would not turn.

I looked back at JP (Fitzmorris) then exited the aircraft.

(b)(6) was in bad shock and (b)(6) pulled his cell phone out as we waited for the others to get out of the aircraft. After about 30 seconds the fire started to get bigger and we were worried that the aircraft might explode and roll down the ravine so we moved away from the area. We walked toward the open end of the canyon.

I would say it was about 2 minutes between when I woke up and when I met up with (b)(6) and (b)(6) at the nose of the aircraft.

Flames were initially around the main landing gear area of the wreckage then moved forward.

The three of us walked for 1 or 2 minutes then sat down to rest. At this time (b)(6) appeared on the top of the canyon above us (right side of the canyon facing toward the open end). He asked if anyone was hurt. 2 minutes later (b)(6) came down the side of the canyon to us followed 1 or 2 minutes later by (b)(6) They ran up the ravine toward the crash site to look for Sully (Chief Sullivan) and Fitz (Fitzmorris).

About 3 minutes later they came back and (b)(6) was with them. The aircraft was burning at this point smoke and flames filled the canyon. I could not see the fuselage of the aircraft.

I never saw the NH-90 after the crash. I assume that it was under the 53 (MH-53E).

Oman military guys came down from the ridgeline where (b)(6) was. They brought medical kits but did not know how to use them. I assisted them and bandaged my leg.

cks fired a pencil flare once we got to the emergency landing zone. It took us about 5 minutes to walk to the emergency landing ne for medevac by the Oman Puma helicopter.

ENCL (215)

was no firefighting equipment that I could see. I did not attempt to use the fire bottle that is in the MH-53E, I left it in the cabin the crash). I don't know why.

Sully (Chief Sullivan) could have been thrown from the aircraft if he was not attached with the gunner belt or if the gunner belt broke.

(b)(6) sent a text to the Skipper when we were standing at the 10-11 o'clock position off the nose of the aircraft after the crash before the fire consumed the wreckage.

5 minutes after the flare was shot the Puma landed to take us to the hospital.

We got an ambulance ride from the hospital helo pad to the ER entrance...just 30 feet.

We all got wheel chaired into the ER. I was put in a neck brace...not sure about the others. I received X-ray and ultra sound tests. I was given an IV of some sort...not sure what it was. I got a (b)(6)

I was given (b)(6) I used the (b)(6)

I was treated for (b)(6) but had (b)(6)

We stayed overnight in the hospital.

Due to smoke and fear of the aircraft rolling off a cliff I did not go back to help Fitz (Fitzmorris). He was a big guy and was unconscious. He was not bleeding nor did he appear to be pinned in the wreckage.

When I came to in the cabin he was basically lying under me.

(b)(6) asked about Sully and Fitz and I told both he and (b)(6) that I saw JP (Fitzmorris) but he was not conscious and that I did not see Sully (Chief Sullivan). I told them that just before the flames got bigger and we moved away from the wreckage.

The pilot window (jettison) latch would pop up but would not twist to release the window so I jumped down and moved toward the nose of the aircraft.

told (b)(6) and (b)(6) not to go back up to the wreckage because of the fire.

It took about 30 minutes or less from the time of the crash to when we were lifted out of the area by the medevac Puma helicopter.

This statement was typed by (b)(6) . I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 2/22/13 Time: 1004

Subscribed and sworn to before me
On this day, February 22, 13, at
NS Norfolk, VA

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE: NS Norfolk, VA

DATE: 15 FEB 2013

I, (b)(6) make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 15 FEB 2013 with (b)(6)

I had been seeing Fleet and Family counselors for two months in Bahrain after the mishap. I have been able to come to terms with what happened. I am not seeing any counselors here in Norfolk.

I did not talk about the mishap while I was in the hospital (Oman military hospital).

I am not sure if I told (b)(6) or (b)(6) that I saw Ftizmorris in the helicopter. I may have because I was talking a lot.

After the crash when I came to I remember thinking "I am alive" and I saw light in the cabin it was coming in the personnel door window.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 22FEB13 Time: 1004

Subscribed and sworn to before me

On this day, February 22, 13. at

NS Norfolk. VA

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____.

000031

ENCL(216

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
13 FEB 2013

I, (b)(6), make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 13 FEB 2013 with (b)(6)

I was stationed on the left side of the NH-90 lift zone when I saw acft 16 go below the ridge and I called out to (b)(6) and the others that 16 went down.

I saw blades hit and fly through the air...tail rotor and main rotor blades.

No smoke and flames on initial impact. I saw smoke and flames within 5-6 minutes of impact. I had a clear view of the ridge line, where the crash occurred, the whole way over. I got to the ridge just above the crash right after (b)(6) Petty Officer) got knocked down by the explosion.

It took me 10 minutes to get to the ridge above the crash. I could not go straight down into the canyon (to access the crash site) because the side of the canyon was a sheer cliff.

I had to look for a way down. I saw (b)(6) HM15 flight surgeon) and got some medical kit supplies from him then de my way down the ridge to the survivors. (b)(6) was there when I got to them.

ook the pilots (b)(6) and (b)(6) to the (medevac) rescue site where a helicopter could lift the survivors out then I went back for (b)(6) When I got back to (b)(6) (b)(6) and (b)(6) showed up.

We all went to the Puma LZ together. (b)(6) shot a flare and the Puma landed in the zone (to pick up survivors).

Pilots (b)(6) and (b)(6) were in bad shock and not very responsive to questions. (b)(6) was not in shock like the pilots. (b)(6) said that Fitzmorris was lying in the aircraft (16, after the crash).

Standing on the ridge over the crash site I could see the 53 (acft 16) upside down on the Omani aircraft (NH-90). After the explosion I could still make out both sponsons and the ramp area of acft 16...the Omani aircraft was not on fire yet.

Took 8-10 minutes to climb down into the canyon and by that time fire had consumed both aircraft.

(b)(6) said that he thought he saw Fitzmorris near the main gear box area lying there with black smoke and flames...said that if he had went back he would not have made it out.

I saw the survivor's helmets in the canyon about 1 minute after the explosion...I was standing over the belly of the aircraft 200-300 feet above on the edge of the canyon.

There was no firefighting equipment anywhere.

Acft 15 circled around twice then departed.

Doc was there and there were many people running toward the crash...Omani military personnel.

(b)(6) and (b)(6) went to the opposite end (toward the closed end of the canyon where the transition section of fuselage was located) of the crash site. (b)(6) and (b)(6) coordinated rescue efforts around the crash site...with radios.

ENCL (217)

brief included what we would do if the aircraft crashed...egress routes etc.

(Chief Sullivan) and Fitz (Petty Officer Fitzmorris) were good friends and I tried to help save their life.

aha directed me to stay with the survivors and administer first aid while he tried to get back to the crash to save Fitz and Sully.

This statement was typed by (b)(6) . I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 28FEB2013 Time: 1445

Subscribed and sworn to before me
On this day, February 27, 13, at
NS Norfolk,VA

(b)(6)

(b)(6)
AUTH ART 136 (b)(4)

(b)(6)

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA
DATE:
22 FEB 2013

I, (b)(6) make the following free and voluntary statement to (b)(6) (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 22 FEB 2013 with (b)(6)

The lift started at about 1720 and about 30 minutes later the three survivors were airlifted to the hospital by an Omani military helicopter.

The ground crew regrouped about 30 minutes after the medevac flew off and we were airlifted out of the area back to Al Musanna, landing just after dark at about 1830 or so.

I was not comfortable with the Oman pilot's ability to fly at nigh, so I wanted to get the crew off the mountain before it got dark.

I received a few calls on my cell phone after the crash...people wanting to know what was going on. One of them was (b)(6) (b)(6)

(b)(6) and I discussed accounting for all of the ground crew members.

I had lost track of people as they all ran toward the crash site.

discussed staying overnight at the scene and we discussed leaving. We had no equipment or supplies that would allow us to stay on the scene and continue with the search effort.

We had no way to affect rescue at night as the terrain was unfamiliar and there were no lights.

There was no way for us to safely make our way around the crash site in the dark.

I was concerned about intense heat from the wreckage and could not get close to it due to flames, heat and explosions.

I knew that if AWSC Sullivan and AWS2 Fitzmorris did not make it out of the aircraft initially then there was no way that they would have survived the fire.

(b)(6) was stopped short of the wreckage at the east end of the canyon because of flames and smoke.

I did not believe that AWSC Sullivan and AWS2 Fitzmorris could be in the canyon alive based on (b)(6) and (b)(6) reports about the status of the wreckage.

I gave the order to leave the mountain based on operational risk analysis of the situation. It was getting dark; we were not equipped; I was not confident in the Omani pilot's ability to fly at night; (b)(6) and (b)(6) conducted a thorough search of the area around the crash site and got as close as they possibly could without getting burned.

I determined that there was no probability that we would be able to recover AWSC Sullivan and AWS2 Fitzmorris alive. If we attempted to continue conducting search into the night there was a high probability that someone could have been severely injured or killed.

s statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

000034

ENCL (218)

Date: 27Feb2014 Time: 0745

Subscribed and sworn to before me

On this day, February 27, 13, at

(b)(6)

(b)(6)

AUTH ART 136 (b)(4)

(b)(6)

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
22 FEB 2013

I, (b)(6) , make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 22 FEB 2013 with (b)(6)

After the Puma medevaced the three survivors out of the area I met up with (b)(6) (HM-15 flight surgeon). He was the only officer at the scene and we discussed the situation with the intense fire and the fact that it was nearing night fall.

(b)(6) called back to Bahrain and spoke to someone then we gathered everyone up and left the area on an Omani military helicopter at night fall.

(b)(6) made the call for us to leave the area.

It is hard to say exactly how long after the crash we left the area or what time it was.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 6747 Time: 27 FEB 13

Subscribed and sworn to before me
On this day, February 27, 13, at/

(b)(6)

(b)(6)
AUTH ART 136 (b)(4)

(b)(6)

000036

ENCL 19

DEPARTMENT OF THE NAVY

VOLUNTARY STATEMENT

PLACE:
LF59, NS Norfolk, VA

DATE:
22 FEB 2013

I, (b)(6), make the following free and voluntary statement to (b)(6) whom I know to be conducting the Command Investigation into the HM-15 Class Alpha aviation mishap 19 July 2012. I make this statement of my own free will and without any threats or promises extended to me. I fully understand this statement is given concerning my knowledge of the mishap involving AC (162514) which occurred in near Al Musanna Air Base, Oman 19 July 2012. This statement represents the composite of a telephone interview conducted 22 FEB 2013 with (b)(6)

(b)(6) took the photos of the remains of AWSC Sullivan and AWS2 Fitzmorris for the AMB.

I was present when the photos were taken and during the recovery of the remains for both crewmen.\

(b)(6) and a (b)(6) from the US Embassy in Muscat were also present.

The remains were positively identified as AWSC Sullivan and AWS2 Fitzmorris based on AFIP examination. Dental records were used to confirm the identification.

The remains were recovered on 20 August 2012 and transported to AFIP in Dover, DE.

This statement was typed by (b)(6) I have been given the opportunity to make any changes I desire. This statement is true and correct to the best of my knowledge and belief.

(b)(6)

Date: 1MAR13 Time: 1100

Subscribed and sworn to before me
On this day, March 1, 13, at
NS Norfolk, VA

(b)(6)

(b)(6)
AUTHORITY 136 (b)(4)

For the purpose of identification, I'm a _____, born on _____ in _____. I am _____ tall and weigh _____LBS. I have _____ hair and _____ eyes. I am assigned to _____ in _____. I live at _____.

000037

ENCL (220)

DEPARTMENT OF THE NAVY
COMMANDER, HELICOPTER SEA COMBAT WING ATLANTIC
610 "A" STREET STE 150
NORFOLK, VIRGINIA 23511-4011

IN REPLY REFER TO:
5830
Ser N00/439
22 Oct 12

SECOND ENDORSEMENT on (b)(6), USN, ltr of 6 Sep 12

From: Commander, Helicopter Sea Combat Wing Atlantic
To: Commander, Naval Air Force Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED ON 19 JULY 2012

1. I have reviewed the command investigation report and concur with the commanding officer's endorsement and recommendations.

2. (b)(5)

(b)(5)

3. Although the failures by (b)(6) directly led to this tragic mishap, I do not believe poor decision making warrants non-judicial punishment under Article 92. I concur with the commanding officer that (b)(6) should not be permitted to pilot a naval aircraft again.

3. (b)(6) has been relieved as Executive Officer of HM-15 and should be reassigned as soon as possible. I concur with the commanding officer that (b)(6) should not be permitted to pilot a naval aircraft again.

4. (b)(5)

5. In light of this mishap and the community challenges that were discovered in subsequent investigations, we are looking

into every facet of the HM community to effect cultural and operational improvements to training, operations, and maintenance.

(b) (6)

Copy to:
HM-15

DEPARTMENT OF THE NAVY
HELICOPTER MINE COUNTERMEASURES SQUADRON 15
1130 CV TOW WAY DRIVE
NORFOLK VA 23511-2424

IN REPLY REFER TO:

Ser N00/85B
29 Sep 12

FIRST ENDORSEMENT on Command Investigation ltr dtd 6 Sep 12

From: Commanding Officer, Helicopter Mine Countermeasures Squadron FIFTEEN
To: Commander Naval Air Force Atlantic
Via: (1) Commander, Helicopter Sea Combat Wing, Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED ON 19 JULY 2012

1. The crew of Hurricane 16 set out on the 19th of July with one goal in mind - complete the assigned heavy lift mission. The crew was experienced and, on paper, fully qualified to conduct the mission. Three of the five crew members were designated NATOPS instructors and were either Crew Resource Management instructors or facilitators. Both pilots were designated Helicopter Aircraft Commanders with over 3,000 flight hours between them. The three crewmen were equally experienced with over 5,000 hours of flight experience. Even with over 8,000 hours of flight experience in the aircraft on the day of the mishap, the crew failed.

2. There are many singular events that led to this mishap; however, they can binned in two categories: failure to follow NATOPS and poor flight discipline. There were several opportunities to break the chain of events that led to this tragedy. This mishap was completely preventable.

3. The multiple NATOPS violations by (b)(6) and (b)(6), including, but not limited to, "gun decking" the required preflight NATOPS brief prior to the actual lift, skipping the operational power checks prior to actual lift, and not setting the main rotor RPM to the correct power setting are inexcusable. The responsibility for these failures falls directly on the helicopter aircraft commander but the entire crew bears culpability. The entire crew willingly accepted risk they should not have - all in the name of mission accomplishment.

4. The poor flight discipline manifested itself in the preflight brief prior to the practice run and resurfaced prior to the actual mission. The crew did not discuss possible emergencies that reasonably could occur in the flight regime in which they were going to operate. The crew did not set any concrete engine, torque or rotor performance limits to act as trip wires for mission abort. The crew did not discuss the possibility of loss of tail rotor authority and the immediate steps to take should this flight condition be encountered. The crew did not discuss emergency jettison procedures and the pilots did not discuss or assign emergency jettison responsibilities. Instead of setting themselves up for success, the crew's poor flight discipline set them up for tragic failure.

5. I disagree with the investigating officer's opinion that the Commanding Officer's guidance to her crew was adequate. Specifically, that the Skipper "could have briefed more details on the power requirement expectations." The Skipper **should** have briefed more details on her power requirement expectations. As the most experienced helicopter pilot in the command, she should have dictated torque, main rotor speed and power required limits. Doing so would not have signaled a lack of trust in her crew but would have provided immediate top cover to abort the mission if any no-go criteria were met.

6. I concur with the investigating officer's recommendations to review the HM training syllabus to ensure alignment with required mission sets and to add mountain flying training, power management and aircraft handling to the HM training syllabus. Though the HM community's primary mission - airborne mine countermeasures - is always conducted at sea level, the logistical transport capabilities of the MH-53E in support of humanitarian assistance/disaster relief missions is a force multiplier that must continue to be used. The HADR missions can reasonably be expected to occur at altitudes well above sea level and in mountainous terrain.

7. I concur with the investigating officer that (b)(6) was (b)(5) and that his action and inaction directly led to the mishap. I do not concur that (b)(6) should be (b)(5), as

recommended by the investigating officer. (b)(6) should be reassigned from his present position as a Department Head in HM-15 as soon as possible. (b)(6) should not be allowed to pilot a naval helicopter again.

8. I concur with the investigating officer that (b)(6) was (b)(5) and that his action and inaction directly led to the mishap. I also concur that (b)(6) should be removed as Executive Officer of HM-15 and reassigned as soon as possible. (b)(6) should not be allowed to pilot a naval helicopter again.

9.

(b)(5)

(b)(6)

6 Sep 12

From: (b)(6) , USN
To: Commander, Naval Air Force Atlantic
Via: (1) Commanding Officer, Helicopter Sea Countermeasures Squadron FIFTEEN
(2) Commander, Helicopter Sea Combat Wing Atlantic

Subj: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HM-15 CLASS ALPHA AVIATION MISHAP THAT OCCURRED ON 19 JULY 2012

Ref: (a) JAGMAN, Chapter II
(b) OPNAVINST 3710.7U

Encl: (1) Command Investigation convening ltr dtd 20 July 2012
(2) BUPERS Order 2311, (b)(6) USN
(3) Clearance Notice (Aeromedical) (b)(6) dtd 06 JUN 2012
(4) Memo From (b)(6) (FS), USN dtd 06 AUG 2012
(5) (b)(6) CRM Instructor designation ltr 15 dtd FEB 2012
(6) (b)(6) NATOPS Instructor designation ltr dtd 06 FEB 2012
(7) (b)(6) Instrument Check Pilot designation ltr dtd 06 FEB 2012
(8) (b)(6) Aircraft Commander designation ltr dtd 06 FEB 2012
(9) (b)(6) Level IV AMCM/FRS pilot designation ltr dtd 15 FEB 2012
(10) (b)(6) MH-53E Day Formation Division/Flight Lead designation ltr dtd 06 FEB 2012
(11) (b)(6) NATOPS Evaluation Report 25 OCT 2011
(12) AWSC Sullivan Record of Medical Care SF 600 dtd 08 AUG 2012
(13) AWS2 Ftizmorris Record of Medical Care SF 600 dtd 08 AUG 2012
(14) (b)(6) Record of Medical Care SF 600 dtd 09 AUG 2012
(15) (b)(6) Record of Medical Care SF 600 dtd 08 AUG 2012
(16) (b)(6) Record of Medical Care SF 600 dtd 09 AUG 2012
(17) BUPERS Order 1130, AWSC Sean P. Sullivan USN
(18) NAVPERS 1070/613 Volunteer For Duty Involving Flying AWSC Sullivan dtd 17 FEB 12
(19) Oman Armed Forces Hospital Discharge Summary (b)(6) dtd 20 JUL 2012
(20) Oman Armed Forces Hospital Discharge Summary (b)(6) (b)(6) dtd 20 JUL 2012
(21) Oman Armed Forces Hospital Discharge Summary (b)(6) dtd 20 JUL 2012
(22) AWSC Sullivan CRM Facilitator designation ltr dtd 11 OCT 2011
(23) AWSC Sullivan Assistant NATOPS Instructor designation ltr dtd 15 JUN 2011
(24) AWSC Sullivan Crew Chief designation ltr dtd 19 APR 2011
(25) AWSC Sullivan NATOPS Evaluation Report 31 MAY 2012
(26) Clearance Notice (Aeromedical) Sean Sullivan, dtd 05 APR 2012
(27) BUPERS Order 0518, AW3 Joseph Fitzmorris USN
(28) Clearance Notice (Aeromedical) Joseph Fitzmorris, dtd 06 DEC 2011/Grounding Notice (Aeromedical) Joseph Fitzmorris, dtd 2 DEC 2011
(29) Clearance Notice (Aeromedical) Joseph Fitzmorris, dtd 22 AUG 2011
(30) AWS2 Fitzmorris NATOPS Evaluation Report 08 FEB 2012
(31) AWS2 Fitzmorris Crew Chief designation ltr dtd 12 JUL 09
(32) AWS2 Fitzmorris Assistant NATOPS Instructor designation ltr dtd 22 FEB 2012
(33) AWS2 Fitzmorris CRM Facilitator designation ltr dtd 05 MAR 2012

(34) AWS2 Fitzmorris FCF Aircrewman designation ltr dtd 18 AUG 2011
(35) BUPERS Order 1569, (b)(6) USN
(36) Clearance Notice (Aeromedical) (b)(6) , dtd 5 DEC 2011
(37) (b)(6) Crew Chief designation ltr dtd 22 JUL 2011
(38) (b)(6) NATOPS Evaluation Report 13 JUL 2011
(39) 72 hour history (b)(6) period of 16 JUL-19 JUL 2012 submission date 13 AUG 2012
(40) 72 hour history (b)(6) period of 16 JUL-19 JUL 2012 submission date 08 AUG 2012
(41) 72 hour history (b)(6) period of 17 JUL-19 JUL 2012 submission date 14 AUG 2012 with e mail supplement dtd 15 AUG 2012
(42) Complete Work Order Forms (4) for installation of Single Point Cargo Hook and Pendant system JCNs B53199092, B53199089, B53199091, B53199090
(43) HM-15 Monthly Maintenance Plan JULY 2012
(44) Qualifications/Certifications/Licenses/Medicals Report dtd 09 JUL 2012
(45) NALCOMIS OOMA Scheduled Inspections Report dtd 03 AUG 2012
(46) Scheduled Removal Component Card, Cargo Hook Single Point, PN 17087-6, SN 176AB
(47) Assembly Service Record, Pendant Single Point, PN 17116-5, SN 258
(48) AWS2 Fitzmorris Plane Captain designation dtd 31 AUG 2011
(49) BUPERS Order 1271, (b)(6) USN
(50) Clearance Notice (Aeromedical) (b)(6) dtd 31 JUL 11, Clearance Notice (Aeromedical) (b)(6) dtd 19 DEC 11
(51) (b)(6) Aircraft Commander designation ltr dtd 06 JUN 2012
(52) (b)(6) Instrument Check Pilot designation ltr dtd 06 JUN 2012
(53) (b)(6) NATOPS Evaluation Report 18 APR 2012
(54) Aircraft Inspection and Acceptance Record BUNO 162514 dtd 19 JUL 2012
(55) ADB Work Order BUNO 162514, Modex 016 dtd 17 JUL 2012
(56) OPNAV 4790/21A page 2, Part IV MONTHLY DATA sheet, BUNO 162514
(57) Naval Aircraft Flight Record BUNO 162514 flight from OBBI to OOMN
(58) OPNAV 4790/142 Structural Life Limits MH-53E TMS, BUNO 162514
(59) AWBS Form F BUNO 162514, Externals mission configuration
(60) LIST02 Technical Directive Requirements BUNO 162514 dtd May 13, 2012
(61) Maintenance records evaluation report, e-mail from (b)(6) (b)(6) dtd Wednesday, August 15, 2012
(62) NALCOMIS OMA Scheduled Inspections Report dtd 18 JUN 2012
(63) OPNAV 4790/22A Inspection Record BUNO 162514
(64) IFE for 25 HOUR Inspection dtd 17 JUL 12
(65) Aircraft Acceptance for Flight form BUNO 162514 dtd 27 JUN 2012
(66) Preflight/Daily/Turnaround/Postflight Maintenance Record BUNO 162514 Daily Inspection dtd 18 July 12, Turnaround Inspection dtd 19 July 2012
(67) VIDS/MAF s (2) BUNO 162514 dtd 12200 and 12201 #3 NGB Belt R&R
(68) Non DOD Property Damage Cost Estimate, (b)(6) e mail dtd Tuesday, August 14, 2012
(69) SHARP s Flight Log Book print out for (b)(6) JUN and JUL 2012, calculations done by JAGMAN IO to determine hours in model
(70) SHARP s Flight Log Book print out for (b)(6) JUN and JUL 2012, calculations done by JAGMAN IO to determine hours in model
(71) Decision Brief: CONOPS RAFO Urgent Request for Heavy Lift Support (b)(6) dtd 17 JUL 2012
(72) Decision Brief: CONOPS RAFO Urgent Request for Heavy Lift Support

(b) (6) dtd 19 JUL 2012

(73) Decision PPT slide: RAFO Request for Heavy Lift Support CONOPS, signed APPROVED "verbally approved" 1559 7/19 signed (b)(6)

(74) Memorandum, AVERAGE AIRCRAFT INVESTMENT COSTS FOR 2011, dtd 12 July 2012

(75) Flight Log Book, AWS2 Ftizmorris, pages indicating external lift events

(76) Flight Log Book, AWSC Sullivan, pages indicating external lift events

(77) Flight Log Book, (b) (6) pages indicating external lift events

(78) Flight Log Book, (b) (6) pages indicating external lift events

(79) Flight Log Book, (b) (6) pages indicating external lift events

(80) Aircraft Acceptance for Flight form BUNO 162514 dtd 18 JUL 2012 time 0835

(81) HELMINERON FIFTEEN INSTRUCTION 3750.4X (SOP) dtd 8 Aug 11

(82) NTTP 3-22.5-MH53, VOL II, pp 201-207, dtd February 2006

(83) (b) (6) (b) (6) , Voluntary Statement, dtd 06 August 2012, time 1015

(84) (b) (6) (b) (6) , Voluntary Statement, dtd 08 August 2012 time 1500

(85) (b) (6) (b) (6) , HM-15 Voluntary Statement, dtd 05 August 2012 time 1900

(86) (b) (6) (b) (6) HM-15 Voluntary Statement, dtd 14 August 2012 time 0900EST

(87) (b) (6) (b) (6) , HM-15 Voluntary Statements, dtd 17 August 2012 time 0740EST and 1010EST

(88) (b) (6) , US Embassy Oman, Voluntary Statement, dtd 05 August 2012, time 1145L Oman

(89) (b) (6) NAVCENT LNO US Embassy Oman, Voluntary Statement, dtd 06 August 2012, time 0845 via e mail

(90) (b) (6) , HM-15 crewman, MISHAP left window crewman, Voluntary Statement, dtd 03 August 2012, time 1325L

(91) (b) (6) , MISHAP left window crewman, Voluntary Statement, dtd 03 August 2012, time 1325L via phone

(92) Tower Log Book entries from 18 July 2012 and 19 July 2012, RAFO Al Musanna, dtd 19 July 2012, fax copy

(93) (b) (6) , HM-15 crewman, (b) (6) , Voluntary Statement, dtd 15 August 2012, time afternoon EST

(94) (b) (6) (b) (6) , Voluntary Statement, dtd 31 July 2012, time 1435L

(95) (b) (6) (b) (6) , Voluntary Statement, dtd 13 August 2012, time 1300EST

(96) (b) (6) (b) (6) t, Voluntary Statement, dtd 17 August 2012, time 0925 EST

(97) (b) (6) (b) (6) , Voluntary Statement, dtd 31 July 2012, time 1225L

(98) (b) (6) (b) (6) Voluntary Statement, dtd 07 August 2012, time 1305L

(99) (b) (6) MISHAP Ground Safety Observer, Voluntary Statement, dtd 02 August 2012, time 1500L

(100) Eurocopter employees (b) (6), (b) (6) , and (b) (6) t, Voluntary Collective Written Statement provided to (b) (6) Air Attaché US Embassy Oman, and forwarded to the IO via e mail on 8/2/2012

(101) (b)(6) HM-15 Quality Assurance work center representative, Voluntary Statement, dtd 02 August 2012, time 1710L

(102) (b)(6) RAFO, Commanding Officer, 14th Squadron, Voluntary Statement, dtd 05 August 2012, time 1000L Oman

(103) NATOPS A1-H53ME-NFM-000, pages 4-6, 6-1 and 20-2, 11-9 thru 11-12, 9-68 thru 90-86, 7-1, 7-23 thru 7-26, 7-39 thru 7-46

(104) NATOPS A1-H53ME-NFM-500 POCKET CHECK LIST, Brief Guide page 1-1 thru 1-8, 2-1 thru 2-4, 3-1 thru 3-4. Start 2-1 thru 2-10. Flight 3-1 thu 3-4. Shutdown 5-4

(105) (b)(6) (b)(6) , Voluntary Statement, dtd 15 August 2012, time afternoon EST

(106) E-mail from (b)(6) , HM-15 dtd Wednesday, August 15 2012, time 8:16 AM

(107) Fax from Musanna Tower, dtd 20-07-12, Al Musanna WX on 19 July 2012 at 1652D

(108) (b)(6) RAFO, 14th Squadron, Super Puma helicopter pilot, Voluntary Statement, dtd 05 August 2012, time 1115L Oman

(109) (b)(6) HM-15, MISHAP LSE, Voluntary Statement, dtd 02 August 2012, time 1355L

(110) (b)(6) , HM-15, MISHAP Flight Surgeon, Voluntary Statement, dtd 06 August 2012, time 1330L

(111) (b)(6) HM-15, ACFT 03 observer, Voluntary Statement, dtd 01 August 2012, time 1455L

(112) (b)(6) HM-15, ACFT 03 HAC, Voluntary Statement, dtd 01 August 2012, time 1347L

(113) (b)(6) HM-15, ACFT 03 left window crewman, Voluntary Statement, dtd 02 August 2012, time 1325L

(114) (b)(6) HM-15, ACFT 03 observer, Voluntary Statement, dtd 01 August 2012, time 1555

(115) (b)(6) HM-15, ACFT 03 observer, Voluntary Statement, dtd 01 August 2012, time 1655

(116) (b)(6) (b)(6) HM-15 Voluntary Statement, e mail dtd Sunday, August 19, 2012 time 0259EST

(117) (b)(6) (b)(6) , HM-15 Voluntary Statement, e mail dtd Sunday, August 19, 2012 time 0404EST

(118) (b)(6) HM-15 (b)(6) r, Voluntary Statement, dtd 20 August 2012, time 2300EST via cell phone

(119) HM-15 Flight Schedule dtd Thursday, July 19, 2012

(120) (b)(6) , (b)(6) HM-15 Voluntary Statement, dtd 11AUG12, time 1745EST e mail

(121) (b)(6) (b)(6) Voluntary Statement, dtd Tuesday, August 21, 2012, 0444 AM EST, e mail

(122) (b)(6) (b)(6) commander, Voluntary Statement, dtd Tuesday, August 21, 2012, 1008 AM EST, e mail

(123) (b)(6) HM-15, ACFT 03 observer, DET Power Plants work center, Voluntary Statement, dtd 02 August 2012, time 1730L

(124) (b)(6) HM-15, ACFT 03 observer, DET Maintenance Control safe for flight, Voluntary Statement, dtd 02 August 2012, time 1630L

(125) (b)(6) HSC28 MH-60S Tactics Officer, US Navy Helicopter Mountain Flying Course Program Manager, Canadian Helicopter Ltd. Mountain flying course graduate, US Navy Mountain Flying Instructor NSOC, Voluntary Statement, dtd Monday, August 20. 2012. Time 2:28 PM

(126) (b)(6) HM-15, ACFT 03 observer, DET Airframes Maintenance technician, Voluntary Statement, dtd 02 August 2012, time 1215L

(127) (b)(6) AWSTS Executive Officer, MH-53E FRS Instructor pilot, Voluntary Statement, dtd 14 August 2012, time afternoon via phone con

(128) (b)(6) HM-15, (b)(6) , Voluntary Statement, dtd 02 Aug 2012, time 1320L

(129) (b)(6) HM-15, (b)(6) , Voluntary Statement, dtd 03 Aug 2012, time 1215L

(130) (b)(6) HM-15, (b)(6) , Voluntary Statement, dtd 02 Aug 2012, time 1540L

(131) (b)(6) HM-15, ACFT 03 copilot, Voluntary Statement, dtd 01 August 2012, time 1215L

(132) (b)(6) HM-15, (b)(6) , Voluntary Statement, dtd 02 Aug 2012, time 1225L

(133) Note taken during conversation with HM-15 CO by IO prior to arrival in Bahrain, 24 July 2012

(134) Report of Toxicological Examination, Accession # 124860, (b)(6) (b)(6) (b)(6) dtd August 2, 2012

(135) Report of Toxicological Examination, Accession # 124862, (b)(6) (b)(6) , (b)(6) , dtd August 2, 2012

(136) Report of Toxicological Examination, Accession # 124861, (b)(6) (b)(6) , dtd August 4, 2012

(137) COMHELSEACOMBATWINGLANTINST 3710.5C, dtd FEB 5 2010, p K-1

(138) COMHELSEACOMBATWINGLANTINST 3710.5C, dtd FEB 5 2010, p A-1, A-2

(139) COMHELSEACOMBATWINGLANTINST 3710.5C, dtd FEB 5 2010, p G-2; OPNAVINST 3710.7U, dtd NOVEMBER 23, 2009, p 8-16

(140) (b)(6) (b)(6) t, Voluntary Statement, dtd 19 August 2012, time 1:18AM EST via e mail

(141) Flight Log Book Data, AWSC Sullivan, AWS2 Fitzmorris, (b)(6) (b)(6) n, e-mail, dtd Sunday, August 19, 2012, time 6:07AM EST

(142) NAVPERS 1070/613 Volunteer For Duty Involving Flying AWS2 Fitzmorris, dtd 24 MAY 2008

(143) NAVPERS 1070/613 Volunteer For Duty Involving Flying (b)(6) (b)(6) dtd 29 June 2009

(144) Satellite Image of MISHAP location Oman, produced by NGA, Bahrain, (b)(6) , dtd 29 July 2012

(145) (b)(6) NAVAIR 4.3.1 H53E Air Vehicle Systems Engineer Lead, MCAS Cherry Pt, NC, Voluntary Statement, dtd 27 July 2012, time 1030L

(146) (b)(6) NATOPS Flight Personnel Training Qualification Jacket, Section IVB-MISHAP/Flight Violation Record, copy made 22 AUG 2012

(147) (b)(6) Flight Log Book, Accident and Flight Rule Violation Record, copy made 22 AUG 12

(148) (b)(6) (b)(6) Planning figures for 162514 mission planning, rec'd by IO on 09 August 2012, via e mail

(149) (b)(6) HM-15 crewman, (b)(6) , Voluntary Statement, dtd 22 August 2012, time 1535EST, CHSCWL Operations Office

(150) (b)(6) (b)(6) Voluntary Statement, dtd 22 August 2012, time 3:17PM EST, e mail

(151) Video #1, DVD, taken from the air on 19 July 2012, by RAFO Puma helicopter passenger, recording device unknown, provided to IO by AMB on 27 July 2012

(152) Video #2, DVD, taken by (b)(6) who was standing on the northwest side of the lift zone at 8 o'clock relative to the MH-53E facing northeast, the gorge in the video is oriented 030/210, 030 is toward higher ground and 210 is toward lower ground, video taken on 19 July 2012, recording device Apple I Phone, provided to IO by AMB on 27 July 2012

(153) Video #3, DVD, taken by (b)(6) who was standing on a ridgeline above and on the southeast side of the lift zone, video taken on 19 July 2012, recording device Apple I Phone, provided to IO by AMB on 29 July 2012

(154) AMB photo 5 gunner belt attached to D-ring, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS

(155) AMB photo 6 crash site overview, taken at 162514 crash site in Oman, Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS

(156) AMB photo 1 Crewman #1 with gunner belt attached and latched, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS

(157) AMB photo 2 Crewman #1 with gunner belt attached and latched, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS

(158) (b)(6) FAST results, prepared by (b)(6) using 72 hour history data, dtd 22 AUG 12, for JAGMAN at request of IO

(159) AMB photo 3 Crewman #1 with gunner belt attached and latched, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS digital camera

(160) AMB photo 4 Crewman #2 remains, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS digital camera

(161) AMB photo 7 Crewman #2 remains, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS digital camera

(162) AMB photo 8 Crewman #2 remains, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS digital camera

(163) AMB photo 9 Crewman #2 remains, taken at 162514 crash site in Oman on Friday, July 20, 2012, by AMB member, using Cannon Powershot SD 1100 IS digital camera

(164) Photo 003, aerial view looking to the northwest, NH-90 lift zone, taken from RAFO NH-90 helicopter 500 feet above 162514 MISHAP area in Oman on Friday, July 24, 2012, at 1600L (1200Z) by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(165) Photo 004, aerial view looking NADIR using zoom, MH-53E/NH-90 crash site, taken from RAFO NH-90 helicopter 500 feet above 162514 MISHAP area in Oman on Friday, July 24, 2012, at 1600L (1200Z) by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(166) Photo 005, aerial view looking NADIR, MH-53E/NH-90 crash site, taken from RAFO NH-90 helicopter 500 feet above 162514 MISHAP area in Oman on Friday, July 24, 2012, at 1600L (1200Z) by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(167) Photo 011, view looking down on MH-53E/NH-90 crash site, the NH-90 is in center right of photo and borders the right side of the debris field and appears as a darker mass in the photo due to the fuselage being constructed primarily of carbon fiber, photo taken from north ridgeline next to TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(168) Photo 012, view looking down on MH-53E/NH-90 crash site, MGB, appears as a light grey powdery vertical mass, in center of photo with bottom end up and aft fuselage structure is in left of photo bottom side up, taken from north ridgeline next to TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(169) Photo 013, view looking to the north toward lift zone area in direction of #1 MRB, taken from north ridgeline next to TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(170) Photo 014, view looking west, taken from north ridgeline next to TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(171) Photo 019, TGB flange and Thomas coupling and partial TGB mounting plate, on north ridgeline above crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(172) photo 022, TGB cowl penetration and TR hydraulic flight control servo viewed from underside of cowl, on north ridgeline above crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(173) Photo 023, oil staining on rock, on north ridgeline above crash site looking west, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0900L (0500Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(174) Photo 024, view of aft fuselage MH-53E, looking down on MH-53E/NH-90 crash site, taken from north ridgeline next to oil stain area near TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0915L (0515Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(175) Photo 028, view of ramp ICS cord, oil staining and scarring on Rock likely caused by the tail of 162514 during the crash, NH-90 wreckage directly below, looking down on MH-53E/ NH-90 crash site, taken from north ridgeline 25feet to the west of the TGB, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0915L (0515Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(176) Photo 033, view of scarring on rock likely caused by a TRB during the crash, taken from north ridgeline 200 feet to the west of the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(177) Photo 034, view of scar pattern on rock likely caused by MRBs during the crash, taken from north ridgeline 200 feet to the west of the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(178) Photo 036, broken tree likely caused by the tail or tail rotor of 162514 during the crash, taken on north ridgeline 25 feet to the west of the TGB and above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(179) Photo 037, heavy scraping on rock on north ridge line likely caused by the tail during the crash, taken on north ridgeline 20 feet to the west of the TGB and above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(180) Photo 038, tail skid strut and actuator access panel three feet from heavy scrape marks on north ridge line likely indicates tail impact with the ground, taken on north ridgeline 20 feet to the west of the TGB and above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(181) Photo 042, tail pylon across canyon on canyon south ridge viewed from TGB, taken on north ridgeline above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0925L (0525Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(182) Photo 044, TRH assembly with tail positioner and tail positioner actuator, taken on north ridgeline above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 0945L (0545Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(183) Photo 047, #1 MRB root end and blade extender on the lift zone canyon south ridge, 200 meters to the north northwest of the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1015L (0615Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(184) Photo 056, view from #1 MRB location to the south toward MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1015L (0615Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(185) Photo 059, oil stain and debris from MH-53E on north ridge above MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1045L (0645Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(186) Photo 065, view of remains of MH-53E forward and aft fuselage, all three engines, several main rotor blades, main transmission, and NH-90 wreckage which is at the upper right of the photo, taken from the north ridge above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1045L (0645Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(187) Photo 066, view of remains of MH-53E main fuselage, all three engines with #3 at the top of the photo, several main rotor blades, MGB is bottom side up, NH-90 wreckage is at the upper right of the photo, taken from the north ridge above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1045L (0645Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(188) Photo 067, view of remains of MH-53E main fuselage, all three engines, several main rotor blades, main transmission, and entire remains of NH-90 wreckage, taken from the north ridge above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1045L (0645Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(189) Photo 068, view to the west from the north ridge of the crash site canyon, tail strut actuator panel is in upper right of photo, taken from the north ridge above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1100L (0700Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(190) Photo 070, forward portion of #6 tail rotor drive shaft, taken at the bottom of the canyon in the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1100L (0700Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(191) Photo 072, forward end of #4 tail rotor drive shaft, taken at the bottom of the canyon in the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1100L (0700Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(192) Photo 082, #3 tail rotor drive shaft Thomas coupling assembly, taken at the bottom of the canyon in the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1130L (0730Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(193) Photo 085, NH-90 TGB, taken at the bottom of the canyon in the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1130L (0730Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(194) Photo 092, MH-53E cargo hook A frame assembly with explosive separator housing attached, located aft of MGB in wreckage, taken at the bottom of the canyon in the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1130L (0730Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(195) Photo 094, aft portion of #6 tail rotor drive shaft, taken on the south ridgeline above the MH-53E/NH-90 crash site, 25 feet from edge of canyon, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1145L (0745Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(196) Photo 101, tail drive shaft disconnect assembly seal, O ring, located 10 feet below south ridge just above tail plyon wreckage, taken 10 feet below south ridge above the MH-53E/NH-90 crash site, at 162514 MISHAP area in Oman on Saturday, July 25, 2012, at 1130L (0730Z), by JAGMAN IO, using Cannon Powershot SD 600 digital camera

(197) Video #4, DVD, taken from the ground on 19 July 2012, by an unknown source, recording device unknown, provided to IO by AWF2 Rebecca Chechile, on 27 July 2012 via e mail accessible through you tube link: http://www.youtube.com/watch?v=b03T0xMDU9c&feature=youtube_gdata_player

(198) (b)(6) (b)(6) Air Test and Evaluation Squadron TWO ONE (HX-21), Designation of Qualifications, SH-60F and HH-60H/J, dtd AUG 02 2005, Designation of Qualifications, MH-60R/S, dtd JUL 28 2004

(199) (b)(6) (b)(6) NSAWC letter, SWTI Course Training Summary and Qualification, dtd 03 MAR 09

(200) (b)(6) (b)(6) , Voluntary Statement, dtd 31 July 2012, time 1435L

(201) (b)(6) CRM Training and Evaluation Record, NATOPS Jacket Section II Part C

(202) (b)(6) CRM Training and Evaluation Record, NATOPS Jacket Section II Part C

(203) NATOPS A1-H53ME-NFM-000, pages 79/80, 17-1 thru 17-14

(204) Hand drawn depiction (4 sheets) of mishap area showing location of key pieces of 162514's wreckage as it was observed on the ground, lines drawn are meant to show relief of geography in the area, drawn by IO at MISHAP area

(205) (b)(6) FAST results, (2 sheets) one result with CONUS trip factored in and one without CONUS trip factored in, prepared by LT Justin Meeker using 72 hour history data, dtd 22 AUG 12, for JAGMAN at request of IO

(206) (b)(6) FAST results, prepared by (b)(6) using 72 hour history data, dtd 22 AUG 12, for JAGMAN at request of IO

(207) (b)(6) NAVAIR 4.3.2.2 Senior Rotary Wing Performance Engineer, NAS Patuxent River, MD, phone conversation 30 August 2012, time 0902, and e mail dtd August 20, 2012 from (b)(6) at NAVAIR.

Preliminary Statement

Pursuant to enclosure (1) and in accordance with reference (a), a command investigation was conducted to inquire into the circumstances surrounding the mishap of ACFT 16, BUNO 162514, from Helicopter Mine Countermeasures Squadron ONE FIVE (HM-15) operating from Bahrain International Airport, Bahrain. Copies of all relevant evidence were collected and analyzed. The original evidence is in the possession of the Aircraft Mishap Board (AMB) or the Naval Safety Center. The directives of the Convening Authority have been met. [enclosure (1)]

Prior to conducting each interview witnesses were informed of the nature of this JAGMAN investigation. It was further explained to each witness that this investigation is separate from the AMB investigation with a different scope and purpose. The differences were explained, including their respective uses.

At the end of each interview all witnesses were asked if they had any comments or point to add to their voluntary statements. They were allowed to speak freely and convey any thoughts that were not covered in the line of questioning.

The IO is a Naval Aviator with 1,800 rotary wing flight hours in both the MH-53E and MH-60S. He has extensive experience operating the MH-53E in mountainous terrain throughout Europe and the Middle East. He received MISHAP investigation training at ASO school in 2005 and 2010 and was the NATOPS CNAL MH-53E Fleet evaluator from 2001 to 2003. Additionally, he was a qualified Aviation Structural Mechanic (Structures) and maintained A-7E and FA-18 aircraft from 1985 to 1990.

Legal assistance and advice was given by (b)(6) and (b)(6), Naval Forces Central Command (NAVCENT) JAG, and (b)(6), Commander, Naval Air Force Atlantic (AIRLANT) JAG, throughout this investigation.

All social security numbers were obtained from official sources and not solicited from individual members.

All documentary evidence included herein is certified to be the true original, a copy of the true original, or a summation that is a true and accurate representation of the original document or material.

No Toxicology reports, autopsy reports, or death certificates for the deceased were available as of the date of this report.

Four outstanding reports were not available for this report. The toxicology report, EI for the cargo hook assembly and TR hydraulic servo, and NAVAIR engineer analysis of video footage will be included as an addendum to this report.

Glossary

Aircraft (ACFT)

Aircraft Discrepancy Book (ADB) - Log kept to provide maintenance and aircrew personnel with an accurate, comprehensive, and chronological record of flights and maintenance performed on a specific aircraft by BUNO for at least the last ten flights. Outstanding discrepancies are displayed so the aircrew is fully aware of aircraft limitations for a safe and successful mission.

Aviation Mishap Board (AMB) - Convened to investigate the factors that caused the mishap, the breakdown in the command's Naval Aviation Safety Program, and how to prevent the same hazards in the future. The aircraft controlling custodian appoints board members by name and in writing. For Class A Mishap Investigations, the board will include at a minimum four commissioned officers which include an Aviation Safety Officer, a flight surgeon, an officer well-qualified in aircraft maintenance, and an officer well-qualified in aviation operations. The senior member will be a Naval Aviator or Naval Flight Officer.

Airborne Mine Countermeasures (AMCM) - The primary mission of the MH-53E helicopter to include minesweeping, mine neutralization, mine hunting, floating mine destruction, channel marking, and surface towing.

Automatic Flight Control System (AFCS) - Aircraft system that improves flight control characteristics and flight stability, reducing pilot workload. It provides autopilot, automatic approach and hover capabilities, and tow coupler functions.

Above Ground Level (AGL) - Actual altitude above the terrain, measured in feet.

Bureau Number (BUNO) - Unhyphenated serial number, not exceeding six digits, used to identify individual aircraft within the naval aircraft inventory. Each number is unique and assignment is controlled by the Chief of Naval Operations.

Density Altitude (DA) - Pressure altitude corrected for non-standard temperature and humidity. Changes in DA can drastically affect the flight characteristics and capabilities of a helicopter.

Engine Air Particle Separator (EAPS) - Removable accessory mounted to the front of the engine air inlet duct to remove visible moisture, sand, dust, and other foreign particles. Particles are then exhausted overboard to allow clean air to enter the engine.

Engineering Investigation (EI) - Designed to identify causes and trends in material failures in Naval Aviation.

Forward Looking Infrared (FLIR) - System that provides thermal imagery produced by infrared radiation.

Foreign Object Damage (FOD)

Fleet Training Support (FTS) personnel

Gross Weight (GW) - Total weight of aircraft and its contents i.e. fuel, cargo, passengers, external fuel tanks, etc.

Hover Out of Ground Effect (HOGE) - A helicopter hovering close to the ground requires less power than at the same GW at a greater height. For an MH-53E, a standard HOGE is at 80 feet above the ground.

Intercommunication System (ICS) - System that allows aircrew to communicate verbally within the aircraft.

Investigating Officer (IO)

Navy Liaison Officer (LNO)

Landing Signal Enlisted (LSE) - Enlisted personnel qualified to use hand signals to direct naval aircraft to and from the line area or on the deck of a ship.

Maintenance Action Form (MAF) - A form filled out to indicate maintenance performed, man-hours utilized, etc. on an aircraft. Maintained in the ADB.

Miniaturized Airborne GPS Receiver (MAGR)

Main Rotor Blade (MRB)

Naval Aviation Training and Operating Procedures Standardization (NATOPS) - each type of naval aircraft has a NATOPS manual for pertinent information regarding the systems, procedures, and flight characteristics based on professional knowledge and experience.

Nautical Mile (NM) - Unit of length measuring one minute of arc of latitude along a meridian. Used in aviation for flight distances.

Main rotor system Revolutions Per Minute (NR)

(OOMN) - RAFO Al-Musanna Air Base.

Operational Power Check (OPC) - Conducted by aircrew to note maximum power available due to aircraft configuration, engine efficiency, and atmospheric conditions.

Pressure Altitude (PA) - The altitude indicated on a barometric altimeter when set to the baseline pressure setting of 29.92 inches of mercury.

Power Control Lever (PCL)

Risk Assessment Code (RAC) - Assigned to an activity based on the level of risk. 1 - Critical, 2 - Serious, 3 - Moderate, 4 - Minor. Used in Operational Risk Management to help determine the costs versus benefits of an operation.

Royal Air Force of Oman (RAFO)

Request for Information (RFI)

Remain Overnight (RON)

Safety Officer (SO)

Specification (SPEC) Power - The designed power rating of the T64-GE-419 engines installed on the MH-53E helicopter. The engines are capable of producing 4,750 shaft horsepower with a contingency power capability of up to 5,000 shaft horsepower for up to two minutes.

Tactical Pocket Guide Volume II (TPG VOL II) - In flight source for tactics, techniques, and procedures regarding the employment of the MH-53E helicopter.

Torque (TQ)

Tail Rotor Blade (TRB)

Visual Flight Rules (VFR) - Requires meteorological conditions expressed in terms of visibility, cloud distance, and ceiling that are equal to or better than specified minimums, generally considered at least 1,000 foot ceilings and 3 statute miles of visibility.

Vertical Onboard Delivery (VOD) - Refers to helicopters with the capability to deliver passengers and cargo.

Findings of Fact

Assigned Mission

1. On 15 July 2012 the US Embassy in Oman received an urgent request for heavy lift to salvage a Royal Air Force Oman Eurocopter NH-90 from a remote location 25NM south of Al Musanna Air Base in Oman at approximately 6,300 feet. The US Embassy NAVCENT liaison contacted NAVCENT HQ in Bahrain with the Oman request. [enclosure (71)(155)(164)(166)(170)(189)]

2. On 16 July 2012 (HM-15) who is forward-deployed to Bahrain International Airport, Bahrain received notification from Commander Task Force FIVE TWO that they were tasked to conduct a heavy lift mission near Royal Air Force Oman (RAFO) Al Musanna Air Base to assist the host nation recover a downed RAFO Eurocopter NH-90. [enclosure (83)]

3. On the morning of 18 July 2012 HM-15 deployed two Sikorsky MH-53E helicopters to Al Musanna Air Base, Oman in response to the heavy lift mission tasking. On the morning of 19 July 2012, HM-15 Detachment at Al Musanna Air Base, was authorized to conduct flight operations approximately 25 NM south of Al Musanna Air Base in order to determine if a downed NH-90 helicopter could be salvaged from an area where it had crashed several days prior. Salvage operations were to include an external lift by an MH-53E helicopter flying from Al Musanna Air Base, a flight with the NH-90 to a drop site three NM away followed by a refueling of the MH-53E helicopter at the drop site prior to the MH-53E returning to Al Musanna Air Base. [enclosure (57)(71)(72)]

4. The mishap flight was appropriately scheduled by HM-15 Operations and was approved for execution by the HM-15 Commanding Officer (CO). [enclosure (119)]

5. The approved HM-15 Flight Schedule dtd Thursday, 19 July 2012 contained two pen-and-ink changes designating MISHAP aircraft commander as (b)(6) and the MISHAP copilot as (b)(6) . Changes were approved and signed by the CO of HM-15. [enclosure (119)]

6. CO HM-15 stated that the approved HM-15 Flight Schedule dtd Thursday, 19 July 2012 contained two pen-and-ink changes that were made in error. The changes which designated MISHAP aircraft commander as (b)(6) and MISHAP copilot as (b)(6) were mistakenly annotated by HM-15 OOD and then approved and signed by the CO HM-15. [enclosure (120)]

7. CO HM-15 confirms that the MISHAP Helicopter Aircraft Commander (HAC) was (b)(6) and the MISHAP copilot was (b)(6) . [enclosure (120)]

8. On 19 July 2012, HM-15 ACFT 16, BUNO 162514 was properly made ready for and released "safe for flight" by qualified maintenance personnel. [enclosure (43)(54)(66)]

9. At approximately 1700L on 19 July 2012 the MISHAP aircraft received flight clearance for the mission route of flight and take off clearance from RAFO Al Musanna tower. [enclosure (106)(92)]

10. At approximately 1720D (1320Z) on 19 July 2012, 162514 along with five crew members crashed in a canyon at the latitude N11 23 13 05.5934 and longitude E 057 36 45.7702. This location is approximately 6,400 feet

elevation in mountainous region in the country of Oman approximately 25 NM south of Al Musanna RAFO Air Base. [enclosure (133)(144)(152)(155)(164)(165)(166)(167)(170)(189)(197)(204)]

11. At the time of the MISHAP 162514 was carrying a RAFO NH-90 helicopter as an external load the single point cargo hook. The RAFO NH-90 was still attached when 162514 crashed. [enclosure (152)(186)(187)(188)(197)]

12. NATOPS lists duties and responsibilities of each crewmember by assigned crew position. [enclosure (203)]

Background (MISHAP (HAC))

13. (b)(6) , USN, (b)(6) , (b)(6), was on active duty and permanently assigned to HM-15 but his BUPERS orders DID NOT indicate that he was in a flying status involving flying at the time of the mishap. [enclosure (2)]

14. (b)(6) , USN, (b)(6) , (b)(6) was found to be Physically Qualified and Aeronautically Adapted for Duties Involving Actual Control of the Aircraft. His Aeromedical clearance notice (upchit) was granted through 30 June 2013 and indicated that he "must wear corrective lenses while flying" based on an Optometrly exam from 21 June 2011.

(b)(6) (b)(6)

[enclosure (3)(4)]

15. (b)(6) , USN, (b)(6) , (b)(6) was fully NATOPS qualified for MH-53E helicopter operation and was designated in writing as MH-53E HAC, MH-53E Instrument Check Pilot, MH-53E NATOPS Instructor, MH-53E Crew Resource Management Instructor, MH-53E Day Formation Division/Flight Leader, and Level IV AMCM/FRS Instructor Pilot in accordance with NATOPS, OPNAVINST 3710.7U, OPNAVINST 1542.7C and COMHELSEACOMBATWINGLANTINST 3502.1F. [enclosure (5)(6)(7)(8)(9)(10)(11)(201)]

16.

(b)(5)

17. (b)(6) , USN, (b)(6) (b)(6) a SWTI Course graduate, had 2,172.5 hours total flight time and 1,944.7 hours in model on the day of the MISHAP. He had conducted ten external lift training missions over a nine year period and the last one was done ten days prior to the MISHAP. [enclosure (69)(78)(199)]

18. (b)(6) USN, (b)(6) , (b)(6) submitted a 72-hour history which showed that he slept for a total of 21 hours, eight of which occurred in the 24 hours prior to the MISHAP flight briefing. Also showed that he deployed to a middle eastern country one time zone to the east of his permanent duty station in Bahrain. The 72 hour did not indicate any life stressors. FAST program analysis conducted showed no degraded performance. [enclosure (39)(206)]

19. (b)(6) USN, (b)(6) (b)(6) post MISHAP toxicology report was negative for drugs and alcohol. Carbon monoxide levels were not elevated. [enclosure (134)]

Background (MISHAP copilot)

20. (b)(6) USN, (b)(6) , (b)(6) was on active duty and permanently assigned to HM-15 for duty in a flying status involving flying at the time of the mishap. [enclosure (49)]

21. (b)(6) USN, (b)(6) , (b)(6) was found to be Physically Qualified and Aeronautically Adapted for Duties Involving Actual Control of the Aircraft. His Aeromedical clearance notice (upchit) was granted through 31 August 2012 and indicated that he "must wear corrective lenses while flying." He was seen by Optometry on 31 July 2012 and given new prescription for glasses. (b)(6) [enclosure (4)(50)]

22. (b)(6) USN, (b)(6) (b)(6) was fully NATOPS qualified for MH-53E helicopter operation and was designated in writing as MH-53E Helicopter Aircraft Commander and MH-53E Instrument Check Pilot in accordance with NATOPS, OPNAVINST 3710.7U, OPNAVINST 1542.7C and COMHELSEACOMBATWINGLANTINST 3502.1F. [enclosure (51)(52)(53)(202)]

23. (b)(6) USN, (b)(6) (b)(6) a Naval Test Pilot School graduate, had 1,592.2 hours total flight time and 1,416.1 hours in model on the day of the MISHAP. He had conducted two external lift training missions over a four year period and the last one was done four-months prior to the MISHAP. [enclosure (70)(79)(198)]

24. (b)(6) USN, (b)(6) ,(b)(6) submitted a 72 hour history which showed that he was taking the drug Zocor, slept 27.5 hours 10 of which occurred in the 24 hours prior to the MISHAP flight briefing. Also showed that he deployed to a middle eastern country one time zone to the east of his permanent duty station in Bahrain. FAST program analysis conducted showed performance degraded by 10%. [enclosure (40)(205)]

25. (b)(6) USN, (b)(6) (b)(6), redeployed to CONUS for a three week period ending on 11 July 2012 and returned to Bahrain on 12 July 2012. He was in compliance with CHSCWL instructions regarding accommodation period after travel across time zones. [enclosure (138)(140)]

26. OPNAVINST 3710.7U recommends a four day accommodation period before returning to flight duties. COMHELSEACOMBATWINGLANTINST 3710.5C states that reference (b) accommodation period recommendation shall be followed for all operational and training flights. [enclosure (139)]

27. (b)(6) USN, (b)(6) , (b)(6) flew his first flight on 18 July 2012 after returning to Bahrain from CONUS on 12 July 2012. [enclosure (70)]

28. (b)(6) USN, (b)(6) (b)(6) post MISHAP toxicology report was negative for drugs and alcohol. Carbon monoxide levels were not elevated. [enclosure (135)]

Background (crewchief)

29. AWSC (NAC/AW) Sean P. Sullivan, USN, (b)(6) was on active duty and permanently assigned to HM-15 for duty involving flying at the time of the mishap. [enclosure (17)(18)]

30. AWSC (NAC/AW) Sean P. Sullivan, USN, (b)(6) was found to have an Aeromedical clearance notice (upchit) granted through 31 May 2013 with no waivers indicated. Paper medical records were not available at the time of this report and a review of his electronic medical record showed that the electronic records were incomplete. [enclosure (27)(4)]

31. AWSC (NAC/AW) Sean P. Sullivan, USN, (b)(6) was fully NATOPS qualified for duties as an MH-53E Assistant NATOPS Instructor and was designated in writing as an MH-53E Crew Chief, MH-53E Assistant NATOPS Instructor, and MH-53E CRM Facilitator in accordance with NATOPS, OPNAVINST 3710.7U, OPNAVINST 1542.7C and COMHELSEACOMBATWINGLANTINST 3502.1F. [enclosure (22)(23)(24)(25)(26)]

32. AWSC (NAC/AW) Sean P. Sullivan, USN, (b)(6) had 3,491.3 total flight time and 2,249.4 hours in model on the day of the MISHAP. He had conducted a total of 11 external lift missions over a 17 year period. Ten of the missions were for training with the last one done three months prior to the MISHAP. The one operational external lift mission recorded was the lift of an H-60 aircraft in 2006. [enclosure (76)(141)]

Background (aircrewman)

33. AWS1 (NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) was on active duty and permanently assigned to HM-15 for duty involving flying as a Naval Aircrewman at the time of the mishap. [enclosure (27)(142)]

34. AWS1 (NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) was found to have an Aeromedical clearance notice (upchit) granted through 30 September 2012 with no waivers indicated. He was issued an Aeromedical Grounding Notice on 2 December 2011 due to an aircraft MISHAP. He was issued an upchit on 11 December 2011 returning him to flight status. Paper medical records were not available at the time of this report and a review of his electronic medical record showed that the electronic records were incomplete. [enclosure (4)(28)(29)]

35. AWS2 (NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) was fully NATOPS qualified for duties as an MH-53E Assistant NATOPS Instructor and was designated in writing as an MH-53E Crew Chief, MH-53E Assistant NATOPS Instructor, MH-53E CRM Facilitator, MH-53E Functional Check Flight Aircrewman, and MH-53E Plane Captain in accordance with NATOPS, OPNAVINST 3710.7U, OPNAVINST 1542.7C, COMNAVAIRFORINST 4790.2A, HELMINERONFIFTEEN 3700.1C, COMHELSEACOMBATWINGLANTINST 4790.9C and COMHELSEACOMBATWINGLANTINST 3502.1F. [enclosure (30)(31)(32)(33)(34)(48)]

36. AWS2 (NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) had 1,254.4 total flight time and 1,069.7 hours in model on the day of the MISHAP. He had conducted four external lift training missions over a four-year period and the last one was done three months prior to the MISHAP. [enclosure (75)(141)]

37. AWS2 (NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) was involved in an aircraft MISHAP in 2011. [enclosure (28)]

Background (aircrewman)

38. (b)(6), USN, (b)(6) was on active duty and permanently assigned to HM-15 for duty involving flying as a Naval Aircrewman at the time of the mishap. [enclosure (35)(143)]

39. (b)(6) , USN, (b)(6) was found to be Physically Qualified and Aeronautically Adapted. His Aeromedical clearance notice (upchit) was granted through 31 December 2012. [enclosure (4)(36)]

40. (b)(6) USN, (b)(6) was fully NATOPS qualified for Duties as an MH-53E Assistant NATOPS Instructor and was designated in writing as an MH-53E Crew Chief in accordance with NATOPS, OPNAVINST 3710.7U, OPNAVINST 1542.7C and COMHELSEACOMBATWINGLANTINST 3502.1F. [enclosure (37)(38)]

41. (b)(6) USN, (b)(6) had 735.4 total flight time and 735.4 hours in model on the day of the MISHAP. He had conducted six external lift training missions over a four-year period and the last one was done two months prior to the MISHAP. [enclosure (77)(141)]

42. (b)(6) USN, (b)(6) 1 submitted a 72hour history which was unremarkable. He slept 27.5 hours with 10.5 hours of sleep in the 24 hour period prior to the MISHAP briefing. Also showed that he deployed to a middle eastern country one time zone to the east of his permanent duty station in Bahrain. FAST program analysis conducted showed no degraded performance. [enclosure (41)(158)]

43. (b)(6) USN, (b)(6) post MISHAP toxicology report was negative for alcohol and carbon monoxide levels were not elevated.

(b)(5)

[enclosure (136)]

Background (aircraft maintenance)

44. The MISHAP MH-53E (Bureau Number 162514, side number 16) will be referred to by its Bureau Number, 162514, for this report. [enclosure (55)]

45. 162514 aircraft maintenance records and logbooks were reviewed by (b)(6) (b)(6) , Commander, Helicopter Sea Combat Wing Atlantice Material Maintenance Control Officer and there were minimal errors found. A few missing signatures but work orders were completed for the actions. The Chart C was not current but there was an accurate Form F. [enclosure (61)]

46. 162514 had flown 6,564.0 total flight hours as of 2,359 on 18 July 2012. The service life of 162514 was 10,000 flight hours. [enclosure (56)(57)(58)]

47. 162514 had a current, accurate Form F (weight and balance) in the Aircraft Discrepancy Book for the external lift mission configuration at the time of the MISHAP. 162514 was properly configured for the external lift mission at the time of the MISHAP. [enclosure (42)(59)(61)]

48. 162514 was in compliance with all required technical directives at the time of the MISHAP. [enclosure (60)(61)]

49. 162514 was in compliance with all required special inspections. The last aircraft Phase inspection, Phase 'A,' was completed on 120430, 6,492.6

hours. There were no past due aircraft Inspections and a 25-hour inspection had been completed on 17 July 2012. [enclosure (61)(62)(63)(64)(80)]

50. COMHELSEACOMBATWINGLANTINST 3710.5C states that aircraft configuration shall be matched to mission requirements as closely as possible. This includes cargo hooks. [enclosure (139)]

51. 162514's post 25-hour inspection single point performance check sheet was not filled out by the HAC who flew the aircraft on the first flight after completion of the inspection. 162514's first flight, post 25-hour inspection was on 18 July 2012. The MISHAP copilot was the HAC for the flight. [enclosure (57)(61)(62)(63)(64)(80)]

52. 162514 had a RFI single point cargo hook and pendant assembly installation completed on 18 July 2012 for the mission. The system was installed and tested by qualified work center 230 maintenance personnel attached to HM-15. [enclosure (42)(43)(44)(45)(46)(47)]

53. (b)(6) stated that all non-essential equipment was removed from 162514 to reduce weight. [enclosure (115)]

54. The MISHAP copilot indicated that the life raft and coffin box was removed from 162514 and that the approximate weight of both was 250 lbs [enclosure (148)]

55. 162514 flew 5.0 hours on 18 July 2012, the day prior to the MISHAP, but had not flown since 27 June 2012. 162514 required no servicing after the flight on the 18 July 2012. The number three engine nose gear box oil cooler drive belt was removed and replaced. All maintenance was conducted by qualified personnel assigned to HM-15. [enclosure (65)(66)(67)(43)]

56. 162514 had a daily inspection completed at 1945 on 18 June 2012 and a turn-around inspection completed at 1125 on 19 June 2012. Both inspections were conducted by qualified maintenance technicians attached to HM-15. 162514 was certified "safe for flight" on 19 July 2012 by a qualified and designated "safe for flight" maintenance control technician attached to HM-15. [enclosure (43)(48)(54)(66)]

57. 162514 was accepted by the MISHAP HAC on 19 July 2012. [enclosure (54)]

58. (b)(6) stated that there were no discrepancies noted during the Daily or Turn Around Inspections on 162514. [enclosure (124)]

59. (b)(6) stated that the Main Rotor Head damper/accumulator on 162514 required servicing on 18 July 2012 but that the Turn Around was good. [enclosure (101)]

60. (b)(6) assisted AWS1 Ftizmorris with the Daily and Turn Around Inspections on 162514 on 18 July 2012. No discrepancies noted. [enclosure (115)]

61. (b)(6) stated that the Main Rotor Head damper/accumulator on 162514 required servicing in Oman after the preflight was conducted. [enclosure (126)]

62. (b)(6) stated that the Daily and Turn Around Inspections on 162514 were all good and that there we no discrepancies that he was aware of. [enclosure (130)]

Background (Bahrain: CONOPS approval process)

63. The CO of HM-15 hand selected three of(b)(6) most qualified pilots for the assigned mission in Oman. [enclosure (83)(85)(101)]

64. CO HM-15 directed the HM-15 Flight Surgeon to be part of the Oman team due to the hazardous environment. [enclosure (110)]

65. CO HM-15 briefs MISHAP copilot, MISHAP HAC, MISHAP crew chief on 17 July 2012. She specifically told them to:

- Put the load back down if NR droops. [enclosure (85)]
- "Hawk" the NR and TQ to see if it droops. [enclosure (85)]
- Practice egress before 162514 enters the zone. [enclosure (85)]
- Practice runs should include one with straps removed from the NH-90 without ground crew present to be sure that the load does not shift. [enclosure (85)]
- Told the crew to take no "unnecessary risk" and that she "trusted them to make the call" if the lift could be done. [enclosure (85)]

66. HM-15 Operations Officer and Commander, Task Force 52 (CTF 52) staff worked together to develop a Concept of Operations (CONOPS) brief for the mission. [enclosure (83)(84)(85)(95)]

67. CTF 52 determined that the best way to accomplish the mission would be through a phased approach. [enclosure (71)(72)(83)(84)(85)(95)]

68. The HM-15 Operation Officer developed a risk assessment matrix for Risk to Force and Risk to Mission. [enclosure (83)(84)(85)(95)]

69. The CONOPS included two "go" criteria established and one "no-go" criteria. [enclosure (71)(72)(83)(84)(85)(95)]

70. CO HM-15 states that three requirements given to her by CTF 52 and the direction was to put them on a "go," "no-go" slide. [enclosure (117)]

71. CO HM-15 states that CTF 52's direction was for her to put whether she thought the three requirements were a "go" or "no-go." [enclosure (117)]

72. Go criteria were: reduce weight of NH-90 by removing components, Practice 15,000 lb cement block be made available in Oman to simulate weight of NH-90. [enclosure (71)(72)(87)]

73. CTF52 stated that the practice with the 15,000 lb block was not feasible. [enclosure (84)]

74. CTF52 stated that (b)(6) was aware that the practice with the 15,000 lb block was not done. [enclosure (84)]

75. "No-go" criteria was: environmental conditions results in engine power margins (power available v. power required) to conduct lift be less than 5%. [enclosure (71)(72)(87)]

76. CTF52 recalls that HM-15 put the 5% power margin requirement into the brief. The other "go," "no-go" criteria in the CONOPS came from (b)(6) [enclosure (72)(84)]

77. Operations Officer HM-15 states that CO HM-15 gave him the three or four "go" "no-go" criteria verbally and he does not know the source of the criteria. [enclosure (118)]

78. Operations Officer HM-15 states that CO HM-15 gave no specific guidance regarding the "go," "no-go" criteria other than for him to develop a slide for the CONOPS. [enclosure (118)]

79. CO HM-15 recalls that during an office call with CTF52 he provided the 5% power margin criteria for the mission. [enclosure (117)]

80. CO HM-15 states that she did not feel like the 5% power margin was an order and that it was not relayed in that way. [enclosure (117)]

81. CTF52 recalled that (b)(6) saw that there was a 5% power margin required. [enclosure (84)]

82. Initial reports on environmental data and load weight indicated that the lift could not be done due to high Density Altitude and estimated weight of the load (NH-90 Eurocopter). This information regarding the lift mission was not precise. [enclosure (72)(83)(85)(114)]

83. CTF52 developed a phased approach which included conducting a reconnaissance of the lift zone area to inspect the load to better determine the environmental data and weight to be lifted. [enclosure (71)(72)]

84. (b)(6) received a brief on 17 July 2012 which authorized the mission to be executed in phases. [enclosure (71)]

85. CONOPS dated 17 July 2012 contained "go," "no-go" criteria. The "no-go" power margin less than 5% (power available vs power required) was in the brief. [enclosure (71)]

86. Feedback from CO HM-15 to NAVCENT on the results of phase two was required prior to authorization for phase three (the actual lift of the NH-90) and four (redeployment). [enclosure (71)(72)]

87. The CONOPS brief dated 17 July 2012 includes two risk assessments, Risk to Force and Risk to Mission. [enclosure (71)(72)(83)(85)]

88. The HM-15 Operations Officer developed both risk matrices for the CTF52 staff personnel were responsible for the development of the over-all brief. [enclosure (83)(85)]

89. The HM-15 Operations Officer kept the HM-15 CO and XO during CONOPS development on 17 July 2012 via e-mail attachments of the Draft CONOPS. [enclosure (83)(85)]

90. The CO directed the MISHAP copilot (XO) and MISHAP HAC to work with HM-15 Operations Officer on the CONOPS brief. [enclosure (83)(85)]

91. The MISHAP HAC stated that he was the liaison between the OPS Officer, CO, and MISHAP copilot during the CONOPS development prior to leaving for Oman on 18 July 2012. [enclosure (95)]

92. The MISHAP copilot does not recall seeing the CONOPS brief dated 17 July 2012 or dated 19 July 2012. [enclosure (98)]

93. The MISHAP copilot stated that the plan for the mission was developed using a phased approach in order to gain more information to determine if the lift was possible. [enclosure (72)(98)]

94. The NAVCENT LNO, US Embassy, Oman drove his vehicle from Muscat to Al Musanna with three copies of the CONOPS brief. [enclosure (88)(89)]

95. The NAVCENT LNO, US Embassy, Oman recalls handing the three hard copy CONOPS briefs to the MISHAP copilot (XO) around 1200L on 19 July 2012 in the Officer's dining hall on Al Musanna Air Base. [enclosure (88)(89)]

96. The NAVCENT LNO, US Embassy, Oman recalls the MISHAP copilot (XO) saying "thanks" and placing the briefs into a bag behind his chair. [enclosure (88)(89)]

97. The NAVCENT LNO, US Embassy, Oman recalls that the MISHAP copilot did not view the briefs at that time. [enclosure (88)(89)]

98. The HM-15 Operations Officer identified four Risk to Force hazards/threats and established several risk control and mitigation measures to reduce the risk. [enclosure (71)(72)(83)]

99. Two of the four hazards/threats were assigned RAC 3 (moderate risk) by the HM-15 Operations Officer and were mitigated by establishing:

- "go"/"no-go" criteria
- thorough mission brief to include heavy lift specific emergencies and communications

[enclosure (71)(72)(83)(84)]

100. All four Risk to Force hazards/threats identified the aircraft commander as being responsible for supervising risk controls and mitigation measures during the mission. [enclosure (71)(72)]

101. The HM-15 Operations Officer put all four Risk to Force hazards/threats and the established risk control and mitigation measures into the CONOPS brief on the 17 July 2012. [enclosure (71)(72)(83)]

102. The MISHAP copilot (b)(6) reported updated information to CO HM-15 regarding the progress of the phase missions. [enclosure (85)(87)(96)(97)]

103. The MISHAP copilot reported power required and power available data to CO HM-15 over 18 and 19 July 2012. [enclosure (85)(87)(121)]

104. The MISHAP copilot reported both 7% degraded power available information and specification (SPEC) power available information each time power information was reported. [enclosure (86)(87)(121)]

105. CO HM-15 reported the updated information in addition to 7% degraded and SPEC power required and power available data to CTF52 over 18 and 19 July 2012. [enclosure (84)(86)(87)(116)(118)]

106. CO HM-15 states that 7% degraded and SPEC power available we both calculated during planning because power available would be somewhere between 7% degraded and SPEC when the OPC was done. [enclosure (86)]

107. According to (b)(6) MH-53E Fleet Replacement Squadron (FRS) Instructor and XO of the MH-53E FRS, his experience using SPEC power available charts are used for planning Operational AMCM missions. [enclosure (127)]

108. HM-15 launched a two MH-53E helicopter detachment from Bahrain International Airport, HM-15's FIFTH fleet permanent basing location, to RAFO Al Musanna Air Base, Oman on the morning of 18 July 2012. [enclosure (57)(80)]

109. The MISHAP HAC stated that "we are trained to use the degraded chart not the SPEC chart." [enclosure (95)]

110. A fuel stop was made in Fujairah, UAE on the way to Oman. [enclosure (57)]

111. CONOPS 17 July 2012 phases:

- Phase one directed launch of MH-53E two helicopter detachment from Bahrain, stop for fuel in UAE, proceed directly to the lift zone area and execute a reconnaissance of the zone, and land at Al Musanna Air Base to RON. [enclosure (71)]

- Phase two directed reconnaissance to assess environmental conditions necessary to determine if the lift could be done. [enclosure (71)]

- Phase three directed NAVCENT approval prior to lift of the load and then transport of the load (NH-90 Eurocopter) 25 NM to Al Musanna Air Base. [enclosure (71)]

112. The CONOPS mission phases expanded and timelines were shifted right on the 18 July 2012. [enclosure (71)(72)(96)(97)]

113. The MISHAP HAC, MISHAP copilot, MISHAP left window crewman and two other aircrewmen in 162514 were directed to land at Al Musanna Air Base prior to going to the lift zone area also caused some shift in the phase two schedule. [enclosure (85)(94)(96)]

114. The CONOPS phases two and three was changed based on the MISHAP copilot's (XO) assessment of the lift zone on the 18 July 2012. [enclosure (96)(94)]

115. The MISHAP copilot (b)(6) indicated to the CO that the timeline needed to be adjusted. [enclosure (72)(85)(97)]

116. More time was needed to evaluate the zone and prepare the load (NH-90) and to get adequate crew rest. [enclosure (72)(85)(94)(96)]

117. The CO HM-15 reported the schedule shift and the addition of practice flights to CTF52. [enclosure (85)]

118. The schedule change to phase two and three were briefed to CTF52 and approved by NAVCENT. [enclosure (72)(85)]

119. CONOPS 19 July 2012 phases:

- Phase two adjusted to accomplish rig NH-90 for lift, fly dry run with MH-53E to determine power requirements and stability of NH-90, and determine safety of ground crew. [enclosure (72)]
- Pilot in command will report dry run findings to CO HM-15 and collaborate on "go" or "no-go" recommendation. [enclosure (72)]
- CO HM-15 report findings and recommendation to NAVCENT. [enclosure (72)]
- Sunset 1800L. [enclosure (72)]
- Phase three adjusted to accomplish re verify power requirements and if still within safe margins commence approach for lift. [enclosure (72)]
- Hook up load and get thumbs up from ground safety observer and crew chief that load is ready for lift. [enclosure (72)]
- Lift NH-90 and transport to drop zone. [enclosure (72)]
- Refuel and return to RAFO Al Musanna for debrief and RON. [enclosure (72)]

120. The CONOPS dated 19 July 2012 also stated that based upon forecast environmental conditions we cannot lift the NH-90 (15,000 lbs) and have enough gas to make it to RAFO Al Musanna. [enclosure (72)]

121. 1430 hours (approximately) 19 July 2012. MISHAP copilot reports phase two findings to CO HM-15. [enclosure (84)(85)(116)]

122. The MISHAP copilot reported to CO HM-15 that the first part of phase two was successful and that expected power margin was 4%. [enclosure (98)]

123. 1500 hours (approximately) 19 July 2012. CO HM-15 reported phase two findings to CTF52. During this exchange CTF52 stated to CO HM-15, when we get over there we are telling them 10%..."I am doing the talking". [enclosure (85)(116)]

124. Power data passed from CO HM-15 to CTF52:

- 96% power required calculated. [enclosure [(85)(98)(116)]
- 100% power available based on OPC. [enclosure [(85)(98)(116)]

- Expected power margin somewhere between 4% and 10% due to temperatures cooling between now and lift time and the possibility that the NH-90 may weigh less than planned. [enclosure (86)(116)]

125. CTF52 recalls CO HM-15 passing the following:

- 106% power was available and 96% power was required for the lift. [enclosure (84)]

- the worst case was a 4% reserve power but that the engines were tested at 106%. [enclosure (84)]

- There could be no chance that there would be a 4% power margin due to the test. [enclosure (84)]

126. 0907 on 19 July 2012. The Operations Officer HM-15 sends adjusted CONOPS brief Facts and Assumptions slide "3,500 lbs of fuel: 96% power required vs 98% power available using the NATOPS 7% degraded chart and 96% power required vs 106% power available using the NATOPS SPEC chart." [enclosure (118)]

127. The 0907 adjusted CONOPS was e-mailed to CTF52, CO HM-15, CSO CTF52, and NAVCENT LNO Oman. [enclosure (118)]

128. 1510 hours (approximately) 19 July 2012. CTF52 and CO HM-15 provided a decision brief to (b)(6), NAVCENT, making recommendations for approval of the lift. [enclosure (85)(84)(116)]

129. NAVCENT provides verbal approval during the 1510 decision brief by CTF 52 and CO HM-15. [enclosure (73)(87)]

130. During the brief (b)(6) asked CO HM-15 if her guys were good doing the mission and she replied, "yes." [enclosure (85)]

131. 1515 hours (approximately) 19 July 2012. CTF52 directs CO HM-15 to modify 19 July 2012 CONOPS brief, slide to reflect 3.5K lbs of fuel: 96% power required vs 106% power available utilizing the specification engine performance chart. [enclosure (72)(116)]

132. 1515-1530 (approximatley) 19 July 2012. CO HM-15 calls MISHAP copilot and tells him that the lift is approved. [enclosure (87)(96)]

133. 1544 hours 19 July 2012. HM-15 Operations Officer sends out the CONOPS brief Facts and Assumptions slide changes reflecting 3.5K lbs of fuel: 96% power required vs 106% power available utilizing the specification engine performance chart. [enclosure (118)]

134. 1544 hours 19 July 2012. HM-15 Operations Officer sends out the CONOPS brief changes adding the "approved" slide. [enclosure (118)]

135. 1559 hours on 19 July 2012. The CONOPS is signed approved by CTF52 at 1559 on 19 July 2012. [enclosure (73)]

136. The CO HM-15 told (b)(6), "we got the green light" for the lift. [enclosure (87)(85)(96)]

Background (18 July Oman: mission preparation and execution)

137. NAVCENT approved HM-15 to send a two aircraft detachment from Bahrain International airport to Al Musanna RAFO Air Base, OMAN to conduct site survey and zone evaluation and to determine power available. [enclosure (71) (72) (98)]

138. The MISHAP HAC was a copilot on 162514 for the flight from to Al Musanna Air Base, Oman and for the practice mission from Al Musanna Air Base to the lift zone on 18 July 2012. [enclosure (57)]

139. The MISHAP copilot was the HAC on 162514 for the flight from Bahrain International airport to Al Musanna Air Base, Oman and for the practice mission from Al Musanna Air Base to the lift zone on 18 July 2012. [enclosure (57)]

140. The MISHAP crew chief was the crew chief on 162514 for the flight from Bahrain International airport to Al Musanna Air Base, Oman on 18 July 2012. [enclosure (57)]

141. The MISHAP left window crewman was a crewman on 162514 for the flight from Bahrain International airport to Al Musanna Air Base, Oman and was crew chief for the practice mission from Al Musanna Airbase to the lift zone on 18 July 2012. [enclosure (57)]

142. The MISHAP right window crewman was a crewman on 162514 for the flight from Bahrain International airport to Al Musanna Air Base, Oman. [enclosure (57)]

143. (b)(6) was a copilot on 162514 for the flight from Bahrain International airport to Fujariah, UAE on 18 July 2012. [enclosure (57)]

144. Standard practice at HM-15 is for the OOD to conduct power calculations for the flight crews each flight day. [enclosure (112)]

145. The HM-15 OOD did the power calculations for the crews on 162514 and ACFT 03 for their flight to Oman on the 18 July 2012. [enclosure (112)]

146. The MISHAP left window crewman states that the single point cargo hook checks were done leaving Bahrain on 18 July 2012. [enclosure (91)]

147. The MISHAP copilot states that he and (b)(6) executed single point cargo hook checks during the start checklist in Bahrain. [enclosure (98)]

148. The MISHAP copilot completed the single point performance check procedures for the post 25hour maintenance and that all engines passed. [enclosure (98)]

149. The MISHAP HAC stated that post 25-hour inspection single point performance check procedures were done leaving Bahrain on the 18 July 2012. [enclosure (95)]

150. The MISHAP HAC stated that all engines passed but he is not sure by how much. [enclosure (95)]

151. The MISHAP copilot had planned to fly directly to the lift zone area in Oman after stopping for fuel in UAE, but was directed to proceed directly to Al Musanna Air Base from UAE. [enclosure (98)]

152. The MISHAP copilot met with RAFO helicopter pilots from the RAFO 14th Squadron upon landing at Al Musanna on 18 July 2012. [enclosure (98)]

Practice Run

153. The MISHAP copilot was in the right pilot seat for the reconnaissance flight. [enclosure (98)]

154. The MISHAP HAC was in the left pilot seat for the reconnaissance flight. [enclosure (98)]

155. The MISHAP left window crewman was in the right window for the reconnaissance flight. [enclosure (90)]

156. The established drop zone was approximately three NM southwest from the lift zone. [enclosure (98)]

157. The MISHAP copilot determined the best approach to the lift zone and the best flight path out of the zone to the intended drop zone. [enclosure (98)]

158. The MISHAP copilot determined that it was not possible to descend very low above the NH-90 due to low clearance between the main rotor and the terrain. [enclosure (96)]

159. The MISHAP HAC and MISHAP copilot recognized that the only way to approach the lift zone was from the south because the canyon in which the lift zone was located lacked sufficient clearance for the tail rotor if approached from the north. [enclosure (94)(98)]

160. The MISHAP HAC and MISHAP copilot recognized that the approach from the south put higher ground in front of 162514 during the lift. [enclosure (94)(98)]

161. The MISHAP copilot recognized that the approach from the south put the winds off the nose of 162514 during the lift. [enclosure (98)]

162. NATOPS states that helicopters can hover at a higher gross weight in winds. [enclosure (103)]

163. NATOPS states that less power is required to hover in a wind than under no wind conditions, or using the same power a helicopter can hover at higher gross weight in winds. [enclosure (103)]

164. NATOPS states to head into the wind for heavy lift takeoffs. [enclosure (103)]

165. The MISHAP copilot determined that winds in the lift zone area prevailed from the north and wanted to have the nose of the aircraft into the wind on the lift. [enclosure (98)]

166. The canyon was too narrow to approach from the east or west. [enclosure (71)(72)(151)(152)(153)(197)]

167. The MISHAP copilot determined that the flight path from the lift zone to the drop zone had to be to the east. [enclosure (98)]

168. The MISHAP copilot determined that turning to the west out of the lift zone required an excessive rate of descent on approach to the drop zone due to the extremely steep terrain in the immediate vicinity. [enclosure (98)]

169. The MISHAP ground crew Safety Officer (SO) observed that the lowest hover altitude over the load was 25 feet AGL during the practice run on 18 July 2012 due to the terrain. [enclosure (99)]

MISHAP Ground Crew Actions

170. The MISHAP Crew Chief and the MISHAP ground crew flew to the lift site with and Eurocopter employees in a RAFO Super Puma helicopter. [enclosure (99)]

171. The NH-90 had rotor blades, doors, and FLIR removed and there was evidence of fuel having been drained as there was a hole in the tank, the smell of fuel, and fuel stains on the rocks. [enclosure (94)(99)(109)]

172. RAFO NH-90 engineers installed lift rings on the NH-90. Estimated weight was 13,000 lbs based on removed components and no fuel. [enclosure (109)]

173. The MISHAP SO recalls that there we no fuel gravity points and that you could look into the fuel tank. [enclosure (99)]

174. Eurocopter employees were on site during the survey by the MISHAP ground crew. [enclosure (99)]

175. RAFO Engineers were on site during the survey by the MISHAP ground crew. [enclosure (99)(109)]

176. RAFO Engineers on site during the survey told the MISHAP ground crew that the fuel had been removed from the NH-90. [enclosure (99)]

177. MISHAP ground crew attached the 25,000 lb cargo slings to the NH-90 during the survey on 18 July 2012. [enclosure (99)]

178. There was a discussion about removing the NH-90 tail, but no equipment was available and the MISHAP Crew Chief thought that the tail would add stability to the load. [enclosure (99)]

179. The MISHAP ground crew determined that the structural damage incurred by the NH-90, when it had crashed the week prior, did not compromise the integrity of the fuselage to the point where it could not be safely lifted. [enclosure (99)]

180. The ground team attempted to verify that the NH-90 was fully defueled. [Enclosure (99)]

181. Eurocopter employees state that they were unable to drain all the fuel from the NH-90 and that about 200 to 400 Kilograms of fuel was in the NH-90's fuel cell at the time of the lift. [enclosure (100)]

182. The Eurocopter employees estimate the weight of the NH-90 to be approximately 6,500 Kilograms at the time of the lift. [enclosure (100)]

Background (Pre-mission Planning)

183. The MISHAP HAC was trained to utilize the 7% degraded power available chart not the SPEC chart for flight planning because there is a possibility that the engines might not operate at SPEC power. [enclosure (95)]

184. The MISHAP copilot's concern about the load (NH-90) was that the "Omani's got it as light as possible." [enclosure (98)]

185. The MISHAP copilot stated that if the NH-90 weighed a total of 15,000 lbs then it could not be lifted given the atmospheric conditions. [enclosure (98)]

186. The MISHAP HAC did not see the approved CONOPS brief, with the 5% "no-go" power margin, on 19 July 2012. [enclosure (95)]

187. When the IO provided a copy of the brief to the MISHAP HAC on 13 August 2012 he said that if he had seen the approved version of the CONOPS with the 5% or 10% power margin he would have not done the mission. [enclosure (95)]

188. The MISHAP HAC stated that he would have pushed back to the CO to have the "go" criteria corrected and briefed up. [enclosure (95)]

189. Mission planning done in Bahrain with initial environmental data, load (NH-90) weight, and distance to be flown indicated that the lift could not be accomplished. [enclosure (72)(85)]

190. The detachment pilots (b)(6) and (b)(6) and the MISHAP copilot (XO) continued planning on 17, 18, and 19 July 2012 using different combinations of DA, load weights, and MH-53E weights to see what conditions were necessary to make the lift possible. [enclosure (85)]

191. The MISHAP copilot (b)(6) asked (b)(6) to do power calculations using the SPEC power available NATOPS chart after (b)(6) gave him the results of power calculations using the 7% degraded chart. [enclosure (114)]

192. The MISHAP copilot (b)(6) assigned (b)(6) and (b)(6) to do power calculations on 18 July 2012. [enclosure (111)(114)]

193. The MISHAP copilot (b)(6), (b)(6), (b)(6), and MISHAP HAC did power calculations utilizing the 7% degraded power available and power required charts on 19 July 2012 using different numbers for 162514 mission fuel load, NH-90 weight etc. [enclosure (112)]

194. (b)(6) gave the MISHAP copilot power calculations prior to the 1900 18 July 2012 meeting with RAFO leadership. [enclosure (114)]

195. The MISHAP copilot was given a weight of 13,228 lbs by the Oman NH-90 engineers and RAFO leadership for the weight of the NH-90 load during the 1900 18 July 2012 meeting. [enclosure (98)]

196. The MISHAP copilot, HAC, crew chief, LSE, SO, ACFT 03 HAC discussed 2-3% power margins after the 1900 18 July 2012 meeting. [enclosure (90)]

197. The MISHAP copilot conducted preflight planning after the 1900 18 July 2012 RAFO leadership meeting. [enclosure (98) (131)]

198. (b)(6) observed (b)(6) (b)(6) and the MISHAP HAC working weight and power calculations on 19 July 2012. [enclosure (112)]

199. The MISHAP left window crewman did not participate in the power calculation process but observed it being done. [enclosure (90)(113)]

200. The MISHAP copilot used 13,228 lbs external load weight for mission planning purposes. [enclosure (98)]

201. The MISHAP copilot used a basic weight of 37,200 lbs for 162514 for mission planning purposes. [enclosure (98)]

202. The MISHAP copilot used 1,000 lbs for crew weight for mission planning purposes. [enclosure (98)]

203. The MISHAP copilot used 516 lbs for oil and mission equipment weight for mission planning purposes. [enclosure (98)]

204. The MISHAP copilot planned using 55,000 lbs gross weight and temperature and PA observed in the lift zone area at 1700 on 18 July 2012. [enclosure (98)]

205. The MISHAP copilot observed 25 degrees Celsius at 6,700 feet in the lift zone during the practice run on 18 July 2012. [enclosure (98)]

206. The MISHAP copilot used fuel loads of 3,000 lbs, 3,500 lbs, and 4,000 lbs for 162514 for the mission during mission planning. [enclosure (98)]

207. On the 18 July 2012 the MISHAP copilot determined the following:

- The power required to do the lift with a 3,000 lb fuel load in 162514 was calculated to be 94% TQ. [enclosure (98)]
- The power required to do the lift with a 4,000 lb fuel load in 162514 was calculated to be 98% TQ. [enclosure (98)]
- The power required to do the lift with 3,500 lbs of fuel in 162514 calculated to be 96% TQ. [enclosure (98)]
- The OPC showed that 162514's engines were producing about 100% (TQ) power available. [enclosure (98)]
- The resultant power margin with the 3,500 lb fuel load in 162514 was 4%. [enclosure (98)]

208. The lift could be done if the load (NH-90) weighed less than 14,000 lbs with observed conditions and with the MH-53E having a fuel load of 3,500 lbs. [enclosure (98)]

209. The MISHAP HAC recalls the MISHAP copilot estimating the gross weight of 162514 configured for the mission being 43,000 lbs. [enclosure (94)]

210. The MISHAP HAC recalls the MISHAP copilot's estimated gross weight of 162514 configured for the mission including 37,000 lbs for basic weight,

1,000 lbs crew weight, 850 lbs mission gear, and 4,500 lbs mission fuel load. [enclosure (94)]

211. The MISHAP HAC cannot recall the calculated power required numbers but stated that there was "not much difference" between power required and power available. [enclosure (94)]

212. The MISHAP HAC, MISHAP copilot, and MISHAP left window crewman along with two other crewmen flew to the lift zone area in BUNO 162514 and conducted an OPC at 7,000 PA and 24 degrees Celsius. [enclosure (94)(98)(90)]

213. The MISHAP copilot states that the engines produced about 100% TQ during the OPC. [enclosure (97)]

214. The MISHAP HAC recalls the following during the OPC in the lift zone area on the afternoon of 18 July 2012:

- 162514's number one engine produced 98% (TQ) power available. [enclosure (94)]
- 162514's number two engine produced 98% (TQ) power available. [enclosure (94)]
- 162514's number three engine produced 100% (TQ) power available. [enclosure (94)]
- 6,300 feet and 24 degrees Celsius was observed during the OPC. [enclosure (94)]

215. The MISHAP left window crewman recalls that after the XO came back from the 1900 meeting on 18 July 2012 with the RAFO leadership, a 2% margin was briefly discussed with the entire MISHAP crew. [enclosure (90)(95)]

216. The MISHAP left window crewman stated that it was agreed that numbers would have to be crunched more to figure out fuel load for 162514. [enclosure (90)]

217. (b)(6) recalls that he calculated a 2% power required v. power available margin using the 7% degraded power available NATOPS chart. [enclosure (114)]

218. The MISHAP left window crewman recalls that the original crew composition plan for the lift crew was to have a crew of three, two pilots and one crew chief, to help reduce the gross weight for the lift. [enclosure (90)]

219. The MISHAP left window crewman thought that if it were that close then the mission was not worth doing, but did not tell anyone. [enclosure (90)]

220. The MISHAP HAC calculated power available using the 7% degraded NATOPS charts and determined that 98% TQ was available at 6,300 feet PA and 24 degrees Celsius. [enclosure (94)]

221. The MISHAP HAC stated that the SPEC power available NATOPS charts showed 107% power available and that OPCs done on 18 July 2012 showed 98.6% power available. [enclosure (95)]

222. Eurocopter employees state that they were unable to drain all the fuel from the NH-90 and that about 200 to 400 Kilograms of fuel was in the NH-90's fuel cell at the time of the lift. [enclosure (100)]

223. The Eurocopter employees estimate the weight of the NH-90 to be approximately 6,500 Kilograms at the time of the lift. [enclosure (100)]

224. RAFO (b)(6) stated that there was no discussion of fuel at any time. "No discussion about fuel in the NH-90 aircraft." [enclosure (102)]

225. The MISHAP aircraft commander was confident that the weight of the NH-90 was between 13,200 and 13,800 as passed by the Oman RAFO engineers. [enclosure (95)]

226. During the 1900 18 July 2012 meeting RAFO uniformed personnel said that "all" fuel was drained from the NH-90. [enclosure (129)]

227. The MISHAP HAC recalls that after planning on 19 July 2012 he noted that there was not much difference between power required and power available for either 56,000 lbs gross weight or 57,000 lbs gross weight. [enclosure (94)]

Background (19 July Oman: detachment preparation and execution)

Flight Briefing for Practice Event

228. The MISHAP HAC conducted the NATOPS brief with the MISHAP crew prior to the practice event at 1400 on 19 July 2012. [enclosure (95)(97)]

229. The MISHAP copilot stated that the MISHAP HAC gave the NATOPS brief before the practice runs on 19 July 2012 and updated it before doing the actual lift by asking if anyone had any questions. [enclosure (97)

230. The MISHAP left window crewman stated that the MISHAP HAC did the NATOPS brief using the PCL. [enclosure (91)]

231. The MISHAP left window crewman but does not recall the TPG VOL II for the external part of the brief. [enclosure (91)]

232. The MISHAP left window crewman said that the PCL has less detailed external brief than the TPG VOL II. [enclosure (91)]

233. The MISHAP HAC briefed that NR would droop and the MISHAP crew agreed that NR would recover once airspeed came on. [enclosure (94)]

234. The MISHAP left window crewman said that a power discussion was included in the NATOPS brief on 19 July 2012 but it was about doing OPCs. [enclosure (90)]

235. The MISHAP HAC assigned the MISHAP copilot to watch the gages during the mission. [enclosure (94)]

236. The MISHAP HAC stated that the NATOPS brief given before the practice mission on 19 July 2012 "never been in a more crew intensive discussion of a mission." [enclosure (94)]

237. The MISHAP HAC used the NATOPS PCL the TPG VOL II for the brief before the practice event on 19 July 2012. [enclosure (95)]

238. The MISHAP HAC filled out an ORM sheet before the lift mission at 1700 on 19 July 2012 and stated that it was on his kneeboard. [enclosure (95)]

239. The MISHAP HAC discussed the risk areas and recalls a RAC of 41 or 42 biggest risk was due to unfamiliar operating area. [enclosure (95)]

240. The MISHAP left window crewman did not see an ORM sheet filled out during the NATOPS brief on 19 July 2012. [enclosure (91)]

241. The MISHAP left window crewman said that ORM was discussed but the form was not used. The ORM brief was "standard ORM brief" no one had any issues. [enclosure (91)]

242. COMHELSEACOMBATWINGLANTINST 3710.5C requires squadrons to use ORM briefing cards. [enclosure (139)]

243. COMHELSEACOMBATWINGLANTINST 3710.5C states that squadron SDO's shall verify the ORM briefing cards before crews walk to the aircraft. [enclosure (139)]

244. The MISHAP HAC states that load release was discussed during the NATOPS brief on 19 July 2012. [enclosure (95)]

245. The MISHAP HAC states he briefed that AWSC Sullivan would release the load. [enclosure (95)]

246. The MISHAP HAC states he briefed that if anything went wrong they would pickle the load. [enclosure (95)]

247. The MISHAP HAC states he did not specifically brief anything about emergency jettison of the load. [enclosure (95)]

248. The MISHAP copilot does not recall exactly what was said about the single point cargo hook release/jettison items during the brief. [enclosure (97)

249. The MISHAP left window crewman stated that in the NATOPS brief the plan was to pickle the load if they had any emergencies in the aircraft. [enclosure (91)]

250. The MISHAP left window crewman stated that in the NATOPS brief the release/jettison item did not include a discussion on who would initiate the release or what release method would be used. [enclosure (91)]

251. The MISHAP HAC did not brief a specific power number for the lift and does not know why he did not. [enclosure (95)]

252. The MISHAP HAC states that he is not sure that briefing a specific power number would have made a difference. [enclosure (95)]

253. The MISHAP HAC stated that for a VOD mission the crew would look for TQ limits and if they exceeded what was planned they would land back on the deck and recalculate power or have the load adjusted. [enclosure (95)]

254. The MISHAP HAC said that he was aware of the degraded (power available NATOPS) chart not the SPEC (power available NATOPS) chart." [enclosure (95)]

255. The MISHAP copilot planned to have between 98% and 105% TQ available on 19 July 2012. [enclosure (97)]

256. The MISHAP copilot stated that they had no power margin in a hover on 19 July 2012, "we had none." [enclosure (97)]

Aircraft Pre-Flight

257. The MISHAP copilot did not review the ADB. [enclosure (97)]

258. During the first flight on the 18 July 2012 the single point performance check sheet was not filled out for the post 25-hour inspection requirements. [enclosure (64)]

259. The daily and turnaround inspections did not indicate servicing discrepancies and it was not annotated on any MAF s in the ADB. [enclosure (54)]

260. Maintenance personnel state that the preflight went fine. No discrepancies. There were no remarks on the A sheet and no MAFs were generated regarding preflight discrepancies with 162514. [enclosure (54)]

261. The aircraft inspection and acceptance form did not contain fuel load or oil data when the MISHAP HAC signed the form accepting the aircraft. [enclosure (54)]

Aircraft Start-up

262. The MISHAP HAC stated that he moved the single point cargo hook switches during the system test on 19 July 2012. [enclosure (94)]

263. The MISHAP HAC stated that he left the single point system switches in the single point all position and placed the jettison switch to the armed position after the test. [enclosure (94)]

264. NATOPS check list for single point suspension operation includes procedures for single point cargo hook guillotine/system check. The system check shall be accomplished after attaching or reattaching the single point cargo hook. [enclosure (103)]

265. The MISHAP copilot stated that he was not aware of the movement of the single point cargo hook panel switches after the test was completed. [enclosure (98)]

266. NATOPS PCL shutdown checks include placing all radio/electrical switches "OFF." [enclosure (104)]

267. The MISHAP left window crewman had ICS problems and had his helmet off during the start up checks when the single point cargo hook system was tested. [enclosure (90)]

Take-off

268. The MISHAP HAC received taxi, takeoff, and flight clearance from OOMN tower. [enclosure (106)]

269. Conditions at OOMN were VFR at the takeoff time. [enclosure (107)]

Post take-off

270. No Operational Power Checks were executed during this flight. [enclosure 94)]

Practice Event Execution

271. The MISHAP HAC intended for ACFT 03 to orbit overhead while 162514 conducted the practice lifts then fall into trail and follow 162514 to the drop point. [enclosure (131)]

272. ACFT 03 was late taking off for observation of the practice runs and was able to observe one practice run prior to returning to Al Musanna. [enclosure (131)]

273. The route of flight from the lift zone to the drop zone was flown to establish time and fuel requirement for the actual lift. [enclosure (94) (97)]

274. (b)(6) , HAC of ACFT 03, recognized that the only way to approach the lift zone was from the south because the canyon in which the lift zone was located lacked sufficient clearance for the tail rotor if approached from the north. [enclosure (131)]

275. The MISHAP crew determined that the best fuel load to use would be 3,500 lbs for the lift. [enclosure (98)]

276. The MISHAP crew determined that the lowest hover height above the load was 25 feet AGL for the lift. [enclosure (98)]

277. The MISHAP HAC determined that 10-15 knots of speed could be attained before the right turn had to be made due to rising terrain. [enclosure (94)]

278. One purpose of the practice runs was to determine if the load could be safely carried to the drop point without overflying houses or people. [enclosure (96)]

279. Three practice runs were completed. [enclosure (99)]

MISHAP Ground Crew actions

280. Safety brief was given to the MISHAP ground crew prior to the lift on 19 July 2012. [enclosure (129)]

281. Egress routes on the ground were rehearsed during the practice events by the MISHAP ground crew. [enclosure (109)]

282. Egress routes were marked with paint to assist the MISHAP ground crew's egress. [enclosure (132)]

283. The mission scenario was walked through by the MISHAP ground crew during practice events on 19 July 2012. [enclosure (109)]

284. Safe zone for the MISHAP ground crew was established approximately 50 yards from the NH-90 at the 4 o'clock position. [enclosure (99)]

Post Flight Action

285. At approximately 1530L MISHAP copilot (b)(6) called the CO HM-15 in Bahrain to pass performance numbers and planning power numbers. [enclosure (84)(85)(96)(116)]

286. At 1630L MISHAP copilot gets approval from CO HM-15 for the lift. [enclosure (96) (116)]

287. At 1630L The MISHAP crew and ACFT 03 crew and observers proceed to the airfield for launch. [enclosure (96)]

Flight Briefing for Lift Mission

288. No NATOPS crew brief or pilot brief conducted. [enclosure (91)(97)]

289. The MISHAP HAC stated that he used the TPG VOL II for the mission brief just prior to the lift mission at 1700 on 19 July 2012. [enclosure (95)]

290. The MISHAP left window crewman stated that the MISHAP HAC said that they were going out to do it like practiced and asked if anyone in the crew had any questions. [enclosure (91)]

291. The MISHAP left window crewman does not recall anyone asking anyone asking questions when prompted by the MISHAP HAC. [enclosure (91)]

292. The MISHAP copilot stated that the MISHAP HAC updated the NATOPS brief before going out to do the actual lift by asking if anyone had any questions. [enclosure (97)]

293. The MISHAP HAC stated that no TQ numbers were briefed for the lift. [enclosure (95)]

294. The MISHAP HAC stated that he does not think that it would have made any difference if a TQ number were briefed prior to the lift. [enclosure (95)]

Aircraft Pre-Flight

295. A head and levels check was conducted by the MISHAP left window crewman before start up for the lift mission. [enclosure (149)]

296. The MISHAP HAC states that tools, panels, head, and levels were checked prior to the start for the "go" mission. [enclosure (150)]

297. The MISHAP left window crewman did not know what a through-flight inspection was, but stated that he checked all the fluid levels and that there was no servicing required. [enclosure (149)]

298. NATOPS requires a through-flight inspection to be done when the same crew during assigned tactical or administrative type missions requiring

intermediate stops. It is only required to inspect those items preceeded by an asterisk. [enclosure (103)]

Aircraft Start-up

299. The MISHAP copilot stated that the MISHAP HAC used the subsequent start check list in the NATOPS PCL. [enclosure (96)]

300. The subsequent start checklist in the NATOPS PCL does not include test and configuration for single point cargo hook system. [enclosure (103)]

301. The NTTP 3-22.5-MH53, VOL II, lists en route procedures for external transport of cargo. Procedures provide steps for the configuration of the single point cargo hook system before attaching cargo. [enclosure (82)]

302. The MISHAP copilot stated that the MISHAP HAC moved the cargo hook switches during checklist execution for the lift mission prior to engine start checks. [enclosure (96)]

303. The MISHAP copilot does not recall exactly what switches were moved or what position they were placed in. [enclosure (96)]

304. The MISHAP copilot stated that while he was entering position data into the MAGR he saw, out of the corner of his eye, the MISHAP HAC moving switches on the cargo hook control panel. [enclosure (96)]

305. The MISHAP HAC stated that during the start up for the mission he utilized the 500 (NATOPS PCL) and VOL II for the single point cargo hook system engage checks. [enclosure (105)]

306. The MISHAP HAC stated that he conducted the single point cargo hook system engage checks during the #1 engine start sequence. [enclosure (105)]

307. The MISHAP HAC stated that he verbalized the checklist. [enclosure (105)]

308. MISHAP left window crewman does not recall the single point cargo hook switches being set due to ICS issues with his helmet. [enclosure (90) (93)]

309. The MISHAP copilot stated that 162514 did not have any ICS malfunctions on 19 July 2012. [enclosure (96)]

310. The MISHAP copilot did not verify the position of the switches. [enclosure (98)]

Take-off

311. The MISHAP HAC received taxi, takeoff, and flight clearance from Al Musanna tower. [enclosure (106)]

312. Weather conditions were VFR. Winds 150 at 18 knots, 7 SM visibility, temperature 46 degrees Celsius. [enclosure (107)]

313. MISHAP left window crewman states that it was about 30 minutes from the time that the MISHAP crew arrived at the aircraft until 162514 launched from Al Musanna. [enclosure (93)]

314. At 1700L the MISHAP crew in 162514 launch for the lift followed closely by ACFT 03. [enclosure (131)]

Post take-off

315. The NTTP 3-22.5-MH53, VOL II, lists en route procedures for external transport of cargo. Procedures require an OPC while en route to the landing zone for external transport of cargo. [enclosure (82)]

316. The MISHAP left window crewman does not recall an OPC being done on the 19 July 2012. [enclosure (90)]

317. The MISHAP copilot states that the EAPS doors were closed for the OPCs on 18 July 2012 and for the lift. [enclosure (97)]

318. NATOPS procedures for the OPC require the EAPS doors to be open during the check. [enclosure (103)]

319. (b)(6) , NAVAIR Senior Rotary Wing Performance Engineer (4.3.2.2), stated that "opening the EAPS doors will result in more power available from the engine". "EAPS doors closed vs open is a 2% penalty at ~ 90 KIAS. Below 90 KIAS (i.e., hover) doors are closed and the penalty applies." [enclosure (207)]

320. The MISHAP HAC stated that nothing had been done to the engines so he did not conduct OPCs on 19 July 2012. [enclosure (95)]

321. The MISHAP HAC made the call to waive OPC on 19 July 2012 prior to lifting the load. [enclosure (95)]

322. The MISHAP HAC states that the OPC conducted on 18 July 2012 does not meet the NATOPS intent for the OPC requirement prior to conducting heavy lift operations. [enclosure (95)]

323. NATOPS defines heavy lift as gross weights above 60,000 lbs. [enclosure (103)]

324. The MISHAP copilot stated that he considered that the OPCs done on the 18 July 2012 to be before the lift on 19 July 2012. "The environment was the same on the 19th as it was on the 18th." [enclosure (97)]

325. The MISHAP copilot stated that he did not consider that the condition of the engines on 162514 may have changed from when the OPC was done on 18 July 2012 to the lift on 19 July 2012 since they had not gone out towing or operated in an environment that would affect it. [enclosure (97)]

326. The MISHAP copilot recognized that the temperature in the lift zone area was the same on 19 July 2012 as it was when the OPC was conducted on 162514 on 18 July 2012. [enclosure (97)]

327. NATOPS states that before conducting external transport operations you are to perform an operational power check. [enclosure (103)]

328. The MISHAP copilot did not review the ADB but asked the maintenance personnel if anything had been done to the aircraft. [enclosure (97)].

329. 162514's NR was set at 102% with the Speed Control Levers (SCL) full forward. The MISHAP copilot thought that NR would not go any higher than 102% due to environmental conditions. [enclosure (97)]

330. NATOPS requires NR to be set at 103-105% with GW between 50,000 and 69,750 lbs. [enclosure (103)]

331. The MISHAP crew did not make any effort to check for winds prior to the lift. [enclosure (95)(97)]

332. The MISHAP HAC asked the ground crew about the conditions and they reported all calm. [enclosure (95)]

333. The MISHAP HAC did not see a need to check for winds. [enclosure (95)]

334. The MISHAP copilot stated that winds were calm during practice. He knew this because there was no unusual buffeting and did not feel wind effects coming down off the mountain. [enclosure (97)]

335. The MISHAP copilot stated that they did not check for winds when they returned at 1700 for the lift. [enclosure (97)]

336. The MISHAP copilot stated that he did not see any wind indicators at the Puma landing zone. [enclosure (97)]

337. The MISHAP HAC does not recall seeing a wind sock in the vicinity of the RAFO helicopter landing zone. [enclosure (95)]

338. MISHAP flight surgeon states that there was a small orange flag on a small pole near the Oman Super Puma landing zone on the ridge line. [enclosure (110)]

339. The MISHAP LSE stated that the winds in the lift zone were out of the north and light, but were gusty prior to the rain that moved through the area just before the lift. [enclosure (109)]

340. The MISHAP SO stated that there was a flag near the Oman base camp on the ridge above the NH-90. [enclosure (99)]

341. The MISHAP SO stated that the winds were down the ravine from the north not very strong. [enclosure (99)]

342. The MISHAP SO stated that the winds on the ridge line were from the south west and about as strong as the winds in the ravine. [enclosure (99)]

343. The RAFO Super Puma pilot stated that the winds were from the north at 5 to 10 knots at the time of the lift. [enclosure (108)]

344. The RAFO 14th squadron CO recalls the wind being 15 to 20 knots from the northeast. [enclosure (102)]

345. The Eurocopter employees recall that the winds were blowing right to left across the MH-53 if you were facing it. One individual states that he had to hold his cap on due to the gusts. [enclosure (100)]

346. MISHAP flight surgeon states that the winds were hardly noticeable during the practice runs. [enclosure (110)]

347. The MISHAP flight surgeon stated that rain moved through the area after the practice runs and the winds picked up out of the northwest and gusts became strong. [enclosure (110)]

348. MISHAP flight surgeon remembers discussing winds with a Eurocopter employee who remarked that the winds were "significant." [enclosure (110)]

349. (b)(6) Navy Helicopter Mountain Flying Instructor conducted a wind vector analysis of the mishap zone area and determined the following based on terrain features and a 5-10 knot winds from the north:

- While in the canyon hovering over the NH-90 load an accelerated head wind would have experienced reducing power required. [enclosure (125)]

- Upon lifting out of the canyon 162514 would have lost an accelerated head wind component increasing power required. [enclosure (125)]
- Upon transitioning toward rising terrain an increased down flow of air would have been experienced by the rotor system increasing power required. [enclosure (125)]

- Making the right turn after clearing the canyon took 162514 out of the wind line increasing power required. [enclosure (125)]

350. The MISHAP copilot states that the EAPS doors were left in the closed position during the mission. [enclosure (98)]

351. COMHELSEACOMBATWINGLANTINST 3710.7C states that EAPS door switches shall be manually selected closed for all flights to reduce the risk of FOD. In circumstances requiring any EAPS door to be open, i.e. additional power requirements, the HAC shall open it for the duration of the requirement. [enclosure (137)]

352. (b)(6) HAC of ACFT 03, stated that 162514 appeared amazingly steady over the load during the lift on 19 July 2012. [enclosure (131)]

Lift Execution

353. The NTTP 3-22.5-MH53, VOL II, lists en route procedures for external transport of cargo. Procedures require configuration of the single point cargo hook system before attaching cargo. [enclosure (82)]

354. NATOPS check list for single point suspension operation includes procedures for attach cargo (single point suspension). [enclosure (103)]

355. The MISHAP ground crew SO indicated that he did not see the cargo hook during the attachment of the load because the load was attached to a cargo sling suspended under the hook. [enclosure (99)(152)(153)(197)]

356. The distance from the cargo hook to the MISHAP ground crew SO was about 20 feet. [enclosure (109)]

357. The MISHAP LSE got a "thumbs up" from the MISHAP right window crewman when 162514 transitioned to forward flight and turned right and continued to climb. [enclosure (109)]

358. The MISHAP copilot expected to see 96% TQ indicated in a HOGE over the zone during the lift. [enclosure (98)]

359. The MISHAP copilot saw 100% TQ and 102% NR indicated in a HOGE with the load (NH-90) fully suspended beneath 162514. He does not recall repeating the numbers over ICS. [enclosure (98)]

360. The MISHAP left window crewman recalls that numbers were called out over the ICS during the actual lift. [enclosure (91)]

361. The MISHAP copilot said that the concern for the mission was to have no NR droop. [enclosure (97)]

362. The MISHAP copilot said that the plan was to set the load back down if NR drooped. [enclosure (97)]

363. NATOPS states that drooping of NR as collective is increased in an attempt to lift a load is an indication of exceeding power available. The external lift should be aborted as further increase in collective/drooping of NR further reduces the aircraft's lift capacity in a hover. [enclosure (103)]

364. The MISHAP HAC said that if power looked like it was excessive then they would put the load back on the deck. [enclosure (95)]

365. The MISHAP HAC stated no specific numbers for excessive power. He said "that he just felt like he would know what excessive was." [enclosure (95)]

366. The MISHAP left window crewman states that the MISHAP copilot was calling out NR and TQ numbers at the load was being lifted. [enclosure (90)]

367. The MISHAP HAC recalls hearing 120% TQ called by MISHAP copilot initially upon lifting the (NH-90) off the deck. [enclosure (94)]

368. The MISHAP copilot states that he saw between 110-115% TQ when the load (NH-90) was initially lifted from the ground. [enclosure (97)]

369. The MISHAP copilot stated that in the hover with the load suspended below 162514 TQ was a little higher than the 96% TQ planned. [enclosure (97)]

370. The MISHAP copilot stated that it was obvious that the NH-90 was heavier than they were told. [enclosure (97)]

371. The MISHAP HAC states that he paused in a hover at 70 feet for power check and recalls 98% NR and 100% TQ. [enclosure (94)]

372. The MISHAP copilot thought that the most critical phase was pick up and HOGE so if they could do that then they could get forward airspeed and get to lower altitude and things would get better. [enclosure (97)]

373. The MISHAP copilot saw 100% TQ and 102% NR in the hover with the load off the deck but did not communicate the numbers over ICS. [enclosure (97)]

374. The MISHAP copilot estimates that 162514 was out of ground effect when he checked TQ and NR in the hover with the load off the deck. [enclosure (98)]

375. The MISHAP copilot's plan was to set the load back down if NR drooped. [enclosure (97)]

376. NATOPS states that HOGE does not occur until 80 feet AGL. Any altitude below 80 feet AGL the power required to hover will be less than it will at above 80 feet AGL. [enclosure (103)]

377. The MISHAP HAC anticipated seeing 98% TQ if the load weighed 14,000 lbs. [enclosure (95)]

378. The MISHAP HAC and planned to turn right out of the lift zone and transition through translational lift and descend to a lower altitude then the power requirement would be less. [enclosure (95)]

379. The MISHAP HAC recognized the power deficit while in the hover with the load and thought that it would go away after moving through translational lift. [enclosure (95)]

380. MISHAP left window crewman does not recall any specific TQ and NR numbers called out except the 95% NR called out by the MISHAP copilot just prior to the crash. [enclosure (91)]

381. The MISHAP left window crewman does recall that TQ and NR numbers were called out by the MISHAP copilot. [enclosure (91)]

382. The MISHAP HAC recognized the power deficit in the 70 foot hover with the load but thought that it would go away once they got moving through translational lift. [enclosure (95)]

383. The MISHAP HAC was comfortable with a 0.6% power margin. [enclosure (95)]

384. The HM-15 Standard Operating Procedures (SOP) indicates that a 10% power margin is required for external lift. [enclosure (81)]

385. The MISHAP HAC knew the intent of the SOP requirement is to have the HAC contact the CO before conducting external lift operations with less than 10% power margin. [enclosure (95)]

386. The MISHAP HAC did not contact the CO prior to executing the external lift mission. [enclosure (95)]

387. The MISHAP HAC does not know what power margin numbers were passed to the CO before the external lift mission. [enclosure (95)]

388. The MISHAP HAC was not aware of the 5% power margin written in the CONOPS date 17 July 2012. [enclosure (95)]

389. The MISHAP HAC planned to put the load back down if the power "looked excessive." [enclosure (95)]

390. The MISHAP HAC could not state what % TQ would have been considered excessive. He stated that he just felt like he would know what excessive was. [enclosure (95)]

391. The MISHAP HAC stated that the SPEC power available NATOPS charts showed 107% power available and that OPC s done on 18 July 2012 showed 98.6% power available. [enclosure (95)]

Post Lift Flight

392. MISHAP HAC recalls hearing 98-99% NR and 98-99% TQ called over ICS by the MISHAP copilot as he transitioned 162514 to forward flight. [enclosure (95)]

393. The MISHAP copilot said the he did not note the NR after seeing 102% in the hover with the load until the end when the NH-90 was in the gorge canyon and 95% NR was observed. [enclosure (98)]

394. MISHAP left window crewman states that 162514 was about 100 feet AGL when they transitioned to forward flight, "pretty much as soon as the load came off the ground." [enclosure (90)]

395. The MISHAP LSE observed that "162514 turned right out of the zone sooner than expected, sooner than in practice, and not sure why". [enclosure (109)]

396. The MISHAP left ground observer stated that 162514 hovered momentarily with the load then turned right sooner than during practice runs. [enclosure (128)]

397. (b)(6) observed, from ACFT 03, that 162514 started a right turn out from a hover and stuff from the Oman base camp started blowing around. [enclosure (114)(151)(152)(153)(197)]

398. (b)(6) observed, from ACFT 03, that 162514 was in forward flight with the load at about 10-15 knots when it appeared to make a "smooth and controlled" right turn. [enclosure (114)]

399. (b)(6) observed that the fuselage appeared to rotate about the gearbox and 162514 stopped moving forward across the ground and started drifting. [enclosure (114)(152)(153)(197)]

400. MISHAP left window crewman states that 162514 went forward for about 100 yards then turned right. [enclosure (90)]

401. The MISHAP flight surgeon recalls that 162514 moved about 50 yards forward then started to drift and yaw then flew over the top of the personnel standing on the ridge to the east of the lift point. [enclosure (110)(152)(153)(197)]

402. The MISHAP flight surgeon recalls that during practice "162514 flew 100 to 200 yards forward during transition to forward flight up the wadi." [enclosure (110)]

403. (b)(6) crewman of ACFT 03, observed 162514 made a right turn and blew over the Oman base camp tent. [enclosure (115)(152)(153)(197)]

404. MISHAP left window crewman estimates that ground speed was about 10 knots, "slower than you would cross the deck edge for a shipboard landing," the right turn was made. [enclosure (90)(151)(152)(153)(197)]

405. The MISHAP HAC stated that 10 to 15 knots of speed was attained prior to making the right turn out of the lift zone. [enclosure (94)]

406. The MISHAP copilot stated that forward airspeed was 5 to 7 knots before the right turn and that rate of climb "wasn't much of anything." [enclosure (95)(151)(152)(153)(197)]

407. The MISHAP HAC states that the left rudder pedal was 2 inches forward of neutral in the right turn out of the lift zone. [enclosure (94)]

408. The MISHAP HAC states that the rudder pedals were neutral in the hover over thelift zone. [enclosure (95)]

409. MISHAP left window crewman states that 162514 was still climbing during the right turn. [enclosure (90)(151)(152)(153)(197)]

410. MISHAP left window crewman told them to "pull power" because it looked like they were going to "hit the cliff." [enclosure (90)]

411. MISHAP left window crewman states that the MISHAP crew chief told them to pull power. [enclosure (90)]

412. MISHAP left window crewman stated that "162514 was slow to react but the load cleared the cliff" (quoate?). [enclosure (90)(151)(152)(153)(197)]

413. MISHAP left window crewman states that five seconds after the load cleared the cliff MISHAP HAC called "lost tail." [enclosure (90)]

414. The MISHAP HAC states that as he attempted to get more forward airspeed the cyclic was pushed forward which only resulted in a decent. [enclosure (94)]

415. The HAC states that as he increased the collective to stop the decent, 162514 would pick up more right rotation. [enclosure (94)(153)(197)]

416. MISHAP left window crewman states that someone called "pickle" after the MISHAP HAC's "lost tail" call. [enclosure (90)]

417. The MISHAP HAC states that the MISHAP copilot (XO) called for "pickle" first. [enclosure (94)]

418. The MISHAP left window crewman states that 162514 continued to spin and that he felt like they were "drifting." [enclosure (90)(153)(197)]

419. The MISHAP left window crewman states that (as the spin continued) everyone was yelling "pickle" and "power." [enclosure (90)]

420. The MISHAP copilot placed his hands on the cyclic and collective after approximately 360 degrees of rotation and pressed the cargo release button on the cyclic. [enclosure (98)]

421. The MISHAP copilot states that the single point system failed to release. [enclosure (98)]

422. The MISHAP HAC states that the MISHAP copilot was doing his best to "pickle" and at some point came on the controls. [enclosure (95)]

423. The MISHAP copilot placed his hands on the cyclic and collective after 360 degrees of turn and pushed the "pickle" button. [enclosure (98)]

424. The MISHAP HAC did not attempt to actuate the emergency single point cargo hook jettison system. [enclosure (95)]

425. The MISHAP copilot states that no change of controls was articulated and that the collective was increased. [enclosure (98)]

426. The MISHAP left window crewman states that the MISHAP crew chief reported NH-90 "in the ravine." [enclosure (90)]

427. (b)(6) observed 162514 descend and strike the canyon wall with fuselage parallel to the wall. The nose of 162514 was pointing east when the main rotor blades struck the canyon. [enclosure (114)(153)(197)]

428. The MISHAP left window crewman recalls that the tail rotor hit first but has no idea what hit next. [enclosure (90)]

429. The MISHAP copilot saw 95% NR indicated and called the number over ICS. [enclosure (90)(98)]

430. 162514 impacted the ridgeline above the MISHAP canyon. [enclosure (90)(153)(175)(176)(177)(178)(179)(180)]

431. (b)(6) observer, ACFT 03, stated that he saw 162514 come over a ridgeline then the main rotor blades hit the ground, but while 162514 was in the air it looked good to go. [enclosure (123)(176)(177)]

432. (b)(6) observer, ACFT 03, stated that he saw "162514 spin slowly, counter clockwise and on the second rotation the tail hit the ridge with the skid hitting first." [enclosure (124)(181)(196)]

433. (b)(6) observer, ACFT 03, stated that "162514's tail hit the edge of the gorge then main rotor blades went flying everywhere." [enclosure (126)(169)(178)(179)(184)(185)]

434. Aircraft rolls into canyon and settles upside down, wheels up. [enclosure (90)(97)(168)(187)]

435. MISHAP left window crewman states that the path flown over the ground by 162514 from the hover position over the load to the right turn appeared to be the same in practice as it was during the actual lift. [enclosure (91)]

436. Based on his experience executing loss of tail rotor authority emergency in the MH-53E flight simulator the MISHAP HAC thinks that 162514 lost tail rotor authority which led to the crash. [enclosure (94)(151)(152)(153)(197)]

437. (b)(6) stated that the MISHAP looked like loss of tail rotor. [enclosure (102)(151)(152)(153)(197)]

438. (b)(6) observed that the cause of the mishap was loss of tail rotor authority. The right rotation was slow and controlled and not fast. No forward airspeed after 90 degrees of turn. [enclosure (112)(151)(152)(153)(197)]

439. The MISHAP HAC does not think that a tail rotor drive failure led to the crash because 162514 did not rapidly accelerate to the right. [enclosure (94)(151)(152)(153)(197)]]

440. The MISHAP HAC has most of his 2,100 hours of experience "tethered to the water" as an AMCM pilot. [enclosure (94)]

441. The MISHAP HAC believes that mountain flying training is required for the MH-53E community. He has asked but only FTS gets the training. [enclosure (94)]

442. The MISHAP HAC said that pickle procedures could have been briefed better and more specific. [enclosure (95)]

Egress

443. The MISHAP HAC released his harness and fell to the overhead console of the cockpit. He also saw fire beind the MISHAP copilot's head. [enclosure (94)]

444. The MISHAP copilot released his harness and attempted to eject the right pilot window but was not able to do so because the window was stuck in the fuselage. [enclosure (98)]

445. The MISHAP copilot told the MISHAP HAC to egress through the left pilot side window. The glass was broken enabling the MISHAP HAC to push the glass out of the left pilot window opening. [enclosure (98)]

446. The MISHAP copilot went out the left pilot window after the glass was pushed out. [enclosure (98)]

447. The MISHAP left window crewman walked across the cabin overhead and egressed through the crew door window on right side of fuselage. [enclosure (90)(91)]

448. The MISHAP left window crewman attempted to release right pilot window via emergency release handle on the exterior of the fuselage but was unable to turn the emergency release handle and remove the window. [enclosure (90)(91)(98)]

449. MISHAP left window crewman met both pilots at nose of aircraft, around the 1030 o'clock position. [enclosure (91)]

450. (b)(5)

451. MISHAP copilot did not see any sign of the MISHAP crew chief or MISHAP right window crewman. [enclosure (98)]

452. The MISHAP HAC looked back into the cabin area and saw it was completely black. [enclosure (94)]

453. The MISHAP copilot said that he never really thought about effects of high altitude and high DA on the tail rotor. [enclosure (97)]

454. The MISHAP HAC's ORM sheets and weight and power forms were left in 162514 after the crash and were destroyed. [enclosure (122)]

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455. The MISHAP copilot's weight and power forms were left in 162514 after the crash and were destroyed. [enclosure (121)]

456. The MISHAP copilot does not recall what happened to his ORM sheet. [enclosure (121)]

Deaths

As a result of the crash of 162514 on 19 July 2012:

457. AWSC(NAC/AW) Sean P. Sullivan, USN, (b)(6) ' died as a result of the MISHAP. [enclosure (12)(154)(156)(157)(158)(159)(160)(161)(162)(163)]

458. AWS2(NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) died as a result of the MISHAP. [enclosure (13)(154)(156)(157)(158)(159)(160)(161)(162)(163)]

Injuries

As a result of the crash of 162514 and egress from the wreckage:

459. MISHAP HAC, (b)(6) , USN, (b)(6) ,(b)(6) was injured sustaining (b)(6) [enclosures (4)(14)(21)]

460. MISHAP copilot, (b)(6) , USN, (b)(6) , (b)(6) was injured sustaining (b)(6) [enclosures (4)(16)(20)]

461. MISHAP left window crewman, (b)(6) , USN, (b)(6) - (b)(6) was injured sustaining (b)(6) [enclosures (4)(15)(19)]

462. None of the injuries incurred during the MISHAP were life threatening and all three MISHAP personnel were examined, treated, and released from Ministry of Defence, Oman Armed Forces Hospital, Oman. [enclosures (4)(14)(15)(16)(19)(20)(21)]

MISHAP site assessment of 162514 wreckage

463. 162514 was in powered flight at the time of the MISHAP. [enclosure (145)(151)(152)(153)(191)(197)]

464. 162514's Main, #1 and #3 Nose, tail, and Intermediate Gear Boxes were not damaged prior to impact of the crash. [enclosure (145)]

465. 162514's #1, #2, and #3 engines appear to have been operating normally at the time of the crash. [enclosure (145)(151)(152)(153)(197)]

466. There is no reason to EI the engines. [enclosure (145)]

467. Fuel Control Units from all three engines were "unidentifiable due to fire" post crash, therefore, we cannot determine power setting at the time of impact. [enclosure (145)]

468. The #1 and part of #2 tail rotor drive shafts cannot be located, but part of #2, and #3, #4, #5, #6, and #7 drive shaft flanges and Thomas couplings were in good condition at the time of the crash. [enclosure (145)]

469. 162514's Tail Gear Box departed the aircraft due to imbalance of the tail rotor head not impact with the ground. [enclosure (145)]

470. The oil stain on the rock has the appearance of MIL-L-23699 engine oil. [enclosure (145)(173)(185)]

471. The Intermediate Gear Box would function fine with 23699 engine oil in it. [enclosure (145)]

472. Tail rotor positioned crown bolts failed due to impact from crash. [enclosure (145)(182)]

473. #1 blade was being driven when the extender failed. [enclosure (145)(183)]

474. #6 tail rotor drive shaft scoring was caused when fuselage broke apart due to crash and did not likely occur in flight under normal conditions. [enclosure (145)(190)(195)]

475. #3 drive shaft flange bell mouthed which is consistent with rotation as the #4 drive shaft separated. [enclosure (145)(192)]

476. Input flange for Intermediate Gear Box has damage consistent with misalignment. [enclosure (145)(171)]

477. 162514's Primary Flight Control servos were intact. The tail rotor hydraulic servo was recovered and an EI has been requested. [enclosure (145)(172)]

478. 162514's AFCS servos are not able to be tested due to fire. [enclosure (145)(168)(188)]

479. 162514's single point cargo hook was located, the explosive separator assembly was located, but the cargo hook panel was not recovered. [enclosure (145)(194)]

480. 162514's cockpit flight controls and flight control linkages were all destroyed during the post crash fire during the MISHAP. [enclosure (167)(188)]

481. 162514's flight control surfaces, main rotor blades, and tail rotor blades were all destroyed during the post crash fire or departed the airframe during the MISHAP. [enclosure (168)(174)(183)(186)(188)]

482. All aircrew survival gear functioned correctly during the crash. It appears that none of the gear failed to protect the crew as intended. [enclosure (19)(20)(21)(154)(156)]

Property Damage

483. Government property damage was entirely associated with complete loss of BUNO 162514 and its ancillary equipment. [enclosure (151)(152)(153)(186)(188)(197)]

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484. MISHAP costing data provided by the Naval Safety Center shows that the cost of government property damaged was 49.6 million USD. [enclosure (74)]

485. Non-DOD property damage occurred from this accident. [enclosure (186) (188)(193)]

486. No claims against the US Government are anticipated in connection with this accident. [enclosure (68)]

487. The government of Oman does not intend to request compensation for the Royal Air Force Oman NH-90 Eurocopter helicopter, valued at 39.23 Million USD, which was destroyed during the MISHAP. [enclosure (68)]

488. No property in Oman was damaged during this MISHAP. [enclosure (68)]

489. The government of Oman does not intend to clean-up or request clean-up of the MISHAP site therefore the clean-up cost is 0.00 USD. [enclosure (68)]

Opinions

1. The flight was conducted in accordance with crew composition, aircrew qualifications, and weather criteria for External Lift Flights. [FF 4, 5, 6, 14, 15, 17, 20, 21, 22, 25, 26, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 312]

Line of Duty Determinations

2. The MISHAP involving 162514 resulted in two fatalities, crewchief AWSC(NAC/AW) Sean P. Sullivan, USN, (b)(6) and crewman AWS2(NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) both enlisted personnel on active duty. [FF 457, 458]

3. The MISHAP involving 162514 resulted in injury to three service members, pilot (b)(6), USN, (b)(6) 9, (b)(6); pilot (b)(6), USN, (b)(6), (b)(6); and crewman (b)(6), USN, (b)(6) (b)(6). [FF 459, 460, 461, 462]

4. During this investigation it was determined that AWSC(NAC/AW) Sean P. Sullivan, USN, (b)(6) died as a result of the MISHAP. AWSC (NAC/AW) Sean P. Sullivan's death occurred in the line of duty not due to the member's own misconduct. [FF 4, 29]

5. During this investigation it was determined that AWS2(NAC/AW) Joseph P. Fitzmorris, USN, (b)(6) died as a result of the MISHAP. AWS2(NAC/AW) Joseph P. Fitzmorris' death occurred in the line of duty not due to the member's own misconduct. [FF 4, 33]

6. During this investigation it was determined that (b)(6) s injuries occurred in the line of duty not due to the member's own misconduct. [FF 4, 20]

7. Despite the fact that pilot (b)(6), USN, (b)(6) 2, (b)(6) was not under orders placing him in a flying status involving flying, this investigation determined that (b)(6) injuries occurred in the line of duty not due to the member's own misconduct. [FF 4, 13]

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8.

(b)(5)

9. 162514 was in powered flight at the time of the crash and all flight control systems appeared to be fully functional. [FF 398, 414, 415, 463, 464, 465, 468, 471, 474]

10. There were administrative errors found in 162514's ADB, but the errors did not contribute to the MISHAP. [FF 45]

11. 162514 did not have current post 25-hour single point performance check data logged in the ADB for any of the engines. It cannot be verified that the engines were producing minimum acceptable torque at the time of the MISHAP. If the engines were not producing minimum acceptable torque it would have contributed to the MISHAP. [FF 51, 150]

12. 162514 was unable to produce more than 102% NR at the time of the MISHAP. It is not possible to determine why 162514 did not produce the required minimum NR of 103% at the time of the MISHAP. This contributed to the MISHAP. [FF 329, 330]

13.

(b)(5)

14. 162514 crashed due to power required exceeding power available. Multiple Helicopter pilots and Naval Aircrewmen, to include 162514's surviving crew, state that the cause of the crash appears to have been loss of tail rotor authority. [FF 392, 393, 399, 413, 415, 436, 437, 438, 439]

15. 162514's surviving crew agree that the loss of tail rotor authority was caused by power required exceeding power available. [FF 436, 439]

16. (b)(6) was highly qualified and experienced for the mission at the time of the MISHAP. [FF 15, 17]

17. While it is evident that (b)(6), MISHAP HAC, Pilot In Command (PIC), and Pilot At the Controls (PAC) conducted adequate weight and power calculations he failed to apply sound Operational Risk Management (ORM) principles and Crew Resource Management (CRM) skills and behaviors to prevent the MISHAP from occurring. He also failed to meet the general responsibilities and duties of a designated Pilot in Command (PIC) as described in NATOPS. [FF 90, 91, 154, 157, 212, 220, 221, 225, 227, 229, 233, 234, 240, 241, 251, 252, 256, 270, 288, 290, 292, 294, 316, 320, 321, 327, 329, 330, 333, 337, 365, 371, 377, 378, 379, 382, 383, 385, 386, 390, 392, 424, 442]

18. This investigation determined that (b)(6), (b)(6) (b)(6) He failed to abort the external lift when NR droop and power deficit was recognized. This was the cause of the MISHAP involving 162514. [FF 369, 379, 392, 414, 415, 424]

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8.

(b)(5)

9. 162514 was in powered flight at the time of the crash and all flight control systems appeared to be fully functional. [FF 398, 414, 415, 463, 464, 465, 468, 471, 474]

10. There were administrative errors found in 162514's ADB, but the errors did not contribute to the MISHAP. [FF 45]

11. 162514 did not have current post 25-hour single point performance check data logged in the ADB for any of the engines. It cannot be verified that the engines were producing minimum acceptable torque at the time of the MISHAP. If the engines were not producing minimum acceptable torque it would have contributed to the MISHAP. [FF 51, 150]

12. 162514 was unable to produce more than 102% NR at the time of the MISHAP. It is not possible to determine why 162514 did not produce the required minimum NR of 103% at the time of the MISHAP. This contributed to the MISHAP. [FF 329, 330]

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14. 162514 crashed due to power required exceeding power available. Multiple Helicopter pilots and Naval Aircrewmen, to include 162514's surviving crew, state that the cause of the crash appears to have been loss of tail rotor authority. [FF 392, 393, 399, 413, 415, 436, 437, 438, 439]

15. 162514's surviving crew agree that the loss of tail rotor authority was caused by power required exceeding power available. [FF 436, 439]

16. (b)(6) was highly qualified and experienced for the mission at the time of the MISHAP. [FF 15, 17]

17. While it is evident that (b)(6), MISHAP HAC, Pilot In Command (PIC), and Pilot At the Controls (PAC) conducted adequate weight and power calculations he failed to apply sound Operational Risk Management (ORM) principles and Crew Resource Management (CRM) skills and behaviors to prevent the MISHAP from occurring. He also failed to meet the general responsibilities and duties of a designated Pilot in Command (PIC) as described in NATOPS. [FF 90, 91, 154, 157, 212, 220, 221, 225, 227, 229, 233, 234, 240, 241, 251, 252, 256, 270, 288, 290, 292, 294, 316, 320, 321, 327, 329, 330, 333, 337, 365, 371, 377, 378, 379, 382, 383, 385, 386, 390, 392, 424, 442]

18. This investigation determined that (b)(6), MISHAP HAC, was derelict in his duties as PIC and PAC. He failed to abort the external lift when NR droop and power deficit was recognized. This was the cause of the MISHAP involving 162514. [FF 369, 379, 392, 414, 415, 424]

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19. (b)(6) was (b)(5) as PIC and PAC. He failed to follow applicable NATOPS guidance which provides WARNING for effects of NR droop, procedures and information for Operational Power Checks, procedures for attaching cargo and releasing cargo, and information regarding EAPS door configuration. Contributed to the MISHAP. [FF 315, 316, 317,318, 319, 320, 321, 322, 327, 329, 330, 351, 353, 354, 363, 373, 376, 379]

20. (b)(6) failed to discuss required NATOPS brief items, emergency release/load jettison procedures and mission abort criteria, with his crew prior to flight. Contributed to the MISHAP. [FF 229, 247, 248, 249, 250, 290, 292, 293, 294, 442]

21. (b)(6) (b)(5) ; as PIC and PAC, failed to follow applicable NTTP guidance which provides procedures for external transport of cargo, specifically operational power checks and attach cargo (single-point suspension). Contributed to the MISHAP. [FF 299, 301, 302, 305, 306, 315, 316, 317, 321, 322]

22. (b)(6) , (b)(5) as PIC and PAC, failed to consider wind and terrain effects on the mission in the lift area at the time of the MISHAP despite the fact that he had knowledge of expected wind direction and speed in the area at the time of the lift; a wind indicator was in the lift area at the time of the MISHAP; RAFO helicopters, who had knowledge that there was light wind, were in the lift area at the time of the MISHAP. Contributed to the MISHAP. [FF 162, 163, 331, 333, 335, 337, 338, 339, 340, 341, 342, 343, 344, 345, 347, 348, 349]

23. (b)(6) , (b)(5) as PIC, failed to establish a reasonable limit for power required and thoroughly brief 162514's crew on a plan to abort if limits were reached. Contributed to the MISHAP. [FF 211, 215, 220, 221, 227, 233, 251, 252, 365, 383, 384, 386]

24. (b)(6) ; (b)(5) as PIC and PAC, failed to release or emergency jettison the external load. There was adequate time for the external load to be jettisoned between the time that tail rotor authority was lost and the time of the crash. Contributed to the severity of the MISHAP. [FF 11, 424]

25. (b)(6) (b)(5) ; as PIC and PAC, failed to adequately utilize ORM principles and adequately apply CRM skills and behaviors despite being well trained in both. Contributed to the MISHAP. [FF 15, 17, 211, 215, 220, 240, 247, 250, 252, 321, 333, 365, 367]

26. (b)(6) was highly qualified and experienced for the mission and was well respected by command personnel. As Executive Officer, the Commanding Officer, HM-15 had absolute trust and confidence in his ability to successfully execute the heavy lift mission on 19 July 2012 in Oman. [FF 22, 23, 63]

27. This investigation has determined that (b)(6) , MISHAP copilot, Pilot Not At the Controls (PNAC) led and participated in extensive mission planning over the three day period leading up to the MISHAP. His mission planning included the execution of extensive and highly detailed weight and power calculations; however, he failed to fully assess the mission environment and effectively supervise the implementation of the planning factors. Contributed

to the MISHAP. [FF 90, 91, 103, 104, 116, 185, 189, 191, 192, 193, 196, 197, 206, 209, 270, 324, 331]

28. (b)(6) failed in his duties as designated copilot and PNAC in that he was required to assist the MISHAP HAC/PAC evaluate mission progress during the lift mission in that he failed to make a recommendation to abort the lift when NR droop and power deficit was recognized by the MISHAP HAC. Contributed to the MISHAP. [FF 358, 359, 361, 362, 363, 367, 369, 370, 371, 373, 375, 379, 382, 383, 388, 389, 390, 392]

29. (b)(6) failed in his PNAC, copilot duties to assist the MISHAP HAC/PAC, by not recognizing and aggressively recommending action to follow applicable NATOPS guidance. He should have taken aggressive action to ensure compliance with NATOPS guidance which provides WARNING for effects of NR droop; procedures and information for Operational Power Checks; procedures for attaching cargo and releasing cargo; information regarding EAPS door configuration; required NATOPS brief items to be discussed prior to flight, specifically emergency release/load jettison procedures and mission abort criteria. Contributed to the MISHAP. [229, 231, 240, 241, 242, 247, 248, 251, 288, 290, 292, 299, 300, 301, 302, 303, 310, 315, 317, 319, 321, 327, 329, 330, 351, 353, 354, 363]

30. (b)(6) failed in his PNAC duties to assist the MISHAP HAC/PAC in following applicable NTTP guidance which provides procedures for external transport of cargo, specifically operational power checks and attach cargo (single-point suspension). Contributed to the MISHAP. [248, 250, 264, 288, 292, 299, 300, 301, 302, 303, 304, 310, 353, 354]

31. (b)(6) failed in his copilot duties to assist the MISHAP HAC/PIC by fully assessing the mission environment and implementing controls to mitigate risks associated with wind and terrain effects in the lift area at the time of the MISHAP. He failed in his PNAC/copilot duties to utilize all resources given the fact that he was aware of expected wind direction and speed in the area at the time of the lift; that a wind indicator was in the lift area at the time of the MISHAP, and one RAFO helicopter, the pilot of which had knowledge that there was light wind, was in the lift area at the time of the MISHAP. Contributed to the MISHAP. [FF 163, 164, 165, 240, 241, 331, 333, 335, 336, 338, 339, 340, 343, 344; 347, 348, 349, 363]

32. (b)(6) failed in his duties as copilot to assist the MISHAP HAC/PIC in establishing a reasonable limit for power required. He failed in his duties as copilot to assist the MISHAP HAC/PIC brief a well founded plan to abort the lift if limits were reached. Contributed to the MISHAP. [FF 94, 95, 96, 97, 120, 122, 185, 186, 196, 227, 233, 247, 251, 256, 288, 292, 294, 358, 359, 361, 362, 375, 383]

33. (b)(6) failed in his PNAC duties to emergency jettison the external load. As the PNAC it would be expected that he actuate the emergency jettison switch to release the load when the electric load release system did not release the external load after the members of the MISHAP crew called for pickle. There was adequate time for the MISHAP copilot to actuate the emergency jettison switch between the point in time when loss of tail rotor authority was verbalized by the MISHAP HAC and the point in time when 162514 crashed. Contributed to the severity of the MISHAP. [FF 11, 420, 421, 422, 424]

34. (b)(6) (b)(5) as copilot in that he failed to adequately utilize ORM principles and adequately apply Crew Resource Management (CRM) skills and behaviors despite being well trained in both. Contributed to the MISHAP. [FF 22, 23, 211, 215, 220, 240, 247, 250, 252, 321, 333, 365, 367]

35. (b)(6) (b)(5) as senior Detachment member in that (b)(6) failed to lead his detachment team. He failed to familiarize himself with the CONOPS guidance provided to him. It was his duty to ensure that Detachment personnel were fully briefed on applicable aspects of the assigned mission which were clearly delineated in the CONOPS. As the senior member of the Detachment it was his duty to ensure that the MISHAP HAC and the MISHAP crew clearly understood what mission guidance was promulgated through the CONOPS document. Directly contributed to the MISHAP. [FF 94, 95, 96, 97, 186, 187]

36. AWSC Sullivan, MISHAP crew chief adequately prepared the load for the lift mission. [FF 178, 179]

37.

(b)(5)

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38. AWSC Sullivan, MISHAP crew chief took measures and followed CO HM-15 guidance which resulted in a successful ground evolution in support of the mission. [FF 178, 179]

39.

(b)(5)

40. (b)(6) , MISHAP left window crewman, failed to effectively utilize CRM skills during the mission planning process in that he failed to be assertive and communicate the idea that the lift should not be conducted due to drastic measures being considered to reduce the weight of 162514 in order to accomplish the mission. Contributed to the MISHAP. [FF 218, 219]

41. (b)(6) , MISHAP left window crewman failed to effectively utilize CRM skills during the NATOPS brief and flight portions of the lift mission in that he failed be assertive and communicate the fact that ORM sheets were not being utilized, NATOPS brief items were not adequately covered, and NATOPS and Tactical Pocket checklists were not being followed. Contributed to the MISHAP. [FF 231, 232, 240, 241, 250, 290]

42. (b)(6) MISHAP left window crewman failed to effectively utilize CRM skills during the mission. He recognized a malfunction with his ICS but failed to communicate the problem to the MISHAP crew and failed to report the malfunctioning equipment submit a Maintenance Action Form to the maintenance control representative. Did not contribute to the MISHAP. [FF 308, 309]

43. The MISHAP ground crew adequately planned for safety of personnel executing the mission. [FF 280, 281, 282, 283, 284]