

OPNAVINST 3750.6S
13 May 2014

**NAVAL AVIATION
SAFETY
MANAGEMENT
SYSTEM**



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

OPNAVINST 3750.6S
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13 May 2014

OPNAV INSTRUCTION 3750.6S

From: Chief of Naval Operations

Subj: NAVAL AVIATION SAFETY MANAGEMENT SYSTEM

Ref: (a) DoD Instruction 6055.07 of 6 June 2011
(b) OPNAVINST 5450.180E
(c) OPNAVINST 1650.28A
(d) OPNAVINST 3710.7U
(e) COMNAVAIRFORINST 4790.2B
(f) OPNAVINST 5102.1D/MCO P5102.1B
(g) OPNAVINST 3500.39C
(h) SECNAVINST 5720.42F
(i) DoD 5400.7-R, DoD Freedom of Information Act Program,
4 September 1998

1. Purpose. To issue policies and provisions of the Naval Aviation Safety Management System (SMS). The format, scope and content of this revision differ significantly from the superseded instruction. Changes include compliance with reference (a), the establishment of the SMS, removal of message traffic format and the data collection appendices, which were replaced with data collection in the on-line environment, and clarification of mishap exception rules. This instruction is a complete revision and should be reviewed in its entirety.

2. Cancellation. OPNAVINST 3750.6R and per appendix N, safety investigation report (SIR) 3750/1 through SIR 3750/16.

3. Action. All naval aviation personnel shall familiarize themselves with this instruction and other safety directives applicable to them and their assigned duties. All naval aviation activities shall establish and maintain an aggressive naval aviation SMS, which includes the detection, investigation, and elimination of hazards in naval aviation. As this SMS is a relatively new development, within the naval aviation community, the evolution of concepts, policy changes and the implementation of lessons learned are inevitable. The SMS requires the accomplishment of a formal review and change process.

This instruction shall be reviewed on a regular basis by the Naval Safety Center (NAVSAFECEN), controlling custodians, reporting custodians and the Naval School of Aviation Safety. Reviews shall be scheduled as required in the event of major changes or the accumulation of a significant number of minor changes in order to maintain the integrated concept of an SMS. Recommended changes to this instruction are welcome from any source and may be submitted directly to:

Commander, Naval Safety Center
Attn: Deputy Director, Aviation Safety Programs (Code 10A)
375 A Street
Norfolk, Virginia 23511-4399

4. Terms. As used in this directive, the terms below have meanings as follows:

- a. "Government" means U.S. Federal Government.
- b. "Naval" means both Navy and Marine Corps.
- c. "Shall" connotes a mandatory action.
- d. "Should" connotes standard policy and deviation is discouraged.
- e. "May" and "need not" connote optional actions.
- f. "Will" indicates futurity and does not infer required action.

5. Records Management. Records created as a result of this instruction, regardless of media and format, shall be managed per Secretary of the Navy Manual (SECNAV) 5210.1 of January 2012.

6. Forms and Reports Control

- a. The following forms are available for download from Naval Forms OnLine <https://navalforms.documentservices.dla.mil/web/public/home> and

the NAVSAFECEN Web Site

<http://www.public.navy.mil/navsafecen/Pages/wess/WESSAvnModTrng.aspx>:

- (1) OPNAV 3750/16 Safety Investigation Report Enclosure (Promise of Confidentiality) Advice to Witness
 - (2) OPNAV 3750/59 WAMHRS General Information
 - (3) OPNAV 3750/60 WAMHRS Aircraft Information
 - (4) OPNAV 3750/61 WAMHRS Injury Information
 - (5) OPNAV 3750/62 WAMHRS Involved Person Information
- Report
- (6) OPNAV 3750/63 WAMHRS Aeromedical Analysis
 - (7) OPNAV 3750/64 WAMHRS ATC/Runway/Ship Information
 - (8) OPNAV 3750/65 WAMHRS BASH Information
 - (9) OPNAV 3750/66 WAMHRS Factors Recommendation
 - (10) OPNAV 3760/67 WAMHRS Factors/Recommendation/CO's Comments - Human Factor
 - (11) OPNAV 3750/68 WAMHRS Factors/Recommendation/CO's Comments - Material Factor
 - (12) OPNAV 3750/69 WAMHRS Factors/Recommendation/CO's Comments - Special Factor

b. AFMES 1323 Armed Forces Medical Examiner/Division of Forensic Toxicology Toxicological Request form is available for download at http://www.afmes.mil/assets/docs/tox_request.pdf.

c. The following OPNAV report control symbols (RCS) are assigned to the following data collection per SECNAV Manual 5214.1 of December 2005:

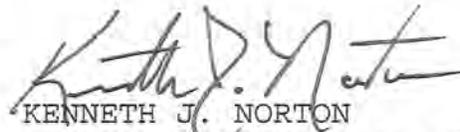
- (1) OPNAV RCS OPNAV 3750-19 is assigned to the Hazard Report required by paragraph 503.

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(2) OPNAV RCS 3750-20 is assigned to the Mishap Data Report required by paragraph 605.

(3) OPNAV RCS 3750-21 is assigned to Direct Enemy Action incident report required by paragraph 613.

(4) OPNAV RCS 3750-1 is assigned to the SIR required by paragraph 806.



KENNETH J. NORTON
Special Assistant for Safety
Matters

Distribution:

Electronic only, via Department of the Navy Issuances Web site:
<http://doni.documentservices.dla.mil>

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CHAPTER 1
GENERAL INFORMATION

101. Purpose. This instruction issues the Naval Aviation SMS. The Commander, Naval Safety Center (COMNAVSAFECEN), who is also Special Assistant to the Chief of Naval Operations (CNO) for Safety Matters (OPNAV N09F), manages the Naval Aviation SMS under the auspices of this instruction. This instruction applies to all military and civilian personnel in every Navy and Marine Corps aviation activity throughout naval aviation and some organizations that are not traditional aviation activities that operate manned aircraft and unmanned aerial vehicle (UAV) and unmanned aircraft systems (UAS). Since safety is an inherent responsibility of command, the Naval Aviation SMS is implemented by, and carried out by all personnel engaged in naval aviation operations throughout the chain of command. General reporting requirements can found in appendix A.

102. Program Policy. The purpose of the Naval Aviation SMS is to enhance operational readiness by preserving lives, preventing injury, and protecting equipment and material. The Naval Aviation SMS supports every aspect of naval aviation. Safety practices leverage combat readiness. Fleet personnel will discover naval aviation SMS knowledge and practice may be extended into other areas of Department of the Navy (DON) personnel life. The Naval Aviation SMS may, therefore, yield benefits and preserve resources far beyond its intended scope.

103. Objective of the Program. The Naval Aviation SMS succeeds by preventing damage and injury. Potential causes of damage and injury are termed hazards. The goal of the Naval Aviation SMS is to maximize mission effectiveness through the elimination or control of hazards, thus managing risk to an acceptable level and thereby preventing mishaps.

104. Scope of the Program

a. The Naval Aviation SMS encompasses all activities which detect, contain, or eliminate hazards in naval aviation. These activities include:

(1) Manned aircraft and UAV and UAS design, research, development, test, evaluation, procurement, modification, maintenance, servicing, and operations.

(2) Manned aircraft and UAV and UAS support equipment, facilities, supplies, and weapons.

(3) Personnel selection, training, education, clothing, and equipment.

(4) Advertising the Naval Aviation SMS for training, raising awareness, and rewarding successes.

(5) Policies, procedures, instructions, directives, and publications.

(6) Reporting, analysis, and process improvement.

b. However, to be truly effective, this program must transcend these boundaries and be part of the culture that is naval aviation. An effective safety program requires everyone associated with naval aviation to shun the minimum requirements and adopt an active safety culture constantly renewed by fresh ideas.

c. The SMS promotes an integrated, system of systems approach to safety. New requirements, tools, programs or systems should not be introduced into naval aviation or the SMS without thorough analysis. The analysis should determine whether the need is already met by an existing element or elements within naval aviation or the SMS itself, how the new element will be integrated within and support the naval aviation and the SMS, and how the demands of the new element will impact the end users and their ability to accomplish their missions.

105. SMS. An SMS is a formal, top-down, professional approach to managing safety risk. It includes systematic procedures, practices and policies for the management of safety. This SMS is comprised of four pillars or components: safety policy, safety risk management (SRM), safety assurance, and safety promotion. Safety policy establishes senior leadership's commitment to continually improve safety and defines the methods, processes, and organizational structure needed to meet safety goals. SRM is comprised of numerous processes and forums for identifying hazards and controlling risk, all of which include one or more steps of the operational risk management (ORM) process or are, in and of themselves, controls. SRM determines the need for, and adequacy of, new or revised risk

controls based on the assessment of acceptable risk. Safety assurance evaluates the continued effectiveness of implemented risk control strategies and supports the identification of new hazards. Safety promotion includes training, communication, and other actions to create a positive safety culture within all levels of naval aviation. Most safety-related programs, processes and resources within naval aviation support more than one pillar of the SMS. Every aviation command is strongly encouraged to use the resources provided by the NAVSAFECEN in compliance with reference (b) to ensure a strong SMS and enhance their safety culture. The Naval Aviation SMS is based on the concept that mishaps are preventable. (Nothing "just happens.") Thus, it should be clear that mishaps can be prevented when their causes are eliminated beforehand. The goal of the SMS is to prevent damage and injury through elimination or control of hazards.

106. Safety Policy Pillar

a. SMS Policy. Naval Aviation SMS policy and guidance is delineated in this instruction. References (a) through (i) contain additional policy guidance applicable to the Naval Aviation SMS.

b. Other Directives. Other directives which support, influence or interact with the Naval Aviation SMS include:

(1) NTPP 3-50.1, Navy Search and Rescue Manual, September 2013, requires a rescue report whenever a rescue involving naval rescue personnel, rescue vehicles, ships, or aircraft is attempted.

(2) NAVAIR 00-80T-116-Vols 1-4 Technical Manual, Safety Investigation Techniques (NOTAL), helps naval aircraft mishap investigators conduct a thorough and comprehensive investigation. It also contains some guidance for pre-mishap plans.

(3) NAVAIR 00-80T-67, Aircraft Safety Engineering Accident Prevention Guide (NOTAL), guides cognizant field activity (CFA) engineering personnel in the performance of field investigations and engineering investigations (EI) at depot level facilities, manufacturing plants, or technical activities.

(4) Reference (c) contains the policy and procedures for selecting the annual winners of the CNO Aviation Safety Awards, the Readiness Through Safety Award, the Admiral James S. Russell Naval Aviation Flight Safety Award, the Admiral Flatley Memorial Award and the Grampaw Pettibone Award.

(5) OPNAVINST F3100.6J, Special Incident Reporting (OPREP-3, Navy Blue and Unit SITREP) Procedures (NOTAL), is the guide for OPREP-3 reports which have precedence over all others when an aviation mishap meets the criteria of OPNAVINST F3100.6J. Do not construe this as obviating other reporting requirements. While some preliminary reports required by the Naval Aviation SMS (except the 60-minute telephone report to COMNAVSAFECEN) will temporarily yield precedence to OPREP-3 reporting, submit them as soon as possible thereafter. A command sustaining a mishap is not relieved of the reporting requirements of this instruction when another activity or agency submits the OPREP-3 report for the incident.

(6) Marine Corps Order (MCO) 3500.14C, Aviation Training and Readiness Program, standardizes the aviation training syllabi of the Marine Corps and describes specific requirements for aircrew qualifications.

(7) Reference (d) prescribes general flight and operating instructions and procedures for all naval aircraft and related activities.

(8) NAVAIR 00-80T-114, Air Traffic Control (ATC) Facilities Manual, describes how to operate and administer Navy and Marine Corps ATC facilities ashore. Sections of it are applicable to: shipboard carrier ATC centers, helicopter direction centers, tactical air control squadrons, and fleet area control and surveillance facilities. It also lists other directives pertinent to operating ATC facilities.

(9) OPNAVINST 3750.16C, Participation in a Military or Civil Aircraft Accident Safety Investigation, is a joint regulation that is common to all Military Services. It provides for military participation in certain National Transportation Safety Board (NTSB) investigations, NTSB or Federal Aviation Administration (FAA) participation in certain military investigations, and the release of certain information related

to military aviation mishap investigations to the NTSB and FAA. The instruction requires notification of an FAA facility when the FAA is involved in Naval Aviation mishaps.

(10) OPNAVINST 5442.8, Management of the Naval Aircraft Inventory, describes procedures for the management of the naval aircraft inventory and serves as a single point of reference for inventory management procedures.

(11) Reference (e) describes how to dispose of aircraft logs and records, and submit hazardous material reports (HMR), quality deficiency reports, technical publication deficiency reports, explosive mishap reports, and requests for EIs. Occasionally, reports may be required by both reference (e) and this instruction, such as the explosive mishap report. Caution: Reports and requests submitted under reference (e) are not privileged. Exercise special care to be sure those reports and requests are free of privileged information. More naval aviators read this instruction's hazard reports (HAZREP) than maintenance reports. To reach the widest possible aviator audience, submit a HAZREP.

(12) OPNAVINST 5100.19E, Navy Occupational Safety and Health (NAVOSH) Program for Forces Afloat, tells afloat commands how to administer, organize, and train for the NAVOSH program. Further, it describes hazard control techniques and the safety requirements for the program.

(13) COMNAVAIRFORINST 6410.1, Use of Performance Maintenance Medications (NOTAL), provides standardized guidance and reporting procedures for the use of performance maintenance medications by all aircrew in Naval Air Force U.S. Atlantic Fleet and Naval Air Force U.S. Pacific Fleet squadrons.

(14) Reference (f) describes many requirements not included in this instruction. While aviation mishap investigations are not conducted under this instruction, it does require naval aviation activities to submit the accidental injury or death report, the material (property) damage report, the explosive mishap report, the motor vehicle accident report, safety grams, and the report of Navy civilian occupational injuries and illnesses.

(15) SECNAVINST 5211.5E, Department of the Navy Privacy Act, guides the DON in the implementation of the Privacy Act of 1974. It describes how the DON will collect, maintain, and safeguard privacy act information.

(16) SECNAVINST 5210.8D, Department of the Navy Records Management Program, prescribes policies and procedures for the creation, maintenance and disposition of information as records.

(17) SECNAVINST 5300.28E, Military Substance Abuse Prevention and Control, outlines DON policy concerning testing for substance abuse and covers biological testing following naval mishaps.

(18) BUMEDINST 5360.1, Decedent Affairs Manual, is used with current directives concerning casualty reporting, casualty notification, casualty assistance, and burial honors.

(19) References (h) and (i) outline the policies and procedures to follow when disclosing naval records. It establishes time limits for responding to requests to inspect or obtain copies of DON records.

(20) JAGINST 5800.7F, Manual of the Judge Advocate General, provides a single, concise source of authoritative information on matters of naval administration under the cognizance of the Judge Advocate General (JAG). It defines the differences between Judge Advocate General Manual (JAGMAN) investigations of aviation mishaps and an aviation mishap safety investigation. The manual also tells what to do if an aviation mishap board (AMB) member becomes the subject of a service of process or subpoena arising from official duties.

(21) BUMEDINST 6510.2F, Aviation Pathology Program, describes the Aviation Pathology Program in the DON. It requires naval medical facilities and the Armed Forces Institute of Pathology to cooperate. It gives general guidance on aviation pathology sample collection, handling, and processing.

(22) COMNAVAIRFORINST 5420.1C, Field Naval Aviator Evaluation Board (FNAEB) Procedures, describes the process used by an administrative board convened to evaluate the performance,

potential, and motivation for continued service of any naval aviator ordered by competent authority to appear before such a board.

(23) OPNAVINST 13210.1A, Naval Aviation Policy for Aircraft Safety Systems Avionics, provides policy on the incorporation and installation of required avionics safety systems in Navy and Marine Corps aircraft.

(24) NAVAIRINST 5100.11A, Research and Engineering Technical Review of Risk Process and Procedures for Processing Grounding Bulletins (NOTAL), establishes policy and provides guidance, and assigns responsibilities for the coordination of engineering technical review of risk and for the formulation of engineering recommendations related to the issuance of bulletins and flight restrictions.

c. Policy for Release of Program Information and Release Accountability

(1) Release of SMS Information. Absent specific authorization from the CNO, Naval Aviation SMS information shall be released only as specified in these paragraphs. These rules are regulatory orders that apply to all DON personnel without further implementation. A violation of these provisions by military personnel is punishable under the Uniform Code of Military Justice. Disciplinary action against civilian personnel is authorized pursuant to DON Civilian Resources Manual, subchapter 752.

(2) Release of Privileged Information About Individuals. Do not maintain privileged information in a system of records from which information may be retrieved using the name of a person or by some number, symbol, or other identifier assigned to a person. Requests for privileged information about an individual shall be sent to COMNAVSAFECEN.

(3) Release by an Individual Having Knowledge of SIRs. It is forbidden for anyone with knowledge of the content of a SIR to release that information, except as this instruction permits. Report immediately any request for such information to the NAVSAFECEN (Defense Switched Network (DSN) 564-3520, extension (Ext) 7226 or commercial (757) 444-3520, Ext 7226).

(4) Release to Other U.S. Military Services. Safety program information may be shared between U.S. military forces through their respective safety centers. Control all such information in a manner that will prevent the compromise of privileged information.

(5) Release to the News Media. Mishap information derived from the initial notification (IN) and subsequent mishap data reports (MDR) may be released to news media pursuant to SECNAVINST 5720.44C, DON Public Affairs Policy and Regulations. It is imperative that privileged information is always protected when dealing with the press.

(6) Release Based on the Privacy Act of 1974. Persons desiring information collected in a system of records subject to the Privacy Act shall forward requests to COMNAVSAFECEN, Attention: Staff Attorney.

(7) Release Based on Freedom of Information Act (FOIA). Forward any requests for information that either expresses or implies they are based on FOIA to COMNAVSAFECEN, Attention: Staff Attorney.

(8) Release to the Congress. Forward requests for information from Congress, its committees, or members to CNO or Commandant of the Marine Corps (CMC), as appropriate.

(9) Release to Relatives of Persons Involved in Aviation Mishaps. NAVPERS 15560D, The Navy Military Personnel Manual, or MCO 3040.4, Marine Corps Casualty Assistance Program, defines how to notify relatives of persons involved in aviation mishaps. Make no reference to causal factors of a mishap. Do not provide classified information. It is forbidden to show, discuss, or give a copy of an aviation SIR to the next of kin or their representative. They may request a copy under FOIA.

(10) Subpoenas for Information. Refer any subpoenas for aviation mishap information to the Navy JAG, General Litigation (Code 14), 1322 Patterson Avenue SE, Suite 3000, Washington Navy Yard, DC 20374-5066 with a copy to COMNAVSAFECEN, Attention: Staff Attorney.

(11) Courts. Commands receiving requests or subpoenas for information from courts, whether Federal, State, courts-

martial, or foreign shall forward the request immediately to COMNAVSAFECEN, Attention: Staff Attorney. All such requests shall be coordinated with CNO or CMC, Office of the Judge Advocate General, Department of Defense (DoD) and Department of Justice, as appropriate. COMNAVSAFECEN is authorized to assert the safety privilege in response to all court requests and orders for privileged safety information per reference (a).

(12) Release to North Atlantic Treaty Organization (NATO) Nations. Standardization Agreement (STANAG) 3101 Flight Safety (FS), Dissemination of Aircraft/Missile Accident Information (NOTAL), authorizes COMNAVSAFECEN to exchange sanitized Naval Aviation SMS information with NATO nations operating common types of aircraft and missiles. Reference (a) allows for reciprocal sharing agreements with foreign safety organizations, including for privileged material. Forward any such requests for information to COMNAVSAFECEN, Attention: Deputy Director, Aviation Safety Programs (Code 10A).

(13) Release to Foreign Governments. Reference (a) allows for reciprocal sharing agreements with foreign safety organizations including for privileged material. Forward any such requests for information to COMNAVSAFECEN, Attention: Code 10A.

(14) Release to Technical Representatives and Contractors. Send any requests for mishap information from technical representatives, manufacturers, and contractors, or their agents, to COMNAVSAFECEN via Commander, Naval Air Systems Command (Safety Director) for endorsement and certification of the legitimacy of such requests. COMNAVSAFECEN will then furnish the information and stipulate that it can be used only for safety purposes and shall not be released further. Reference (a) allows for providing privileged information to DoD Contractors when the contractor in its corporate capacity signs a non-disclosure agreement. Forward any such requests for information to COMNAVSAFECEN, Attention: Code 10A.

(15) Release to Navy, Marine Corps, and Other DON Activities. Forward all requests for mishap information from Navy, Marine Corps, and other DON activities to COMNAVSAFECEN Attention: Code 10A.

(16) Release of Privacy Information. Handle the names of individuals not involved in the mishap and the Social Security Numbers of all individuals in the report as directed by the applicable sections of SECNAVINST 5211.5E. To protect the privacy rights of surviving family members, do not release photographs of human remains included in the aeromedical analysis (AA) or autopsy reports. Send all requests to COMNAVSAFECEN, Attention: Staff Attorney.

(17) Unspecified Cases. Forward all requests for information not covered above to COMNAVSAFECEN, Attention: Code 10A.

107. Safety Policy Pillar Program Responsibilities

a. This paragraph describes the Naval Aviation SMS responsibilities of: COMNAVSAFECEN; Director, Safety Division, Headquarters, U.S. Marine Corps; Chief, Bureau of Medicine and Surgery (BUMED), action agencies for safety investigation mishap report recommendations (MISREC); Naval School of Aviation Safety; commanders of organizations requiring aviation safety officer (ASO) billets; aircraft, UAV or UAS controlling custodians (defined below); commanders of naval and Marine Corps air stations and facilities; Government flight representatives (GFR); aircraft, UAV or UAS reporting custodians (defined below); ASOs; aviation safety specialists; senior member of AMBs; members of AMBs and all naval aviation personnel. Commands may discover they have responsibilities under more than one category. A naval air station (NAS), for example, may have responsibilities as an organization with an ASO billet, as an airfield, and as a reporting custodian.

b. COMNAVSAFECEN/OPNAV N09F shall:

(1) Advise and assist Deputy Assistant Secretary of the Navy (Safety), CNO and CMC in the formulation, implementation, administration, and monitoring of the Naval Aviation SMS.

(2) Coordinate with the Director, Air Warfare Division (OPNAV N98) and Deputy Commandant for Aviation, Headquarters, U.S. Marine Corps on safety related matters that affect naval aviation readiness.

(3) Under exceptional circumstances, waive or change the investigation and reporting requirements of this instruction.

(4) Act as the final authority for determining mishaps, mishap classification and mishap exceptions.

(5) Conduct final review, evaluation, and classification of all naval aviation SIRs.

(6) Analyze and distribute safety information received in reports required by this instruction.

(7) Maintain a repository for all reports and related data submitted per this instruction.

(8) Administer a system for accountability of naval aviation mishaps and mishap exposure data.

(9) Release mishap data as appropriate.

(10) Develop standards and publish procedures for aviation mishap investigations.

(11) In special cases, initiate and conduct naval aviation mishap investigations under the authority of CNO or CMC.

(12) Administer the mishap and hazard recommendation tracking (MISTRAC) program.

(13) Liaison with safety organizations in the other Military Services, DoD, Director School of Aviation Safety, Naval Aviation Schools Command, naval aviation commands at all levels, and offices and bureaus within the DON.

(14) Research, study, compile and analyze naval aviation safety statistics.

(15) Sponsor and attend conferences, symposia, seminars, and ad hoc groups in the furtherance of safety.

(16) Sponsor and conduct aviation safety surveys and command cultural workshops.

(17) Publish naval aviation safety magazines, and explore and exploit any other media which will strengthen and support the Naval Aviation SMS.

(18) Help review and evaluate aviation system safety engineering efforts, acquisitions, and modifications to current equipment. Participate selectively in aviation safety system boards, conferences, studies, and design reviews.

(19) Selectively participate in engineering proposal evaluations and maintenance feasibility inspections of new aviation production systems and equipment, and in production improvement conferences.

(20) Assist appropriate offices, commands, and agencies preparing operating instructions.

(21) Maintain membership on Naval Air Training and Operating Procedures Standardization (NATOPS) boards and councils.

(22) Act as technical advisor on aviation safety for all naval education and training (NAVEDTRA) courses, films, training aids, and devices.

(23) As necessary, request support from the Armed Forces Medical Examiner System (AFMES).

c. Director, Safety Division, Headquarters, U.S. Marine Corps shall:

(1) Advise and assist the Deputy Commandant for Aviation, Headquarters, U.S. Marine Corps on safety matters that affect U.S. Marine Corps (USMC) aviation readiness.

(2) Coordinate with COMNAVSAFECEN on safety related matters that affect naval aviation readiness.

d. Chief, BUMED shall:

(1) Advise and assist in support of medical investigations into naval aviation mishaps.

(2) Provide pathology services to process tissue from aviation mishaps as directed by this instruction, and BUMEDINST 6510.2F.

(3) Train flight surgeons thoroughly in medical pre-mishap planning, medical investigation of aviation mishaps, and their role as members of AMBs.

(4) Provide all aircrew with timely and complete medical services from properly trained and designated flight surgeons.

e. Action agencies assigned MISRECs shall respond to reports per chapter 10 of this instruction.

f. Director, Naval School of Aviation Safety shall:

(1) Advise COMNAVSAFECEN on the education and training aspects of the Naval Aviation SMS.

(2) Develop and conduct appropriate graduate courses of instruction to educate qualified specialists to meet the needs of the CNO, CMC and COMNAVSAFECEN and raise safety awareness of personnel in billets which affect the Naval Aviation SMS. These courses include:

(a) an ASO course;

(b) an aviation safety command course; and

(c) a crew resource management (CRM) instructor course.

(3) Assist COMNAVSAFECEN and aviation organizations in support of the naval aviation safety program. To the maximum extent, provide fleet commands with subject matter experts to present current aviation related topics (e.g., conferences, seminars, and safety stand downs).

(4) Conduct safety related research and research assistance that supports Naval School of Aviation Safety curriculum content and fleet assistance and advise COMNAVSAFECEN of findings as directed.

(5) Provide current aviation safety related submissions, articles, and research findings to DoD publications in fostering mission effectiveness.

g. Commands with ASO billets assigned include controlling custodians, type wings, Marine and Navy aircraft wings, Marine aircraft groups (MAG), air stations, training wings, and all activities designated as aircraft reporting custodians. Commanders of these organizations with ASO billets shall:

(1) Assign only graduates of the Naval School of Aviation Safety who are naval aviators or naval flight officers to the primary duty of ASO in manned aircraft squadrons. Aeromedical safety officers (AMSO), who are graduates of the ASO school, may be assigned as an ASO for short periods of time (6 months or less) if a naval aviator or naval flight officer is not available. For AMSOs expected to be in an ASO billet for longer than 6 months request a waiver from COMNAVSAFECEN. Commanders of Navy and Marine Corps air stations, who are not also reporting custodians, may assign the ASO as a collateral duty. United State Air Force (USAF), United States Army (USA), United States Coast Guard (USCG) or foreign exchange officer naval aviator or naval flight officer equivalents, who are on permanent assignment to U.S. Navy or USMC commands and who are graduates of the Naval School of Aviation Safety may be assigned to the primary duty of ASO. Make every effort to assign an officer who has been to the school in the past 4 years or provide that officer with ASO training at the Naval School of Aviation Safety. Experienced UAS officers or UAV operators, who are graduates of the Naval School of Aviation Safety, may be assigned the primary duty of ASO in UAV units.

(2) In circumstances where military billets have been substantially reduced, or to supplement the military ASO, the command may use a Civil Service employee as the ASO. Use the following criteria for selection and assignment of a Civil Service employee as an ASO:

(a) Retired, former or selected reserve naval aviators or naval flight officers. USAF, USA, or USCG equivalents to naval aviators or naval flight officers may also be used.

(b) ASO course graduate.

(c) Personnel who have not worked in the naval aviation safety field in the last 4 years should attend or re-attend the ASO course. If in an ASO billet they should re-attend the ASO course every 8 years. A refresher course structure may be modified (shortened) at the discretion of the Naval School of Aviation Safety and the individual's command dependent on the experience level of the attendee.

(3) Structure the command in a way that assures the ASO has either direct access to the commander or the commanding officer (CO), or access via the safety department head or the section head.

(4) Assign an enlisted aviation safety specialist as an assistant to the safety department. This person must be a graduate of the Aviation Safety Specialist Course (A-493-0065), taught by the Naval Safety and Environmental Training Center (NAVSAFENVTRACEN), or attend within 6 months of the assignment. For commands that are not reporting custodians and therefore not staffed as such, and units with less than 25 enlisted personnel assigned, this requirement is waived at the discretion of the commander. When able, commands are encouraged to assign an enlisted aviation safety specialist as an asset to the command aviation SMS.

(5) Establish and maintain a command aviation SMS per chapter 2 of this instruction.

(6) Do not assign the ASO to punitive or disciplinary duties such as administrative discharge boards, JAGMAN investigations, FNAEBs or field flight performance boards (FFPB).

h. Controlling custodians for purposes of this instruction, and without affecting command relationships established for other purposes are:

(1) CMC

(2) Commander, Naval Air Force U.S. Pacific Fleet (COMNAVAIRPAC, who is also COMNAVAIRFOR)

(3) Commander, Naval Air Force U.S. Atlantic Fleet
(COMNAVAIRLANT)

(4) Commander, U.S. Marine Forces Command

(5) Commander, U.S. Marine Forces Pacific

(6) Chief of Naval Air Training (CNATRA)

(7) Commanding General, 4th Marine Aircraft Wing

(8) Commander, Naval Air Force Reserve

(9) COMNAVAIRSYSCOM

(10) President, Naval Postgraduate School

(11) Director, Naval Criminal Investigative Service
(NCIS)

(12) Marine Corps Installations East

(13) Marine Corps Installations West

(14) Marine Corps Installations Pacific

(a) Other controlling custodians, for safety purposes, may be designated via a memorandum of understanding (MOU) with COMNAVSAFECEN when subordinate reporting custodians are designated to operate defined naval aircraft, UAVs and UASs.

(b) Controlling custodians shall:

1. Establish and maintain a command aviation SMS, per this instruction, managed by a trained ASO.

2. Advise and help subordinate commands conduct their command aviation SMS.

3. Define endorsing chains for subordinate commands.

4. Enforce the requirements for conducting mishap investigations.

i. Commanders of naval and Marine Corps air stations, air facilities, and expeditionary airfields shall:

(1) Establish and maintain a command aviation SMS program including assignment of a qualified ASO. Commanders of naval and Marine Corps air stations who are not aircraft reporting custodians may meet the requirement for assignment of an ASO following paragraph 107g(2).

(2) Maintain a pre-mishap plan coordinated with those of nearby commands.

(3) Report aviation mishaps occurring within their area of responsibility.

(4) Report aviation hazards on and around their airfields via the Web-Enabled Safety System (WESS) Aviation Mishap and Hazard Reporting System (WAMHRS).

(5) Secure aircraft or UAV wreckage within their area of responsibility.

(6) Support AMBs and mishap investigations of other Services, including wreckage recovery, transportation and salvage.

(7) Manage relations with local authorities, the public, and the press.

(8) Investigate and process claims originating from aviation mishaps.

(9) Provide access to, or a list of, environmental experts capable of coordinating the removal of environmental wastes and contaminants from a crash site and determining the extent of environmental damage.

(10) Have an installation coordinated plan between departments and organizations to quickly obtain tools and equipment not normally carried in squadron investigation kits such as: Tyvek suits, positive breathing apparatuses, picks, shovels, gas-driven circular saws, tri-walls, pallets, camping

gear for site security, foul-weather gear, water buffalo, sanitation equipment, food, communication equipment, floor wax (to dampen composite materials), and flood lights.

(11) Ensure that all personnel authorized to operate vehicles on airfield aircraft parking ramps, taxiways and runways complete an Airfield Vehicle Operators Instruction Course. A recommended course outline can be found on the NAVSAFECEN Web site.

(12) Maintain a bird-aircraft strike hazard (BASH) reduction program per CNICINST 3700 of 7 July 2011, Navy Bird/Animal Aircraft Strike Hazard Program Implementing Guidance.

j. GFR shall:

(1) Liaise between the manufacturer to whom they are assigned, their respective aircraft controlling custodian (ACC), and COMNAVSAFECEN.

(2) Forward all requests for naval aviation safety information to COMNAVSAFECEN via COMNAVAIRSYSCOM (AIR-09F) who will certify its legitimacy.

(3) Ensure those who request naval aviation safety information understands that data from the NAVSAFECEN is for safety purposes only and shall not be released by the requester.

(4) Ensure that SIRs are neither revealed nor released to unauthorized personnel.

k. Reporting custodians are COs and, in some cases, officers in charge (OIC) of detachment operations of Navy and Marine Corps aviation organizations who are responsible to account for, or otherwise provide information about, assigned aircraft or UAV or UAS. Reference (e) also contains information about aircraft and UAV custody. OICs should attend the Aviation Safety Command Course. Squadron level reporting custodians shall attend the Aviation Safety Command Course and:

(1) Appoint and maintain a standing AMB per this instruction. Controlling custodians shall ensure an appropriate AMB can be appointed to support detachments.

(2) Establish and maintain a pre-mishap plan.

(3) In case of a naval aviation mishap involving aircraft or UAV or UASs in their custody:

(a) Direct their AMB to investigate or request relief from mishap investigation and reporting responsibilities per this instruction.

(b) Ensure composition of their AMB is appropriate for the circumstances of the mishap.

(c) Request planning and estimator services necessary to determine severity of aircraft, UAV or UAS damage.

(d) Request engineering assistance in support of the investigation.

(e) Request other service personnel as observers to unit AMB.

(f) Request investigative assistance.

(g) Request help to recover wreckage.

1. ASOs shall:

(1) Act as principal advisor to the CO on all aviation safety matters.

(2) Advise and assist the CO in establishing and managing the command aviation SMS per this instruction.

(3) Maintain appropriate aviation safety records and mishap statistics.

(4) Coordinate safety matters among the organization's staff.

(5) Occupy a primary billet assignment when assigned as a reporting custodian ASO. ASOs at air stations may be assigned as a collateral duty when the commander of a Navy or Marine Corps air stations is not a reporting custodian.

m. AMSOs shall:

(1) Act as an advisor to the ASO on physiological and aviation life support system (ALSS) issues.

(2) Assist in preparing recommendations for physiological episode (PHYSEP) HAZREPs, and SIRs that contain physiological and ALSS causal factors.

(3) Support aircraft mishap investigations. This support is provided as either a full member or as a technical advisor to AMBs.

(4) Assist ASO in gathering all ALSS equipment for possible EIs.

(5) Assist in evaluating pre-mishap plans with emphasis on aeromedical participation and support.

(6) Develop and maintain an effective aeromedical safety brief program by establishing a liaison with operations personnel in conjunction with safety, Naval Survival Training Institute, Naval Aviation Survival Training Program, and NATOPS personnel to ensure state of the art, mission specific and relevant physiological threat briefs.

(7) Provide required and recommended briefs outlined in reference (d).

n. Aviation safety specialists (petty officer or non-commissioned officer) shall:

(1) If Navy, complete the downloadable non-resident training course Naval Safety Supervisor (NAVEDTRA 14167F) and attend the Aviation Safety Specialist Course (A-493-0065). If in a USMC command, attend Ground Safety for Marines and the Mishap Investigation Course.

(2) Assess risks.

(3) Train work center personnel in mishap prevention.

(4) Maintain records of the use, storage, labeling, and disposal of hazardous material.

(5) Monitor surveillance programs applicable to hearing and sight conservation and respiratory protection.

(6) Teach new people about specific safety hazards.

(7) Identify and mark properly all hazard areas.

(8) Oversee the selection, care and use of personal protective equipment.

(9) Ensure machine guards are in place and safety precautions posted.

(10) Investigate and maintain records of all injuries and mishaps.

(11) Investigate in-house reports of hazards.

(12) Evaluate safety and occupational health performance. Coordinate programs, such as private and Government motor vehicle, recreation and off duty safety.

(13) Represent the command at base and ship safety meetings.

o. Division safety petty officer or non-commissioned officer shall:

(1) If Navy, complete the downloadable non-resident training course Naval Safety Supervisor (NAVEDTRA 14167E).

(2) If USMC, attend Ground Safety for Marines Course.

p. Senior member, standing AMBs shall:

(1) Train the AMB.

(2) Equip and keep ready the command mishap investigation kit.

(3) Test the command pre-mishap plan.

(4) When appropriate, recommend the appointing authority any augmentation to the AMB, replacement of its members, or other changes in its composition to comply with this instruction.

(5) Supervise investigations conducted by the AMB and publish their findings.

(6) Know this instruction; the Technical Manual, Safety Investigation (NAVAIR 00-80T-116); the command's aviation safety program; and the command's pre-mishap plan.

(7) Include in all system-related class A and class B SIRs, the system program office analysis of hazards that contributed to the mishap and recommendations for materiel risk mitigation measures, especially those that minimize potential human errors.

(8) Lead the AMB through consensus. All members have an equal voice. No one has a veto.

q. Standing AMBs members shall:

(1) Know this instruction; the Technical Manual, Safety Investigation (NAVAIR 00-80T-116); the command's aviation SMS; and the command's pre-mishap plan.

(2) As directed by the AMB senior member, participate in the investigation of hazards and mishaps. Help prepare the reports required by this instruction.

r. All naval aviation personnel shall:

(1) Know those safety regulations and directives applicable to them and to their assigned duties.

(2) Follow established safety standards.

(3) Report hazards and mishaps following their command aviation SMS and this instruction.

(4) Submit to physical examination and biological testing as deemed necessary by the CO, reporting custodian, senior member of an AMB, or NAVSAFECEN mishap investigation

representative following any mishap or incident with potential to meet defined naval mishap limits as set in this instruction.

s. Aircraft and weapons system program managers shall:

(1) Support system-related class A and class B mishap investigations by providing analyses of hazards that contributed to the mishap and recommendations for materiel risk mitigation measures, especially those that minimize human errors.

(2) Ensure unmitigated residual safety risks are accepted at the appropriate levels as defined in DoD Instruction 5000.02 of 23 November 2013.

(3) Obtain user representative formal concurrence prior to all serious and high residual risk acceptance decisions.

108. Safety Policy for Accountability for Aviation Mishaps

a. General Rule. COMNAVSAFECEN assigns each naval aviation mishap to one reporting custodian. As a result, accountability can be consistently determined regardless of a mishap's causal factors. This prevents lengthy delays and avoids the dilemma wherein causal factors are attributed to two or more reporting or controlling custodians, or to activities that are not naval aircraft or UAV custodians. This rule assures proper accountability and valid mishap statistics.

b. General Rule Considerations

(1) Multi-Aircraft Mishaps. When mishaps involve aircraft from more than one custodian, to avoid double counting, COMNAVSAFECEN will assign one reporting and one controlling custodian for each mishap.

(2) Inter-service Aviation Mishaps. Inter-service aviation mishaps are those that involve aircraft or UAVs of one Military Service and the aircraft or UAVs, personnel, services, facilities, or equipment, of another. To avoid double-counting a single incident, only one Service will assume accountability and DoD reporting responsibility for the mishap, its attendant costs, and injuries. The commanders of the military safety

centers from the Services involved will jointly determine accountability. If agreement cannot be reached, each Service shall report its own losses for the mishap.

(3) Naval Aviation Fleet Readiness Center Mishaps. Assign mishaps involving naval aircraft in the custody of a fleet readiness center to COMNAVAIRSYSCOM.

(4) CNATRA Mishaps. When the training wing commander is the reporting custodian for a training command aircraft involved in a mishap, the CO of the training squadron involved will undertake the responsibilities of the reporting custodian pursuant to this instruction. If more than one squadron is involved, the senior CO will commence the mishap investigation. CNATRAININST 3750.23M, Naval Air Training Command Aircraft Mishap and Hazard Reporting (NOTAL), refers. If no squadron is involved, then assigning the mishap to the wing is usually appropriate.

(5) Contractor Mishaps. Assign mishaps to aircraft or UAVs in the physical custody of a commercial contractor to the controlling custodian who oversees the writing and administration of the contract.

(6) Aircraft or UAVs Temporarily Assigned to Another Reporting Custodian. Controlling custodians may approve temporary loan or transfer of aircraft or UAVs between reporting custodians. This includes transfer to and from consolidated maintenance organizations. The receiving reporting custodians may assume responsibility for mishaps occurring while the aircraft or UAV is in their possession. A detailed MOU between loaning and receiving organizations is highly recommended. The MOU shall clearly define mishap investigation, reporting and accountability responsibilities in the event of a mishap.

c. Unclear Cases. COMNAVSAFECEN will determine accountability, or accountability reassignment, in any case where accountability is unclear. Accountability will be reassigned after a discussion with the involved controlling custodian(s). See chapter 9 for absolution of a mishap.

109. Safety Policy for Retention of Records

a. WAMHRS automatically retains SIRs and endorsements. Squadrons may retain reports and non-controlling custodian staffs may retain SIRs and endorsements required by this instruction for up to 2 years from the mishap date, at which point they must be destroyed or modified as stated below to serve as a training aid. File SIRs by aircraft or UAV type and date of mishap. Do not file SIRs according to any person's name or other personal identifier. Do not retrieve information from SIR files by an individual's name or other personal identifier. Make every effort to purge files in a timely manner. SIRs may be retained as a training aid only after every trace of identifiable data that could connect the report to an individual, organization, or a particular mishap is expunged from the record. Protect these training SIRs just like privileged documents. COMNAVSAFECEN shall retain and destroy reports and endorsements per SECNAV M-5210.1, Department of the Navy Records Management Program, of January 2012.

b. Statements, diagrams, photographs, and notes, gathered by an AMB during an investigation, but not included in the SIR, shall be retained by the AMB's appointing authority until the date of SIR's last endorsement. Absent any action involving these documents at that time, they must be destroyed. AMB members shall not keep a personal copy of the SIR. If Navy legal authorities announce pending legal action, store source documents used in the investigation in a secure area until the legal process has run its course. Call the COMNAVSAFECEN staff attorney at DSN 564-3520, Ext 7047 or commercial (757) 444-3520, Ext 7047 for guidance.

c. Dispose of aircraft logs and records of destroyed aircraft per reference (e)

d. Dispose of service and health records of missing or deceased naval personnel per NAVPERS 15560D, The Navy Military Personnel Manual, or MCO P1070.12K, Marine Corps Individual Records Administration Manual. Dispose of all other records locally. Aviator's logbooks, training jackets and NATOPS jackets may be given to the next of kin.

110. SRM Pillar. Risk is inherent in all tasks, training, missions, operations, and in personal activities no matter how routine. The most common cause of task degradation or mission failure is human error, specifically the inability to consistently manage risk. Risk management is a formal, systematic system for identifying, controlling or eliminating hazards that weigh risks against mission or task benefits. Risk management is a decision making aid, available to all levels in the chain of command, to meet mission objectives while managing risk to an acceptable level.

a. ORM. Reference (g) defines the ORM Program which includes the three levels of ORM, the four principles of ORM, the five-step ORM process and the time-critical ABCD model to the address hazards and risks for assigned missions. It contains risk management policy, guidelines, procedures, standards, responsibilities and establishes its training continuum.

b. Other Hazards and Risk Controls. The Naval Aviation SMS defines or intersects with numerous other processes and forums for hazard identification and risk control. These include, but are not limited to CRM, systems safety working groups, human factors councils and boards, an anymouse program, aviation safety awareness program (ASAP), military flight operations quality assurance (MFOQA), fatigue management, incident and mishap investigations and reporting.

c. Reporting Hazards. Every command and every individual, in naval aviation has an obligation to report hazards. Reporting hazards is one form of administrative control that warns similarly equipped and tasked commands of newfound dangers. Each aviation safety program must encourage and reward hazard reporting.

(1) Hazard Reporting Before a Mishap. The medium for highlighting hazards before they contribute to a naval aviation mishap is the HAZREP. Submit HAZREPs whenever the potential for damage or injury exists.

(2) HAZREP After a Mishap. The program provides for reporting hazards that cause mishaps, and damage or injury occurring during mishaps, via the SIR. However, a sanitized HAZREP issued before the SIR is published will often provide the

fleet with a timely warning of a potential source of damage or injury. A sanitized HAZREP does not include the aircraft bureau number, date and location of incident. See chapter 5 for specific procedures.

d. Prioritizing Controls. Hazards are ranked based on their risk assessment codes (RAC) as defined in reference (g) and appendix B. The degree of effort spent to eliminate or control a hazard should be tailored to the assessed risk and the resources available. RACs are assigned to hazards so efforts can be prioritized based on the level of risk associated with the hazard and the resources available. If resources are not available to reduce risks to an acceptable level, these risks must be addressed up the chain of command.

111. Safety Assurance Pillar. Safety assurance evaluates the continued effectiveness of implemented risk control strategies and supports the identification of new hazards in order to ensure continuous improvement and effective management of change. This evaluation is based on information derived from numerous sources. These are typically surveys, audits, or workshops, but can be any source of information or evaluation of an organization's SMS. Several processes within the SMS support safety assurance, including, but not limited to, MFOQA, ASAP, online surveys, such as command safety assessments and maintenance climate assessment surveys, culture workshops, safety surveys, incident and mishap reporting (HAZREPs and SIRs), maintenance inspections, fatigue management systems, and human factors processes, such as human factors councils and boards and operational risk management.

112. Safety Promotion Pillar. No SMS can be entirely successful without safety promotion. Safety promotion includes training, communication, recognition for successes, awards and other actions to create a positive safety culture within all levels of naval aviation. A substantial portion of safety promotion is accomplished by COMNAVSAFECEN through periodically published magazines such as *Approach* and *Mech*, the CNO Safety Awards Program, message traffic, safety surveys, culture workshops, maintenance risk management presentations, the NAVSAFECEN Web site, videos, safety posters, presentations at conferences, symposia and meetings, and courses taught by the Naval Safety and Environmental Training Center. The School of Aviation Safety accomplishes safety promotion through the

aviation safety command, ASO and CRM instructor courses. Additionally, controlling custodians, air stations, wings, groups, squadrons, fleet readiness centers, Marine air logistics squadrons, afloat intermediate maintenance activities, and other aviation activities shall establish safety promotion programs commensurate with the size and scope of the organization. Much of this can be accomplished by encouraging the use of, and taking advantage of, NAVSAFECEN products and services.

113. Concept of Safety Privilege

a. Protection of Privilege. Military and Federal courts grant protection from public release and non-safety uses under executive privilege to information given under promises of confidentiality, and to the analysis, conclusions and recommendations of the AMB and endorsers. Privileged safety information includes, but is not limited to, notes taken by members of an AMB, witness statements given under a promise of confidentiality and any information derived there from, any documents, photographs, films, videotapes, and sketches that are staged, reconstructed, or contain annotations that reveal the opinions or conclusions of the AMB, and simulated reenactments of possible or probable scenarios developed by or for the analysis of the AMB. COMNAVSAFECEN is the final authority in determining whether or not a piece of evidence is protected by the safety privilege.

b. Promises of Confidentiality. Members of the AMB may give promises of confidentiality, but should do so sparingly. If a witness initially refuses to make a statement, or seems to be reluctant to provide a complete statement, the AMB may offer the promise of confidentiality. Members must judge whether confidentiality is necessary to insure a witness' full cooperation. The promise of confidentiality must be explicitly given. There are two pages in the OPNAV 3750/16 Safety Investigation Report Enclosure (Promise of Confidentiality) Advice to Witness. When granted, the protected witness must sign the OPNAV 3750/16 page that offers a promise of confidentiality. Maintain all witness statements, related documents and records with other mishap documents. The Naval Aviation SMS has long benefited from the willingness of personnel to confide in AMBs and ASOs. The fact that the promise will be explicitly given or withheld will strengthen those promises that are given. Witnesses not given promises of

confidentiality will sign the OPNAV 3750/16 page that does not offer a promise of confidentiality. Information taken from these witnesses remains subject to restrictions on its use and release per this instruction.

c. Privileged Information Rules

(1) Privileged information shall not be used:

(a) In any determination affecting the interest of an individual making a statement under a promise of confidentiality.

(b) As evidence or to get evidence in making a misconduct or line-of-duty determination pursuant to the JAGMAN.

(c) As evidence to determine the susceptibility of personnel to discipline.

(d) As evidence in claims on behalf of the Government.

(e) As evidence to determine the liability of the Government for property damage caused by a mishap.

(f) As evidence before administrative bodies such as naval aviator and naval flight officer evaluation boards, field flight performance boards or administrative separation boards.

(g) As evidence before, or as any part of, a JAGMAN investigation report.

(h) In any other punitive or administrative action taken by DON.

(i) In any investigation or report other than aviation mishap safety investigations report.

(j) As evidence in any court, civilian or military.

(2) The actions above will:

(a) Overcome an individual's reluctance to reveal complete and candid information about the circumstances surrounding a mishap.

(b) Encourage AMBs and endorsers of aircraft SIRs to provide complete, open and forthright information, opinions, and recommendations about a mishap.

(3) Privilege allows those involved in mishaps to tell the truth about their actions (or inaction), command climate, or anything else that may have contributed to a mishap, safe from fear of retribution. If privileged information was allowed to be used for purposes other than safety, vital safety information might be withheld.

(a) Witnesses are not sworn. Requiring them to take an oath prior to making a statement is prohibited. Advise them in writing, using the appropriate page of OPNAV 3750/16, as to why they are providing their statement and of the limitations placed on the release of the statement they are providing. Witnesses need not limit their statements to matters to which they could testify in court. Invite them to express opinions and speculate on possible causes of the mishap.

(b) In one respect, the rationale for designating mishap investigative information as privileged is more important than the rationale for encouraging witnesses to be candid. AMBs and endorsers must feel free to develop information that could be vital for mishap prevention without fear that it could be used for purposes other than safety. Every SIR involves AMB members and endorsers. Not every mishap has witnesses who would require a promise of confidentiality as encouragement to make a statement.

(c) Individuals may be reluctant to reveal information pertinent to a mishap because they believe that information could be embarrassing to themselves, their fellow Service Members, their command, their employer, or others. They may also elect to withhold information by exercise of their constitutional right to avoid self-incrimination. Members of the Military Services must be assured that they may confide in

safety professionals for the mutual benefit of fellow Service Members without incurring personal jeopardy in the process.

(4) To continue the revelation, development, and submission of privileged information in aviation SIRs and endorsements, everyone in naval aviation must keep faith with the promises that are made while gathering it. Every failure to protect privileged safety information from improper release or use weakens the protections against the same that have been acquired in numerous court opinions. Defenders of naval aviation safety have argued all the way to the Supreme Court that the efforts taken to protect privileged safety information are the normal course of business. When the rules are not followed the argument loses its fidelity. Repeated violations of this trust will destroy the credibility of the Naval Aviation SMS that has always depended on its ability to protect privileged information for its success. The following safeguards will help protect privileged information:

(a) Witness Statements. Do not share privileged or non-privileged witness statements with any one or any organization except as authorized in this instruction.

(b) Investigations. The distinction between aviation mishap safety investigations and other investigations is important and must be understood. Aviation mishap safety investigations shall be independent of, and separate from, all other investigations. The safety investigation is the primary investigation and shall initially control all witnesses and evidence unless there is clear evidence that criminal activity caused the incident. Parallel investigations (JAGMAN and NCIS) will be conducted also and the sharing of non-privileged information between investigations is encouraged. The safety investigation shall ensure that other investigations are given access to non-privileged factual information and documents not derived from privileged safety sources. Witness statements (privileged and non-privileged) shall not be given to other investigative bodies. If evidence of criminal activity is discovered, the safety investigators shall suspend their investigation, preserve the evidence, and immediately notify the safety investigation convening authority and COMNAVSAFECEN. The convening authority will contact the NAVSAFECEN for further guidance.

1. Inter-Service (joint or combined) participation in aviation mishap investigations (authorized by COMNAVSAFECEN or higher authority) is the only time information and opinion may be shared outside the AMB. Cooperation between investigative boards may include division of labor, joint review of evidence, exchange of witness' statements, and joint deliberations.

2. Occasionally mishaps involving naval aircraft, facilities and personnel will meet the reporting criteria of more than one mishap reporting system. When that happens, reporting custodians shall make an IN and describe the unusual circumstances they have encountered. COMNAVSAFECEN and the controlling custodian shall determine which mishap reporting system will be used.

3. AMBs and investigations may require the help of other activities. Requests for help are not privileged and they must be carefully reviewed to be sure that they do not contain privileged information. Technical specialists working with AMBs are not board members. As a general rule, exclude them from deliberations and deny them access to the content of the SIRs (except as authorized elsewhere in this instruction). At the discretion of the senior member of the AMB, privileged information may be shared with technical specialists working with AMBs if necessary and only for those personnel who have access to privileged information and will read the mishap report once published (e.g., test pilots, COMNAVAIRSYSCOM Civil Service employees, etc.).

(c) Investigators. Members of AMBs shall not, nor may they be requested to, divulge their opinion or any information that they arrived at, or to which they became privy, in their capacity as a member of an AMB. Do not assign members of AMBs to any other investigation convened as a result of the same mishap, including JAGMAN investigations, field naval aviator or FNAEBs, or FFPBs.

(d) Independence of SIRs

1. All SIRs, including their endorsements, consist of privileged and non-privileged information. Do not append any SIR or extracts from an SIR, or include them in, JAGMAN investigation reports, fleet naval aviator or naval

flight officer evaluation board reports, field flight performance board reports, nor any other report. Do not include Navy JAG as a recipient of an SIR, or endorsement to an SIR, in WAMHRS.

2. Likewise, to prevent any inference of associations with disciplinary action do not include reports of JAGMAN investigations, fleet naval aviator or naval flight officer evaluation board reports, and field flight performance board reports in an SIR.

(e) Administrative Safeguards

1. Non-privileged information derived from an SIR that was submitted via the WAMHRS may be disclosed by COMNAVSAFECEN. Factual data fields within WAMHRS are not privileged. Any narrative field within the system with the potential to contain privileged information has an indicator check box to signify if the information is privileged. Selecting the checkbox will prevent any person without specific access to privilege from being able to access the information. The privileged material in an SIR will not be released for any purpose other than aviation safety. COMNAVSAFECEN is the only releasing authority for privileged or non-privileged material in an SIR. The same non-privileged material is usually available in the original source documents for the JAGMAN investigation.

2. Distribution of any part, including documents or forms, from an SIR to any person or any command not specified in this instruction or authorized by CNO, is strictly prohibited and constitutes a criminal offense. Only SECNAV may authorize release to other than aviation safety organizations.

3. Commands must strictly limit the distribution of SIRs to those personnel who require the report for safety purposes.

4. Privileged reports and endorsements required by this instruction are submitted in WAMHRS and automatically include the following statement:

FOR OFFICIAL USE ONLY

THIS IS A PRIVILEGED, LIMITED-USE, LIMITED-DISTRIBUTION, SAFETY INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT OR ITS SUPPORTING ENCLOSURES BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION UNDER 5 USC 7503, 7405, 7513, 7514, 7121, 7701, 7702 and 7703. THIS REPORT MAY NOT BE RELEASED, IN WHOLE OR IN PART, EXCEPT BY THE COMMANDER NAVAL SAFETY CENTER.

5. Do not send SIRs to activities outside the DON, unless specifically authorized by CNO, CMC, or COMNAVSAFECEN. Controlling custodians, CNO, CMC, or COMNAVSAFECEN may readdress SIRs and endorsements to DON addressees for endorsement or MISREC (corrective action) response.

6. Transmit SIRs and their endorsements only through .mil systems.

(f) Special Handling. The term "special handling" assures that access to these privileged documents is strictly limited to those individuals concerned with naval aviation safety. Apply common sense to determine exactly what handling actions would be appropriate. For example:

1. Uncontrolled distribution of SIRs (such as placing them in reading racks, on general access message boards, or on bulletin boards) is altogether inappropriate. Distributing SIRs on local area networks, electronic mail (e-mail), or bulletin board systems shall be controlled and authorized only by the commander, CO or safety officer.

2. Routing SIRs in file folders, which ensure access only to those who need to know their content for safety purposes, is appropriate.

3. Addressees in community of interest (COI) are closely controlled by COMNAVSAFECEN. Only commands or agencies routinely flying a specific aircraft or in the endorsing chain for mishaps of that aircraft or UAV and UAS which have an ASO billet assigned, will be included.

(g) For Official Use Only (FOUO). All reports required by this instruction must be labeled "For Official Use Only." See SECNAV M-5510.36, Department of the Navy Information Security Program, of 30 June 2006 for instructions on their handling.

(5) COMNAVSAFECEN will share safety information gleaned from reports received under this instruction. At a minimum, distribution will be made to the controlling custodians. The privileged status of an SIR will never inhibit the swift dissemination of this essential information. COMNAVSAFECEN shall, in order of preference:

(a) Extract essential safety information from the report and disseminate that information through an article in a periodical, flight safety advisory message, analyst newsletter, or correspondence concerning recommended corrective action.

(b) Sanitize from the report all data that could reveal the identity of any person, organization, or incident, and then provide the essential safety information that remains.

(c) Readdress or forward the SIR.

(6) Reference (a) allows for the sharing of privileged information with DoD contractors, foreign safety organizations and non-DoD U.S. Government agencies. This sharing is accomplished by the COMNAVSAFECEN only through a reciprocal sharing agreement or a non-disclosure agreement as required. Witness statements are never shared.

114. NATO STANAGs. It is important for Allies to standardize the way they operate with each other. The NATO Allies have expanded this standardization into aviation safety. When operating with NATO nations check to see if the nation has ratified the STANAG or ratified with reservations. The STANAGs that relate to aviation safety and the U.S. Navy's implementing document are:

a. STANAG 3117 FS - Aircraft Marshalling Signals - Aircraft Signals NATOPS Manual.

b. STANAG 3379 FS - In-Flight Distress Signals-Aircraft Signals NATOPS Manual.

c. STANAG 3531 FS - Investigation of Aircraft Accidents-OPNAVINST 3750.6S.

d. STANAG 3533 FS - Safety Rules for Flying Displays-reference (d).

e. STANAG 3564 FS - Rules for Live Air Weapons Demonstrations - reference (d).

f. STANAG 3750 FS - AIRMISS Reporting and Investigation - OPNAVINST 3750.6S.

CHAPTER 2
COMMAND AVIATION SMS

201. Purpose. This chapter describes the command aviation SMS and lists those naval organizations required to adhere to its requirements. A command aviation SMS consists of written policies, procedures, and plans, coupled with the attitudes and practices that promote aviation safety. Its only purpose is to preserve human lives and material resources and, thereby, to enhance readiness. An effective command aviation SMS supports the objectives of the Naval Aviation SMS - zero mishaps. Their goals are parallel: to eliminate hazards and enhance the safety awareness of all hands. To accomplish this naval aviation must identify, and eliminate or control hazards, promote safety awareness, and maintain the highest possible standards of conduct and performance. A sample command aviation SMS can be found at appendix 2A.

202. Requirements for a Command Aviation SMS. Those organizations that must establish and maintain a command aviation SMS are:

- a. ACCs as defined in this instruction.
- b. Aircraft reporting custodians as defined in this instruction.
- c. Commands with ASO billets.
- d. Naval and Marine Corps air stations.
- e. All activities supporting aircraft and UAV and UAS launch and recovery operations.

203. Safety Policy Requirements

a. Commander SMS Support. The commander who exhibits a positive attitude toward their aviation SMS has already overcome a major obstacle to a successful command aviation safety effort. Establishing clearly defined safety goals and objectives, setting high safety standards, creating an environment which rewards effective risk management, using information to evaluate and improve and promoting safety education and training are equally important elements of a successful command aviation SMS.

b. Organizational Culture, Command Climate, and Safety. Organizational culture is the collection, or pattern, of shared values, attitudes, approaches to problem solving, and norms widely accepted by the organization's constituents. The command climate is generally described as the shared perceptions members have about the command, or issues facing the command. Leveraging organizational culture and a positive command climate, the CO can positively influence the behaviors and decisions made by personnel in his or her command. Commanders' actions that help shape a positive climate are: protection of free flow of safety information at all levels of the command; deep-seated and sincere safety awareness in the command; a sense of pride coupled with competence and professionalism; and establishment of clear and achievable goals and norms. By shaping a positive command climate, the commander promotes decisions and actions by all hands that identify hazards and mitigate risks. In turn, the climate will promote a pattern of values and attitudes that result in operational excellence.

c. Command Safety Goals. Commanders shall establish a clear set of aviation safety goals and set forth an aviation safety policy that defines how their personnel may attain these goals.

d. Command Safety Organization. Commanders shall describe their command's safety organization, define its requirements, and delineate the functions of each member of their safety organization. They shall assign their flight surgeon, or the wing flight surgeon, who serves their command with the responsibility for the aeromedical aspects of the Command Safety Program.

e. General Safety. The command shall establish the NAVOSH and general safety programs required by references (e) and (f) and OPNAVINST 5100.23G. These safety programs, in part, include: Hearing and sight conservation, traffic safety, flight deck and flight line safety, respiratory protection, off duty safety, fall protection and hazardous materials.

204. SRM Requirements

a. Hazard Detection. A command aviation SMS shall include procedures to detect hazards. Hazards may exist because of a bad design, improper or unprofessional work or operational

practices, poor training or inadequate preparation, out-of-date instructions and publications, or because the environment itself is both demanding and unforgiving. Everyone in the command must be charged with supporting risk management by identifying and reporting hazards to the appropriate authorities.

b. Risk Mitigation. Like hazard detection, risk mitigation is an all-hands effort. Some hazards are readily identifiable and easy to correct; others, just the opposite. An example of the former is requiring a co-worker to wear proper protective equipment which is an easy fix. An example of the latter is discovering a design deficiency that causes a part to fail prematurely. The redesign, testing and manufacture of a replacement will prove both costly and time-consuming. The key to risk mitigation is an effective risk management program - one which raises hazard awareness, provides risk controls, and maintains their effectiveness through proper supervision.

c. Investigation of Suspected Hazards. Investigate and recommend corrective action on all hazards discovered and reported.

d. Reporting of Hazards. The command shall report hazards, regardless of outcome, as required by this instruction, reference (e), and other applicable directives. Reporting hazards enhances safety awareness, helps get problems corrected, and improves procedures, processes, and materials.

e. Aviation Safety Council. Squadrons, air stations, and other large commands shall form an aviation safety council that will meet at least quarterly to set goals, manage assets, review safety-related recommendations, and keep records of their meetings. The council, chaired by the CO, OIC or executive officer, with the aviation and ground safety officers and the flight surgeon as permanent members, shall review enlisted aviation safety committee minutes, command plans, policies, procedures, conditions and instructions to ensure their currency, correctness and responsiveness to safety recommendations.

f. Enlisted Aviation Safety Committee. Division safety petty officer or non-commissioned officers from every work center in the command shall form the enlisted aviation safety committee. In monthly meetings, chaired by the aviation safety

specialist, they shall discuss safety deficiencies and provide recommendations for improving safety practices and awareness. The aviation safety specialist, or his or her appointee, shall keep a record of attendance and discussion topics. Recommendations shall be forwarded to the aviation safety council. The CO shall respond to their recommendations in a timely manner.

g. Human Factors Review. COs have two methods by which they may stay apprised of the physical condition, the psychological well-being, the attitudes, and the motivation of their aircrews. The first is a regular, proactive, informal, human factors review of all officer and enlisted aircrew. The second is a formal review conducted whenever the CO thinks it is necessary. Commanders shall undertake their human factors review process as directed by controlling custodian or other higher authority instructions on the subject.

(1) Informal reviews will be conducted by a human factors council that include, as a minimum, either the commanding or executive officer, the ASO, the operations officer, the training officer, the NATOPS officer, and the flight surgeon. The information generated is for the CO's use only for the enhancement of safety. It shall be kept in confidence and shall not be used for disciplinary or administrative action. No official record or report is required; however, personal notes may be produced and retained by the CO.

(2) Human factors boards will conduct a formal review of any area of an aircrew member's performance, training, health, attitude or motivation felt by the CO to be relevant. The human factors board should include, as a minimum, the ASO, flight surgeon, and any additional officers of the CO's choosing. The human factors board should be proactive. It is to be convened early on, once a significant problem is discovered. Its goal is to identify the specific problem(s) and provide a course of action for resolution. A formal report with conclusions and recommendations should be produced and forwarded to the CO for determination of final action.

(3) Human factors board and council reports, notes, materials or other work-product shall not be appended or made an enclosure, in whole or part, to any SIR or safety investigation

file. The information contained in these documents or gained from interviews with board or council members may be used in an SIR. This information would be privileged.

205. Safety Assurance Requirements

a. Safety Surveys. Safety surveys shall be conducted periodically to assess the command's SMS. Specifically, squadrons and other units with manned aircraft or UAVs shall request a formal safety survey from COMNAVSAFECEN every 3 years regardless of an informal safety survey conducted in the interim. In the event that COMNAVSAFECEN is not able to schedule a formal safety survey within a 3-year period since the last formal survey, units shall conduct an informal safety survey. Informal safety surveys shall be accomplished externally through the services of a sister aviation command. The surveyed command shall contact the NAVSAFECEN for current checklists and provide them to the sister command. A completed copy shall be provided by the sister command to the command surveyed and the NAVSAFECEN. Air stations and fleet area control and surveillance facilities shall also request a formal survey from COMNAVSAFECEN every 3 years. As a matter of policy, safety survey results are provided only to the surveyed CO, and his or her subordinates, in a customer-client relationship. In circumstances where survey results indicate serious safety of flight concerns (e.g., personnel, operations or equipment) COMNAVSAFECEN safety survey team leaders shall contact the Director, Aviation Safety Programs or the Deputy Director, Aviation Safety Programs and COMNAVSAFECEN for further direction.

b. Command Culture Workshop. Culture workshops provide a tool for commands to gain insight into the attitudes and behavioral norms of their members. Senior Navy and Marine Corps Reserve and NAVSAFECEN senior aviators facilitate this 2-day workshop format. The process is designed to provide a strictly confidential external assist in aiding command leadership in identifying and mitigating risks associated with human behavior. Requests for workshops shall be directed to COMNAVSAFECEN.

c. Anymouse Reporting. All command safety programs shall provide a system for anonymously reporting hazards. Command personnel must be able to make a submission without fear of retribution. Anonymous on-line or electronic systems such as

ASAP may be used as long as all command personnel have access to the system. If used, Anymouse boxes must be placed in a location where command personnel can make a submission without being observed. Do not include a requirement for the name of the person making the submission. Commands shall set up a feedback mechanism to address issues raised by the program.

d. On-line Safety Climate Assessment Surveys. There are many on-line climate assessment surveys available including the Commander, Naval Air Forces managed Command Safety Assessment Maintenance Climate Assessment Survey. The periodicity and requirements for these surveys is determined by Service directives.

e. ASAP. Where ASAP is used, per reference (d), ASAP information shall be scrubbed by ASOs, such that individual reports are non-attributable.

f. MFOQA. While MFOQA is not a safety-specific tool, used properly in the context of aviation safety and a command SMS, MFOQA will have a significant impact on safety assurance and safety promotion. MFOQA should be used as a predictive tool to identify trends that could lead to a mishap. In order to promote its effectiveness when used as a safety tool, information derived from MFOQA should be non-attributable and should not be used in a punitive fashion.

206. Safety Promotion Requirements

a. Safety Education and Awareness. Every command's aviation SMS must contain a safety marketing, education and awareness element designed not only to educate its members on the proper management of safety information, but also teach them how to identify, report, and correct hazards. This educational effort includes the requirement for certain designated personnel to attend formal U.S. Navy aviation and other safety-related courses of instruction. Unit safety training shall encompass all safety subjects including aeromedical safety, and the principles and practical applications of risk management. Training in the proper management of safety information shall include:

(1) Collection of Safety Information. That includes guidance on how to properly receive and care for safety reports, correspondence, publications, films, and other safety materials.

(2) Distribution of Safety Information. That includes guidance on how to distribute safety reports, safety correspondence, periodicals, and other safety materials.

(3) Control of Safety Information. The proper control of certain information is critical to the success of the Naval Aviation SMS. This instruction prescribes the proper distribution, handling, use, retention, and release of this information. See paragraph 706 for additional guidance on protection of safety information by AMB members.

b. Safety Stand Downs. Commands shall conduct periodic safety stand downs devoted to providing dedicated time for safety training, awareness, and enhancement of the command safety climate.

c. Safety Training. Commanders shall ensure safety training is conducted and properly documented. Lacking a waiver from higher authority, every effort shall be made to properly train those individuals who occupy a position for which formal safety instruction is mandatory.

d. Exchange of Safety Information. Encourage the exchange of safety information. Require command personnel to attend safety council meetings. Commands should liaise with senior staffs, nearby commands, and subordinate activities on safety-related matters. Write safety articles and submit them for publication.

207. Command Aviation SMS Functions. The success of the Naval Aviation SMS depends on the success of each command's aviation SMS. Integrated application of the four pillars of the SMS will ensure the primacy of hazard detection, risk control, safety education and awareness and a strong safety culture throughout naval aviation.

208. AMBs

a. AMBs and the SMS. AMBs apply universally to all the pillars of the SMS. Each squadron level aircraft reporting

custodian shall maintain at least one standing AMB that squadron executive officer leads. Graduates of ASO course shall train the standing AMB members to the requirements of this instruction as they pertain to mishap investigation, in mishap investigation techniques, handling privileged information, and writing SIRs. Detachments are not required to maintain a standing AMB but shall have personnel trained to initiate an investigations until the appointed AMB arrives. An additional trained standing AMB may be of value for squadrons that routinely deploy detachments.

b. Appointment of AMBs. The ACC, or an appointing authority designated by the ACC, shall appoint AMB members by name and in writing. On all class A mishap investigations, appoint the senior member from a command not involved in the mishap - preferably from outside the expected endorsing chain. The senior member for class A mishaps will be a naval aviator or naval flight officer (a commander or lieutenant colonel or above), a graduate of the ASO or aviation command course, or have other suitable training or qualifications acceptable to the ACC. For class B or C mishaps, the senior member may be from the reporting custodian and shall be of higher seniority by rank or lineal number, than the pilot in command and mission commander. Class D mishaps and some minor injury class C mishaps do not require an AMB. Class C mishap injuries that are 1 or more days away from work up to and including 10 days away from work require a mishap report however, the investigation may be conducted by one officer or by one Civil Service employee in an aviation safety billet. This reduced board is at the discretion of the reporting custodian or appointing authority. All class D mishaps may be investigated, as determined by the reporting custodian or appointing authority, by one commissioned officer or by one Civil Service employee in an aviation safety billet. Appendix 2B contains a sample appointing letter.

c. Basic AMB Composition. The following applies to AMBs under all conditions, except direct enemy action (DEA):

(1) Members of AMBs shall be drawn from the ranks of commissioned officers on active duty in the U.S. Navy or USMC. Civil Service personnel in designated aviation safety billets in naval aviation commands may serve as AMB members. Officers on exchange duty from other Services, the USCG, or foreign militaries and Civil Service personnel may serve on AMBs, but may not be the senior member. Chapter 7 describes the

requirements for inter service participation on AMBs. Enlisted personnel with the rank of E-6 and above may serve on AMBs for UAVs.

(2) Except for some class C mishaps involving minor injuries and all class D mishaps, the minimum AMB membership shall consist of four personnel drawn from the command's standing board: at a minimum, an ASO (ASO course graduate), a flight surgeon, an officer well-qualified in aircraft maintenance, and an officer well-qualified in aircraft operations is required.

(3) The senior member of each AMB shall be a naval aviator or naval flight officer. The senior member of a class A mishap board shall have WAMHRS release authority for MDRs and the SIR. All other senior member functions will remain the same as outlined in this instruction.

(4) Sometimes an appointing authority may not have enough qualified personnel in the command, may be operating in a remote location, or for other reasons be unable to field a complete AMB. In such cases, AMB members may be appointed from outside the command. For example, with no flight surgeon assigned, it is altogether proper to borrow one from another command.

(5) AMBs are highly recommended to use the expertise of individuals that are knowledgeable in specific subject areas that relate to the mishap. In many cases it will be beneficial for the AMB if the senior member requests the appointing authority to assign such individuals (e.g., AMSO, aerospace physiologist, experimental psychologist, aerospace optometrist, flight deck officer) to the AMB. Contractors may be used as technical experts without allowing access to privileged material. Contractors are allowed access to privileged material if a non-disclosure agreement is in place at the corporate level and the individual has signed a non-disclosure agreement. See appendix 2c for an example.

d. Other AMB Composition Considerations. Some circumstances may require adjustments to the membership of the AMB by the appointing authority depending on exceptional

circumstances of personnel assigned to the AMB or of the mishap under investigation. Make every effort to meet the following requirements.

(1) The senior member of each AMB shall be senior to the pilot in command and mission commander involved. The appointing authority, with the concurrence of controlling custodian, may waive this requirement in exceptional cases where compliance would require unreasonable measures.

(2) For manned aircraft mishaps, at least one member of the AMB shall be a pilot who is NATOPS-qualified in the model aircraft involved. For unmanned aircraft mishaps, every effort should be made to have at least one qualified in model AMB member.

(3) Personnel directly involved in a mishap shall not serve on an AMB conducting an investigation of that mishap.

(4) Members whose personal interest in a mishap might conflict with the objective and impartial performance of their duties shall not serve on the AMB investigating that mishap. If the senior member determines this to be the case of a member of the AMB, request a replacement from the convening authority.

(5) Do not allow someone who may be called upon to endorse the SIR to sit on the AMB investigating the mishap.

(6) In rare circumstances, the executive officer who is functioning as the senior member of an AMB may become the CO before the SIR is released into WAMHRS. In this case, it is acceptable for the CO to be the first endorser on his or her own report. When this occurs, it is strongly recommended that the controlling custodian include at least one endorser after the CO.

(7) Chapter 7 outlines some AMB exceptions and requirements for combat zone reporting and DEA incidents.

e. Insufficient AMB Membership

(1) Sometimes AMB members are involved in mishaps. Address plans for such eventualities (particularly important for detachment operations) in pre-mishap planning.

(2) When, despite their best efforts, appointing authorities find themselves with too few members to constitute a board, they may request relief or waiver from investigating and reporting the mishap (investigation and report is still required), or request help with the investigation from the controlling custodian, or request a waiver for board composition from the controlling custodian.

(3) Sequential investigations by the same AMB may be authorized by a controlling custodian for class B, C or D mishaps in the case of identical or nearly identical material failures of malfunctions. Separate reports are required.

209. Pre-Mishap Plans

a. Pre-mishap plans support all four pillars of the SMS. A pre-mishap plan describes - in advance - the steps that must be taken when a mishap occurs. Anticipate all reasonable eventualities and devise measures to cope with them. Deficiencies may be identified through periodic drills designed to ensure the plan's smooth execution when a mishap occurs. A checklist of items to consider when formulating a pre-mishap plan is in appendix 2D. While the contents of a pre-mishap plan is largely at the option of the command, plans for Navy and Marine Corps airfields and aircraft operating facilities must address the following:

b. Coordination with local news media, area law enforcement officials, civil fire and rescue agencies, the Environmental Protection Agency (EPA), FAA and plans for medical services including casualty treatment, evacuation, and retrieval of remains. Liaise with Military Services medical facilities, local civilian medical centers, medical examiners, coroners, and other county, State and Federal medical agencies. Local EPA offices can help notify proper personnel in the event of a mishap, even if the mishap is not in the local area.

c. Coordination with tenant commands to be sure required support for engineering services, supply, medical assistance, and hazardous material disposal will be available.

d. Coordination with nearby military aviation facilities to clearly describe the geographic boundaries of responsibilities for immediate responses to an aviation mishap.

e. Provisions for an immediate telephone report to the reporting custodian of aircraft mishaps within the airfield's area of cognizance. If unable to contact the reporting custodian by phone, submit an IN per this instruction. If the aircraft belongs to another Military Service, let the nearest activity of the service involved know of the mishap, then notify COMNAVSAFECEN. If the aircraft involved is either a civilian or foreign (military or civilian) aircraft tell the nearest FAA facility and then notify COMNAVSAFECEN.

f. Plans to protect aircraft wreckage so that it remains undisturbed for at least 24 hours. The only exception to this requirement to keep the crash site inviolate would be to protect life, limb, or property, to facilitate mishap investigations or to protect the wreckage from loss or further damage.

g. Provisions for explosive ordnance disposal (EOD) services that will render explosives in the aircraft wreckage safe and provide authorized storage facilities. Do not send EOD personnel into a crash site before a qualified mishap investigator has given permission. Valuable evidence may be lost through actions designed to make the area safe.

APPENDIX 2A
SAMPLE COMMAND AVIATION SMS

Ref: (a) OPNAVINST 3120.32D
(b) OPNAVINST 5100.19E
(c) OPNAVINST 5100.23G
(d) OPNAVINST 5102.1D
(e) OPNAVINST 5100.12J

A command aviation SMS shall be published for each command. As a minimum, the following topics shall be detailed:

1. Command Safety Department
 - a. Manning
 - b. Organization or organization chart
 - c. Billet descriptions, duties, and responsibilities
2. Responsibilities and Programs For
 - a. Flight safety
 - b. Maintenance safety
 - c. Personal safety
3. Officer Safety Council
 - a. Composition
 - b. Meeting frequency
 - c. Records keeping
 - d. Follow-on action requirements or procedures
4. Enlisted Safety Committee
 - a. Composition
 - b. Meeting Frequency
 - c. Records keeping
 - d. Follow-on action requirements or procedures

5. Safety Surveys
 - a. Internal and external programs
 - b. Frequency
 - c. Follow-on action requirements or procedures
6. Training
 - a. AMBs and watch personnel
 - b. Officer personnel
 - c. Enlisted personnel
7. General Safety and NAVOSH
 - a. Hearing conservation program
 - b. Traffic safety program
 - c. Land and sea survival
 - d. Flight deck and flight line
 - e. Recreation, athletic and home safety
 - f. Hazardous material control and management
 - g. Respiratory protection program
 - h. Sight conservation program
 - i. Electrical safety
 - j. Personal protective equipment program
 - k. Radiation and laser safety
 - l. General shipboard safety

APPENDIX 2B
SAMPLE AMB APPOINTMENT

FOR OFFICIAL USE ONLY (when filled in)

From: (Commanding Officer, Commander, etc.)
To: (Name, Rank, Service, etc.)
Via: (Command of the appointed member if different from the
appointing authority)

Subj: APPOINTMENT AS MEMBER OF (ORGANIZATION) AVIATION MISHAP
BOARD (AMB)

Ref: (a) OPNAVINST 3750.6S
(b) NAVAIR 00-80T-116 VOLs 1-4
(c) Organizational Safety Directive (Pre-Mishap Plan,
etc.)

1. Based upon your professional experience and knowledge, I appoint you as (a member) (the senior member) of the (organization) AMB. You shall follow the provisions of references (a), (b), and (c) in the performance of your duties. You shall maintain complete familiarity with the content of these publications.
2. I direct your attention to the provisions of reference (a), which concerns privileged information. You shall properly safeguard all privileged information to which you become privy as a member of the AMB.
3. When investigating and reporting an aviation mishap, your duties as a member of the AMB shall take precedence over all other duties.
4. The responsibility inherent in this appointment extends beyond loyalties you may hold to this command. All of naval aviation depends on the efforts of AMBs to identify and eradicate the causes of injury to our people and damage to our equipment. The sole objective of an AMB is to improve safety. Therefore, your efforts should include a complete, open, and forthright expression of your views. To this end, I assure you that the aviation safety investigation report you produce shall be used within this command, and elsewhere within the Department of the Navy, only for safety purposes.

5. Should any circumstances arise which would prevent the proper performance of your duties as a member of the AMB, you shall advise me immediately.

SAMPLE

APPENDIX 2C
SAMPLE NONDISCLOSURE AGREEMENT

COMMANDER, NAVAL SAFETY CENTER
375 A STREET
NORFOLK, VA 23511-4399

GOOD SAFETY SYSTEMS, LLC
99 ENTERPRISE ROAD
SUITE H-3
AIRCRAFT, MD 00065

NONDISCLOSURE AGREEMENT
between the
United States Department of the Navy
and
Good Safety Systems, LLC

Subj: NONDISCLOSURE AGREEMENT

1. This nondisclosure agreement (NDA) between the U.S. Department of the Navy and Good Safety Systems, LLC promotes cooperation between both organizations. The purpose of the NDA is to establish the requirements for the use of aviation safety information, including safety information protected by the concept of privilege, in support of helicopter safety.

2. By executing this NDA, Good Safety Systems, LLC agrees:

a. that it is familiar with the Department of Defense approved methods for the handling and storage of and use requirements for privileged safety information as directed by Department of Defense Instruction 6055.07 of June 6, 2011 and Office of the Chief of Naval Operations Instruction 3750.6S;

b. to protect the privileged safety information from unauthorized users or release, including in litigation;

c. that access to the privileged safety information will only be granted to those employees of the contractor with a need to know and to no others;

d. that it is fully responsible for its employees' actions with regard to the privileged safety information;

e. to return or destroy all privileged safety information, and include evidence of destruction, when no longer required or when requested by Commander, Naval Safety Center;

f. that Good Safety Systems, LLC understands violating the terms of the NDA may result in suspension of access to privileged safety information, may disqualify Good Safety Systems, LLC from consideration for future access to privileged safety information and may subject Good Safety Systems, LLC to any other sanctions allowed under the law;

g. to store privileged safety information in a manner to prevent unauthorized access;

h. that privileged safety information will be used solely for meeting the requirements of the projects or the contract in support of helicopter safety;

i. that it will forward all requests for the data or information made available by Commander, Naval Safety Center under this NDA, including Freedom of Information Act, and media requests to Commander, Naval Safety Center for action and response;

j. that prior to receiving the privileged safety information, it shall compel all its employees and subcontractors who will have access to privileged safety information to sign a personal NDA that mirrors the requirements stated in this NDA with regard to protecting, handling, storing, and using the privileged safety information; and

k. to limit access to any copies made of privileged safety information provided under this NDA to those employees of Good Safety Systems, LLC who have executed a personal NDA following subparagraph 2j. Such limitations on distribution are per Department of Defense Instruction 6055.07 of 6 June 2011 and Office of the Chief of Naval Operations Instruction 3750.6S.

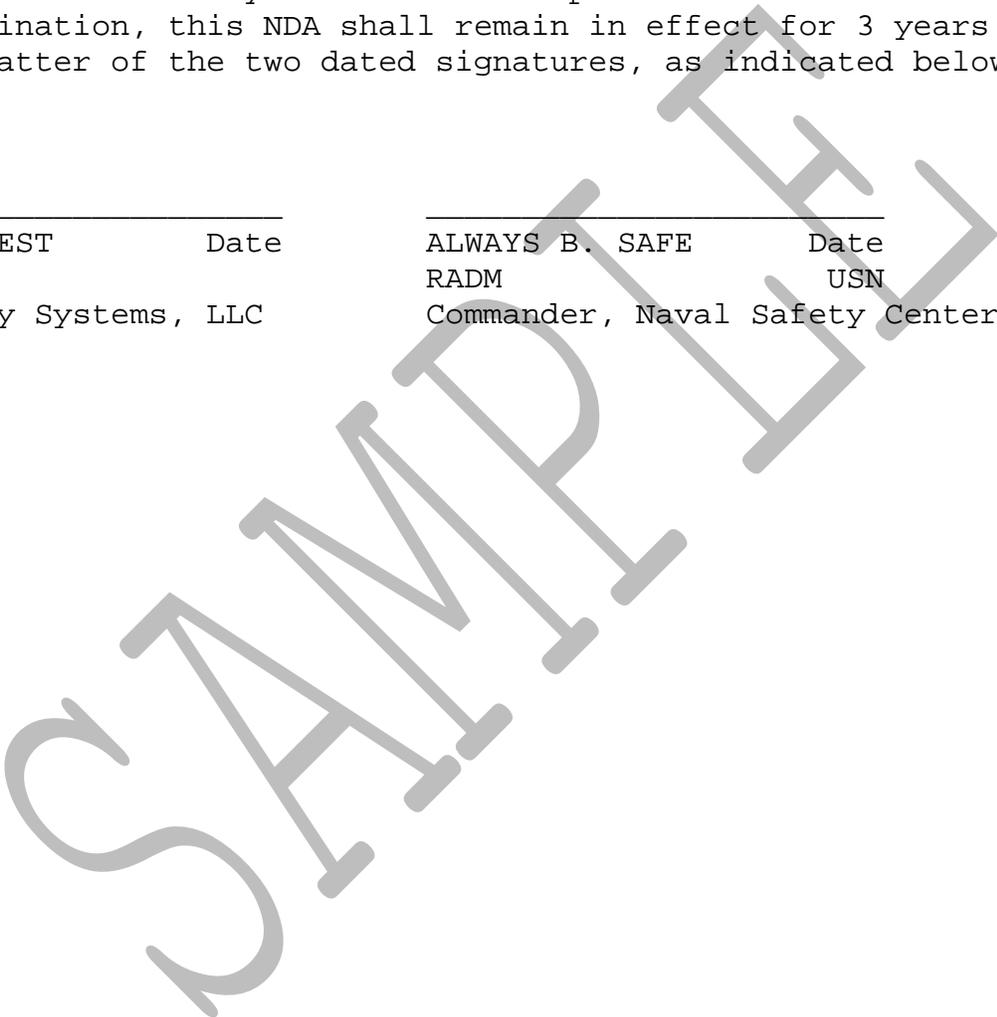
3. In the event that the privileged safety information provided under this NDA is not properly safeguarded, all such information shall be returned to the Naval Safety Center immediately upon

demand and future access to such safety information will be suspended until the causes of the breach have been remedied and acceptable measures to safeguard safety information have been re-established.

4. Except as stated in paragraph 3, this NDA shall remain in effect until the expiration date unless terminated by the presentation of written notification by either party. In the event such notification is presented, this NDA will terminate on the date specified in such notification of termination, which shall be at least 30 days from its receipt. Absent notice of early termination, this NDA shall remain in effect for 3 years from the latter of the two dated signatures, as indicated below.

WEI R. SAFEST Date
President
Good Safety Systems, LLC

ALWAYS B. SAFE Date
RADM USN
Commander, Naval Safety Center



APPENDIX 2D
SAMPLE PRE-MISHAP PLAN CHECKLIST

Pre-mishap plans are simply descriptions of who is responsible for doing what, both before and after an aircraft mishap. Pre-mishap plans will vary widely, depending on the mission, resources, environment and personnel of the publishing command. Try to write pre-mishap plans so that they will remain valid during deployments. Incorporate an abbreviated pre-mishap plan into a letter of instruction (LOI) or implementing instructions for detachments. Other changes may be required when the command moves on or off a ship. The following list provides some items for consideration in compiling a pre-mishap plan.

1. References

- a. OPNAVINST 3750.6S, Naval Aviation Safety Management System
- b. The directives listed in paragraph 109 of this instruction
- c. OPNAV M-5090.1, Environmental Readiness Program Manual, of 10 Jan 2014
- d. STANAG 3531 (if in a NATO command)
- e. Pertinent safety directives of senior commands
- f. Pertinent safety directives of local commands

2. Text and Enclosures

3. Potential Pre-Mishap Items

a. Provisions for Periodic Drills of the Pre-mishap Plan

- (1) Staff or department head pre-mishap responsibilities, including flight surgeon or medical personnel
- (2) AMB task organization

- b. Responsibilities for Transportation Preparations
 - (1) Travel orders
 - (2) Passports
 - (3) Identified means of local transportation
 - c. Description of arrangements for obtaining photographic coverage of mishaps.
 - d. Description of coordination with local EOD and crash units.
 - e. Description of arrangements and coordination to deal with hazardous material.
 - f. Description of coordination with local EPA.
 - g. Description of coordination with local public affairs office organization.
 - h. Description of coordination with local civil or military medical activities.
 - i. Responsibilities for maintenance of mishap investigation kit.
 - j. Listing of contents of mishap investigation kit.
 - k. Plans and schedules for squadron duty officer (SDO) training.
4. Potential Post-Mishap Items
- a. Plans and schedules for AMB training.
 - b. Responsibilities of SDO (or equivalent duty personnel).
 - c. Procedures for notification of overdue aircraft to airfield operations.

- d. Listing(s) of personnel and commands to be notified (including names, telephone numbers, and addresses).
- e. Procedures for use of local crash plan and notification system.
- f. Procedures for recording information on aircraft mishaps.
- g. Procedures for requesting emergency assistance.
- h. Procedures and criteria for notification of FAA.
- i. Responsibilities of CO and executive officer.
- j. Responsibilities of staff and department heads (including assistance to the AMB).
- k. Investigative responsibilities of each AMB member.
- l. Guide(s) to mishap classification and serialization.
- m. Checklist of reports required by OPNAVINST 3750.6S and other directives.
- n. Formats of required OPNAVINST 3750.6S reports (completed in advance insofar as possible).
- o. Sources of assistance to the AMB; i.e., naval aviation physiologist, etc. (list type of assistance available, command or individual, telephone number, address).
- p. Plans for wreckage:
 - (1) Location assistance
 - (2) Recovery assistance
 - (3) Security measures
 - (4) Hazardous material procedures
 - (5) Transportation assistance

- (6) Reconstruction site
- (7) EI
- (8) Release procedures
- (9) Disposal procedures
- (10) Material Safety Data Sheet

CHAPTER 3
MISHAP AND INJURY CLASSIFICATION

301. Purpose. This chapter describes how to determine naval aviation mishap damage and injury classifications, subcategories and types. Aircraft mishap classification is a complex process. The first reports of an aircraft mishap will be both muddled and confused. The earliest information will be limited and incomplete, and require best estimates from the reporting custodian as to the extent of damage and injury. Knowing this, the reporting system provides ample opportunity to correct initial estimates. The term "aviation mishap" is a category. Under the category of aviation mishap, manned aircraft and UAVs use the same investigation and reporting processes, but are usually considered separately for statistical purposes. The mishap severity class (A, B, C, D) together with the mishap subcategory (flight mishap (FM), flight related mishap (FRM), or aviation ground operations mishap (AGM)) constitute the mishap classification such as, "Class B Flight Mishap" or "Class A Aviation Ground Operations Mishap." Classifications are combined with aviation mishap types such as controlled flight into terrain (CFIT). Do not delay reporting to determine an absolutely exact cost. If the estimate is near a severity threshold then report a higher severity mishap and downgrade if necessary, rather than report a lower severity and upgrade later. If it is possible that a naval aviation mishap has occurred:

a. Check paragraphs 302 and 303 that define naval aircraft and UAVs and the list of exceptions to those definitions. If naval aircraft or UAVs are not involved, there is no need to report under provisions of this instruction with the exception of some HAZREPs that have implications for aviation safety. Reference (f), OPNAVINST 5100.19E or OPNAVINST 5100.23G describe other reporting requirements that may apply. If a defined naval aircraft or UAV is involved, continue this checklist.

b. Read paragraph 304, which explains damage and injury, and paragraphs 305 and 306, which define naval aviation mishaps and exceptions. If no defined naval aviation mishap has occurred, there is no need to report the incident under the provisions of this chapter. However, see chapter 5 for hazard reporting. If a naval aviation mishap has occurred, continue with this checklist.

c. Determine, or make a best estimate, for property damage and injuries. Paragraph 313 and the diagram in appendix 3A define the severity classifications. For mishaps that require summing costs of property damage see paragraph 316.

d. Determine the aviation mishap subcategory: FM, FRM, or AGM. Paragraph 314 describes these subcategories. They are diagrammed in appendix 3B. The following questions must be answered to determine the mishap category:

(1) Did intent for flight, as described in paragraph 307, exist for the aircraft or UAV involved in the mishap?

(2) Did the damage to the aircraft or UAV involved meet or exceed the \$20,000 mishap threshold?

302. Naval Aircraft and UAV Defined. The term "defined naval aircraft or UAV" refers to those aircraft and UAVs of the U.S. Navy, U.S. Naval Reserve, USMC, and USMC Reserve for which the naval aircraft accounting system requires accountability. Included in this definition are all manned, weight-carrying devices supported in flight by buoyancy or dynamic action, man-rated aircraft when operated remotely as drones with no live operator on board (except when designated as a target), and all UAVs including aerostat balloons. This includes:

a. Aircraft owned or leased by the Navy or Marine Corps (including Reserves) that are operated and exclusively controlled or directed by the Navy or Marine Corps.

b. Furnished by the Government, loaned, or on bailment to a non-DoD organization for modification, maintenance, repair, test, contract training, or experimental project for a DoD component, when the Government has assumed ground and flight risk.

c. Under test by the DON. (This includes aircraft furnished by a contractor or another Government agency when operated by a DoD aircrew in official status and a DD Form 250, Material Inspection and Receiving Report, has been executed to certify that the DON has accepted the aircraft.)

d. For purposes of reporting UAV mishaps under this instruction, the focus is on the aerial vehicle (UAV) and not

the entire system (UAS). There is, however, nothing preventing submission of a HAZREP for any part of the system that produces a hazard to safety of flight.

303. Exceptions to the Naval Aircraft or UAV Definition. The following are neither naval aircraft nor UAVs. Mishaps occurring to them are not reportable under the provisions of this instruction; however, CNO may decide to participate in mishap investigations involving them. Conduct JAGMAN investigations whenever litigation against or by the U.S. Government is expected.

a. Aircraft or UAVs leased, on bailment, or loaned (except, as specified above) to contractors, commercial airlines, other Government agencies, or foreign governments, when the lessee has assumed risk of loss.

b. Civil aircraft owned by civil operators engaged in contract air missions for the U.S. Navy or USMC.

c. Factory-new production aircraft or UAVs until successful completion of the post-production acceptance flight. Mishaps that involve such aircraft are reported as contractor mishaps. COMNAVAIRSYSCOM shall investigate mishaps involving aircraft or UAVs owned by Government contractors in which there is damage to DoD property, or injury to other DoD personnel. Submit the record of the mishap investigation to COMNAVSAFECEN for review, recordkeeping, and statistical recording.

d. Unmanned target drone aircraft and ballistic or semi-ballistic vehicles.

e. Navy flying club aircraft or privately owned aircraft stored in a hangar on a DoD installation. These are reportable under BUPERSINST 1710.22.

f. An aircraft when it is being handled as a commodity or cargo.

304. Damage and Injury Explained

a. Damage and Injury. The term "damage and injury" is divided into two categories. The first results from the immediate causes of the mishap. The second entails avoidable or

additional damage and injury from factors not associated with the immediate causes of the mishap. If the total damage and injury in an incident exceeds an established severity threshold, that incident is called a mishap.

b. Example. An improperly designed engine forces an aircraft to crash-land resulting in mishap-level damage. After landing, the aircraft burns because its fuel system was not crashworthy, and some occupants are burned because their flight clothing was not flame-resistant. In this case there is not only a mishap with its associated cause and damage to the aircraft, there is also additional damage and injuries occurring during or immediately after the mishap. The damage and injury have their associated causes; however none of them was the cause of the mishap. Although there was only one mishap, there are three hazards that resulted in damage or injury. Under the Naval Aviation SMS, all of them must be addressed.

c. Causes of Damage and Injury (Hazards). The word "hazard" may be used interchangeably with "mishap causal factor" and "causal factors of damage or injury."

(1) Mishap Causal Factors. Most mishaps result from two or more causal factors. Without either one of them there would be no mishap. There is no reason, therefore, to rank causal factors as direct, primary, principal, or contributing. The determination of appropriate causal factors can be a difficult task. The proper evaluation of the significance of causal factors is called "risk assessment."

(2) Causal Factors of Damage and Injury. A causal factor of damage occurring during a mishap is any hazard that causes avoidable or additional damage. A causal factor of injury occurring during a mishap is any hazard that causes avoidable or additional injury. Although these hazards did not cause the mishap, they added to its severity by causing additional damage or injury. Most mishaps will have correctable damage and injury causal factors that involve such areas as aircrew escape and survival equipment, manned aircraft or UAV and UAS design, or runway construction, to name a few.

(3) Environmental Conditions. Environmental conditions do not cause mishaps. Human beings have no control over daylight, darkness, sea state, hurricanes, tidal waves, or

tornadoes. Inadequate weather forecasts or improper weather avoidance procedures may cause a mishap, but not thunderstorms, turbulence, or lightning.

d. Prevention of Damage and Injury. Eliminating the hazards that cause them will eliminate mishaps. It's when this effort fails that mishaps occur.

305. Naval Aviation Mishap Defined. The following paragraphs detail mishap definitions.

a. A naval aviation mishap is an unplanned event or series of events, directly involving a defined naval aircraft or UAV, that results in damage to DoD property; occupational illness to DoD personnel; injury to on or off-duty DoD military personnel; injury to on-duty DoD civilian personnel; or damage to public or private property, or injury or illness to non-DoD personnel, caused by DoD activities. While any of these incidents is a mishap, damage and injury thresholds determine how they will be reported.

b. Damage incurred as a result of salvage efforts do not count as mishap costs on the involved aircraft or UAV. Damage such as corrosion or fire that happens while the aircraft is awaiting salvage must be included in mishap calculations.

c. A diagram of naval aviation mishap classification and subcategories is in appendices 3A and 3B and includes:

(1) Four classes of mishap severity: A, B, C and D; all defined in paragraph 313 and applicable to each of the mishap categories described below.

(2) Three mishap subcategories: FM, FRM, and AGM; all defined in paragraph 314.

306. Exceptions to the Naval Aviation Mishap Definition. The following incidents are not categorized as naval aviation mishaps. These incidents shall not be reported under this instruction except where noted.

a. Damage or injury by DEA to include maneuvering conducted relative to hostile fire or a perceived hostile threat, or hostile force. For DEA incidents, submit only an IN and an MDR via WAMHRS.

NOTE: This exception does not include suspected cases of friendly fire (FF).

b. Intentional, controlled jettison or release, during flight, of canopies, cargo, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, missiles, drones, rockets, non-nuclear munitions, streamed or towed airborne mine countermeasure equipment, dipped or streamed sonar systems, and externally carried equipment not essential to flight when there is no injury, no reportable damage to the aircraft or other property, and, in the case of missiles, drones, or non-nuclear munitions, when the reason for jettison is not malfunction.

NOTE: If intentional release or jettison of an object causes \$20,000 damage or greater, but less than \$50,000 damage, to the aircraft or other property (not including jettisoned items) this is a class D mishap. A class D report is required in WAMHRS however, the information required is less than that of a class A, B or C mishap report and the investigation may be conducted by one person. If intentional release or jettison of an object causes \$50,000 damage or greater to the aircraft or other property, then the incident is categorized as a class A, B or C mishap, and is reported using an SIR. Inadvertent jettison, loss or release of an object, valued at \$20,000 or greater, due to an aircraft system malfunction or aircrew error is a mishap and shall be reported. Loss of streamed or towed airborne mine countermeasure equipment, dipped or streamed sonar systems as a result of unknown undersea environmental conditions are not a mishap unless it is the result of an aircraft malfunction or aircrew error. Loss of streamed or towed airborne mine countermeasure equipment, dipped or streamed sonar systems as result of an aircraft malfunction or aircrew error shall be subcategorized as FRMs.

c. Replacement of component parts due to normal wear and tear, which is beyond the scope or definition of the affected time between overhaul of component, and when any associated damage is confined to the component part. This exemption only

applies to items that are normally used until they fail or until predetermined wear limits are reached. The need for replacement may not be evident until malfunction or failure of the part. Resultant damage to other components is reportable.

NOTE: This exception includes internal engine failures (normal wear and tear) for which there is no reportable injury and less than \$20,000 damage to other property. This exception does not apply if the damage is caused by servicing a component with the wrong, substandard or contaminated material that results in reportable damage. This exception does not apply if the cost of damage from the failure of one part results in \$20,000 or greater to another component, components or property. If software (e.g., software improperly coded, software logic error, software constraint violation) causes damage to hardware, the software is considered a separate component. If the software causes \$20,000 damage or greater the command has a reportable mishap. If the failure of a component causes \$20,000 damage or greater to other property, do not use the cost of the failed component and consider only property damage outside of the failed component. If the total is less than \$50,000 damage to the aircraft or other property, not including the cost of the failed component, but is \$20,000 or more, this is a class D mishap and class D report is required in WAMHRS however, the information required is less than that of a class A, B or C mishap report and the investigation may be conducted by one person. If the failure of a part or component results in \$50,000 or more worth of damage to the aircraft or other property, not including the failed component cost, then the incident is classified as a class A, B or C mishap and is reported using an SIR.

d. Intentional or expected damage to DoD equipment or property incurred during authorized testing or combat training, including missile and ordnance firing.

e. Foreign object damage (FOD) to aircraft, air-breathing missiles, or drone engines discovered during scheduled engine disassembly.

NOTE: Object damage (normal wear and tear) from a source internal to aircraft engines, air-breathing missiles, or drone engines is not a mishap. When it is determined that

the damage was caused by external FOD (i.e., something entered the intake from any external source) including aircraft components, aircrew or maintenance personnel error or action, runway or taxiway debris or components, or a BASH incident the command has a mishap if reporting thresholds are reached. However, no reporting under this instruction (submit a FOD report under reference (e)) is required if the source of the external FOD cannot be determined and damage to other aircraft components is less than \$20,000. When the damage is discovered during scheduled engine disassembly (higher than organizational level maintenance) the command does not have a mishap.

f. Property damage, death or injury as a result of vandalism, riots, civil disorders, sabotage, terrorist activities or criminal acts such as arson.

g. Normal residual damage as a result of a missile launch.

h. Contractor mishaps in which the contractor employee is not under the direct supervision of DoD personnel.

NOTE: Any damage to Government property in excess of \$20,000.00 results in mishap.

i. Occupational illness caused by repeated exposure (of more than 1 day's duration) to environmental factors associated with the work environment. Report these illnesses per reference (f).

j. A reportable injury sustained during a planned aircraft egress (such as parachute jumping or rappelling) if the aircraft or aircrew actions did not contribute to the injury.

k. Damage to an aircraft, when it is being handled as a commodity or cargo.

NOTE: This exception includes aircraft in preservation and packaged for shipping, aircraft that is cargo on another aircraft and when an aircraft is being craned onto or off of a ship. Keep in mind this does not mean that no report is required. The mishap is not reportable as an aviation mishap under this instruction.

1. Aircraft inducted into depot-level maintenance, between formal induction into the maintenance event and completion of re-assembly of the aircraft for ground or flight functional checks. Damage or injury occurring during depot-level maintenance shall be investigated per reference (f) and a hazard or mishap report shall be submitted when appropriate.

307. Intent for Flight Defined. The following criteria apply to DoD aircraft and UAVs involved in aircraft mishaps. Intent for flight is a prerequisite for the classification of a naval aviation mishap as an FM or FRM.

a. Fixed Wing Aircraft and UAV Intent for Flight. Intent for flight exists when the fixed wing aircraft or UAV's brakes are released (not for taxi purposes) or takeoff power is applied to begin an authorized flight. For catapult takeoffs, flight begins at first motion of the catapult after pilot has signaled readiness for launch. For UAV rocket-assisted takeoff (RATO), flight begins at the first sign of RATO bottle ignition. For UAV pneumatic launches, flight begins at first sign of pneumatic launcher motion after the pilot has signaled readiness for launch.

b. Helicopter, Rotary Wing UAVs and Tilt-Rotor Aircraft Intent for Flight. Intent for flight exists for skid and wheel configured helicopters, rotary wing UAVs and tilt-rotor aircraft when takeoff power is applied.

c. Intent for Flight Continues Until:

(1) The fixed-wing aircraft or UAV taxis clear of the runway or landing area. UAV flights may also end at recovery in a net, or when captured by another recovery system.

(2) The helicopter, rotary wing UAV or tilt-rotor aircraft has alighted at the termination of the flight and the skids or landing gear supports the aircraft weight. Touch-and-go or stop-and-go landings are not terminations of flight.

308. Injury Defined

a. A reportable injury is any bodily harm such as a cut, fracture, burn, or poisoning received while involved with naval aircraft or UAVs, so long as these injuries - updated until the

final endorsement has been sent - result from a single or 1-day exposure to an external force, toxic substance, or physical agent, and result in a:

(1) Fatality, regardless of the time between injury and death.

(2) Permanent total disability.

(3) Permanent partial disability.

(4) Lost workday injuries - defined as causing the loss of 1 or more workdays (not including the day of injury).

b. Consider only these injuries in determining the severity classification of a naval aviation mishap:

(1) All injuries to active duty, on or off-duty, DoD military personnel (including reservists).

(2) All injuries to on-duty DoD civilian personnel, including foreign nationals attached to the DoD.

(3) Fatal injuries to anyone.

309. DoD Personnel and Non-DoD Personnel Defined. These definitions apply when determining mishap severity. While non-DoD personnel injuries are reported, they shall not be used to determine mishap severity, except that any non-DoD fatality will result in a class A mishap.

a. DoD Personnel

(1) Civilian. General schedule and wage grade employees (including National Guard and reserve technicians, unless in military duty status), non-appropriated fund employees (except military members employed part time), Corps of Engineers Civil Works employees, youth or student assistance program employees, foreign nationals employed by DoD components, and military exchange employees.

(2) Military. All U.S. military personnel, including members of the Army, Navy, Air Force, and Marine Corps Reserves, the Army National Guard of the United States, and the Air

National Guard of the United States, on active duty or inactive duty for training under the provisions of United States Code (U.S.C.) Title 10 - Armed Forces or U.S.C. Title 32 - National Guard; cadets of the United States Military Academy and the United States Air Force Academy; midshipmen of the United States Naval Academy; Reserve Officer Training Corps cadets when engaged in directed training activities; and foreign national military personnel assigned to the DoD components.

b. Non-DoD Personnel. Off-duty DoD civilian personnel, persons employed by other Federal agencies, and other civilians and foreign nationals not employed by DoD.

310. Duty Status Defined. These definitions are for mishap reporting purposes only and have no relation to compensability or line-of-duty determination.

a. On Duty. DoD personnel are on-duty when:

(1) Physically present at any location where they are to perform their officially assigned work. Officially assigned work includes organization-sponsored events an employee is permitted to attend, regardless of location. This includes those activities incident to normal work activities that occur on DoD installations, such as lunch, coffee, or rest breaks, and all activities aboard military vessels.

(2) Being transported by DoD or commercial conveyance to perform officially assigned work. (This includes travel in PMVs or commercial conveyances while performing official duty, but not routine travel to and from work.)

(3) On temporary duty or temporary additional duty. Personnel on assignment away from the regular place of employment are covered 24 hours a day for any injury that results from activities essential or incidental to the temporary assignment. However, when personnel deviate from the normal incidents of the trip and become involved in activities, personal or otherwise, that are not reasonably incidental to the duties of the temporary assignment contemplated by the employer, the person ceases to be considered on-duty for investigation and reporting purposes of occupational injuries or illnesses.

b. Off Duty. DoD personnel are off-duty when they are not on-duty as indicated in subparagraph 310a. Reserve component personnel performing inactive duty training (IDT) (e.g., drill, additional flight training program flights) shall be considered off-duty:

(1) When traveling to or from the place at which such duty is performed; or

(2) While remaining overnight, immediately before the commencement of IDT; or

(3) While remaining overnight between successive periods of IDT, at or in the vicinity of the site of the IDT, unless the site of the IDT is outside reasonable commuting distance of the member's residence.

311. Days Away From Work and Restricted Work

a. Days Away From Work. Those days when a person loses 1 or more work days as a result of an injury or illness, starting with the day after the injury occurred or the illness began and including calendar days the person was unable to work, regardless of whether the person was scheduled to work on those days. For military personnel, days away from work for on- and off-duty injuries and occupational illnesses include inpatient hospitalization, medical restrictions to quarters, convalescent leave, and commander directed removal from duties.

b. Days of Restricted Work or Transfer to Another Job. Days of restricted work or transfer to another job are those days on which a person is working but restricted from completing assigned tasks, works less than a full day or shift, or is transferred to another task to accommodate the injury or illness. Calendar days not scheduled to work are included in the count of days. Count of days is stopped when the person is either returned to their pre-injury or pre-illness job or permanently assigned to a job that has been modified or permanently changed to eliminate the routine functions the person was restricted from performing. For military personnel, restricted work or transfer to another job includes limited- and light-duty assignments.

312. Injury Classification. Injury classifications (defined below) are: fatal injury, permanent total disability, permanent partial disability, lost workday injury, recordable injury, no injury, lost at sea, missing or unknown.

a. Fatal Injury. A fatal injury is an injury that results in death from a mishap or the complications arising there from, regardless of the time intervening between the mishap and a subsequent death.

b. Permanent Total Disability. Any nonfatal injury or occupational illness that in the opinion of competent medical authority permanently or totally incapacitates a person to the extent that he or she cannot follow any gainful occupation and results in a medical discharge or civilian equivalent. (The loss, or the loss of use of both hands, both feet, both eyes, or a combination of any of those body parts as a result of a single mishap shall be considered as a permanent total disability.)

c. Permanent Partial Disability. An injury or occupational illness that does not result in death or permanent total disability, but, in the opinion of competent medical authority, results in permanent impairment through loss of the use of any part of the body with the following exceptions: teeth, fingernails, toe nails, tips of fingers or tips of toes without bone involvement, inguinal hernia, disfigurement, or sprains or strains that do not cause permanent loss of motion.

d. Lost Workday Injury. An injury that does not result in death, permanent total disability or permanent partial disability, but results in 1 or more lost workdays, not including the day of injury. For purposes of naval aviation mishap reporting, lost workday injuries are further divided into major lost workday injury, (10 or more lost workdays) and minor lost workday injury, (more than one, but less than 10 lost workdays.) A minor lost work day injury meets the definition of a class C mishap however, the AMB may consist of one person as directed by the reporting custodian. A major lost workday injury requires at least a class C mishap report however and a standard AMB. If a mishap report is submitted as a result of \$50,000 or more property damage, then include all injury classifications.

e. Recordable Injury. Recordable injuries are injuries greater than first aid. First aid is generally when individuals are treated and released (e.g., observation or counseling, diagnostic procedures, including X-ray and blood tests, over-the-counter medications at over-the-counter strength, tetanus, cleaning, flushing or soaking wounds, wound coverings, including suture substitutes such as butterfly bandages and sterile strips, hot or cold treatment, non-rigid support such as ace, non-rigid back belts, etc., temporary immobilization for transport purposes, drilling of nail to relieve subungual hematoma, eye patches, foreign body removal from eye using only irrigation or swab, simple skin removal, finger guards and massages). For purposes of class D mishap reporting, use greater than first aid up to 1 day, but not including 1 day away from work.

f. No Injury

g. Lost at Sea

h. Missing or Unknown

NOTE: Lost at sea and missing or unknown injuries equate to a fatality for mishap severity-level classification. Paragraph 313 defines mishap severity levels.

313. Naval Aviation Mishap Severity Classes. The following mishap severity classes, based on an involved defined naval aircraft or UAV, personnel injury and property damage, apply to all three subcategories of mishaps listed below. Controlling custodians, in consultation and coordination with the NAVSAFECEN, shall ensure that mishaps are properly classified and that exceptions to mishap definitions are properly used. COMNAVSAFECEN is the final authority for mishap classification and the determination of mishaps exceptions. To determine mishap costs see paragraph 316.

a. Class A Mishap. A class A mishap is one in which the total cost of damage to DoD or non-DoD property, aircraft or UAVs is \$2 million or more, or a naval aircraft is destroyed or missing, or any fatality or permanent total disability of personnel results from the direct involvement of naval aircraft or UAV. A destroyed or missing UAV is not a class A unless the cost is \$2 million or more.

NOTE: The class A mishap definition typically excludes group 1, 2 and 3 UAS and UAVs unless the mishap cost total is \$2 million or more, or there is any fatality or permanent total disability of personnel.

b. Class B Mishap. A class B mishap is one in which the total cost of damage to DoD or non-DoD property, aircraft or UAVs is \$500,000 or more, but less than \$2 million, or results in a permanent partial disability, or when three or more personnel are hospitalized for inpatient care (which, for mishap reporting purposes only, does not include just observation or diagnostic care) as a result of a single mishap.

c. Class C Mishap. A class C mishap is one in which the total cost of damage to DoD or non-DoD property, aircraft or UAVs is \$50,000 or more, but less than \$500,000, or a nonfatal injury or illness that results in 1 or more days away from work, not including the day of the injury.

NOTE: See paragraph 208 for investigations involving injuries that are 1 or more day away from work up to and including 10 days away from work.

d. Class D Mishap. A class D mishap is one in which the total cost of damage to DoD or non-DoD property, aircraft or UAVs is \$20,000 or more, but less than \$50,000; or a recordable injury (greater than first aid) or illness results not otherwise classified as a class A, B, or C mishap.

NOTE: Class D mishap reports are required but require less information than a class A, B or C report under relaxed WAMHRS validation rules. Also, see paragraph 208 for reduced investigator requirements for class D mishap investigations.

314. Naval Aviation Mishap Subcategories

a. FM. A mishap where there is intent for flight and reportable damage to a DoD aircraft or UAV or the loss of a DoD manned aircraft. Explosives, chemical agent, or missile incidents that cause damage to an aircraft or UAV with intent for flight are categorized as FMs. Mishaps involving factory-new production aircraft until successful completion of the post-production flight are reported as contractor mishaps.

b. FRM. A mishap where there is intent for flight and no reportable damage to the aircraft or UAV itself, but the mishap involves a fatality, reportable injury, or reportable property damage. A missile that is launched from an aircraft or UAV departs without damaging the aircraft, and is subsequently involved in a mishap is reportable as a guided missile mishap.

c. AGM. A mishap where there is no intent for flight that results in reportable damage to an aircraft or UAV, or death or injury involving an aircraft or UAV. This applies to both on land and on board ship. Damage to an aircraft when it is being handled as a commodity or cargo is not reportable as an aircraft mishap.

315. Naval Aviation Mishap Types. In order to standardize mishap reporting and data collection the following paragraphs are used for determining mishap types. The list includes the name and, where appropriate, an abbreviation or acronym in parenthesis. There is also a definition, aircraft mishap use, inclusive statement and exclusive statement. Type selection may not be possible until, or may be modified after, the completion of the mishap investigation.

a. Abrupt Maneuver. Damage or injury caused by intentional abrupt maneuvering. Flight, flight related, ground operations (ops), UAV. Includes: Structural damage from aerodynamic overstress (e.g., exceeded aircraft gravity design). Damage or injury when objects or people are thrown about by abrupt maneuvering. Excludes: All midair collisions (see Midair Collision (MIDAIR), subparagraph 315m). Collisions with terrain, water, trees and man-made obstacles (see CFIT). Hard landings, skids and runway excursions (see Airfield Operations, subparagraph 315b).

b. Airfield Operations. Mishaps occurring during takeoff, landing or other powered movement on prepared airfield surfaces, austere fields and helicopter landing zones. Flight, flight related, ground ops, UAV. Includes: Collisions with aircraft, UAV, flight line vehicles or equipment, or stationary objects (e.g., light poles) while moving on the ground or in hover taxi. Wing, tail or nacelle scrapes. Skids, hydroplaning, departures from prepared surfaces, and runway excursions; excessive drift on ground contact. Abnormal landings (e.g., hard, short, hot, long, heavy), accidental gear-up landings. Rejected takeoff and

hot brake mishaps. Mishaps involving system failures when crew response was both improper and inadequate and well below reasonable expectations. Excludes: Towing mishaps (see Ground Handling and Servicing Operations, subparagraph 315k). Intentional gear-up landings, runway excursions and other mishaps when primarily caused by system or power plant failures (see SYSTEM, subparagraph 315r and POWER, subparagraph 315p). Wildlife strikes or wildlife activity (see BASH, subparagraph 315t). Aircraft or UAV touchdown prior to available runway under-run (see CFIT, subparagraph 315d).

c. Cabin and Cargo. Miscellaneous occurrences in either the flight deck, passenger cabin or cargo compartment. Flight, flight related, ground ops. Includes: Mishaps when there are cargo or equipment leaks (e.g., fuel from cargo, over-serviced lavatories) or cargo shifts. Excludes: Smoke and fumes from overheated or failed electrical and mechanical components (see SYSTEM, subparagraph 315r).

d. CFIT. Collision with terrain, water, trees or a man-made obstacle during flight prior to planned touchdown. Flight, UAV. Includes: Mishaps involving impact with terrain, water, trees or man-made obstacles where the aircraft or UAV is controllable, and the pilot is actively controlling the aircraft or UAV or the pilot's ability to control the aircraft or UAV is reduced to due to spatial disorientation (SD). Mishaps where the aircraft or UAV is flown in controlled flight to a point where it is no longer possible to avoid unintended ground impact (e.g., attempted maneuver with insufficient altitude or airspeed, low altitude over bank or flight into a box canyon), regardless of subsequent pilot reaction (e.g., ejection, stall, spin, etc.). Excludes: Hard landings near the intended runway (e.g., on the under-run) or landing zone (see Airfield Operations, subparagraph 315b). Aircraft departures from controlled flight that ultimately result in ground impact when collision avoidance was still reasonably preventable prior to departure (see Pilot Loss of Control In-Flight (PLOCI), subparagraph 315o). Unavoidable ground impact due to system failure or malfunction (e.g., flight control failure, loss of thrust) (see SYSTEM, subparagraph 315r and POWER, subparagraph 315p). Mishaps resulting from encounters with whiteout or brownout (WOBO) conditions (see WOBO, subparagraph 315s). Mishaps resulting from insufficient power (IPOWER) (see IPOWER, subparagraph 315l).

e. Environment and Weather (ENV and WX). Mishaps resulting from encounters with weather or man-made environmental phenomena. Flight, flight related, ground ops, UAV. Includes: Weather (e.g., lightning, static discharge, thunderstorms, hail, freezing rain, ice accumulation, wind shear, turbulence, mountain waves, volcanic ash, etc.) and man-made environmental phenomena (e.g., wake turbulence and vortex encounters). Excludes: Carburetor icing (see FUEL, subparagraph 315j). Mishaps resulting from encounters with WOBO conditions (see WOBO, subparagraph 315s).

f. External Operations. Mishaps related to personnel or equipment physically attached but external to the aircraft. Flight, flight related. Includes: Rappelling, fast-rope (specialized rappelling), stabo (stabilized extraction without lift), rescue hoist operations, and sling-loads. Excludes: Injury to personnel or damage to aircraft caused by the malfunction or failure of fuselage or wing stores (e.g., bombs, missiles, external tanks, pods, etc.) or their attachment hardware (see SYSTEM, subparagraph 315r).

g. Fire or Explosion. Mishaps initiated by an external source of fire or explosion. Flight, flight related, ground-ops, UAV. Includes: Mishaps resulting from an external fire (e.g., forest fire, grass fire, etc.) or explosion (e.g., unidentified weapons cache, rocket arming and exploding early, etc.). Excludes: Fire and explosions initiated by aircraft or UAV system or power plant failure (see SYSTEM, subparagraph 315r and POWER, subparagraph 315p) or where a fire or explosion is secondary to the principle cause.

h. FOD. Damage due to foreign objects or debris from another failed aircraft or UAV component. Flight, ground-ops, UAV. Includes: Mishaps where aircraft or UAV damage is due a foreign object or impact with another failed component (e.g., shards of tires). Mishaps where power plant damage is due to an ingested object (e.g., ice, support equipment, hand tool, runway and taxiway debris, fasteners, panels, shards from failed tires, etc.). Excludes: Damage from wildlife strikes and wildlife activity (see BASH, subparagraph 315t). Power plant damage due to the failure of internal power plant components (see POWER, subparagraph 315p).

i. FF. Joint Publication (JP) 1-02 defines FF as: "In casualty reporting, a casualty circumstance applicable to persons killed in action or wounded in action mistakenly or accidentally by friendly forces actively engaged with the enemy, who are directing fire at a hostile force or what is thought to be a hostile force." Flight, flight related, ground ops, UAV. Includes: Unintentional damage to friendly forces including the terms FF, blue on blue, harm to friendly forces. Mishaps in which members of a U.S. or friendly military force are mistakenly killed, or wounded, or equipment damaged by U.S. or allied forces actively engaged with an enemy, or a presumed enemy. Excludes: All other mishap types when the mishap meets the definition of FF.

j. Fuel-Related (FUEL). One or more power plants experienced reduced or no power output due to a fuel anomaly. Flight, ground ops, UAV. Includes: Fuel exhaustion, starvation, mismanagement, contamination, trapped fuel, the wrong fuel, lack of required additives, carburetor icing and the inadvertent placement of a throttle to cutoff. Excludes: Power plant initiated fuel problems (e.g., fuel controls) (See POWER, subparagraph 315p).

k. Ground Handling and Servicing Operations. Mishaps resulting from improper ground handling or servicing, or as the result of the failure of ground handling or servicing equipment. Ground ops, UAV. Includes: Towing and cargo loading and unloading events. Ground servicing mishaps (e.g., jacking, craning, refueling, deicing, etc.). Damage to other objects due to jet blast from stationary aircraft or UAV. Excludes: Damage to an aircraft or UAV (e.g., power plants, systems) undergoing ground operational checks (see POWER, subparagraph 315p and SYSTEM, subparagraph 315r). Ground handling and servicing operations mishaps that occur onboard ships (see SHIP, subparagraph 315q).

l. Insufficient Power (IPOWER). Mishaps resulting in ground or water impact when power required exceeds power available. Flight, UAV. Includes: Mishaps involving helicopters, tilt-rotors and vertical takeoff and landing aircraft or UAV where power required is greater than power available, settling with power, and rotor droop or loss of tail rotor authority when caused by requesting more power than is available. Excludes: All mishaps involving conventional

takeoff and landing aircraft or UAV. All mishaps to vertical takeoff and landing aircraft or UAV when flown conventionally. Mishaps involving helicopters, tilt-rotors and vertical takeoff and landing aircraft or UAV that occur due to IPOWER when that insufficiency is caused by a power plant failure (see POWER, subparagraph 315p).

m. Midair Collision (MIDAIR). Collision between aircraft or UAV when intent for flight exists. Flight, UAV. Includes: Mishaps resulting from collision between aircraft or UAV when intent for flight exists. Includes inadvertent contact during formation takeoffs and air-refueling operations. Excludes: Mishaps resulting from collision between aircraft or UAV when intent for flight does not exist (see Airfield Operations, subparagraph 315b).

n. Physiological. Injury, illness or abnormal symptoms experienced by aircrew or others as a result of the dynamic flight environment. Flight, flight related. Includes: SD that does not result in a midair collision or CFIT. All gravity-induced (G-induced) loss of consciousness (GLOC), hypoxia and other physiological events. Excludes: SD events occurring during WOBO conditions or resulting in a midair collision or CFIT (see WOBO, subparagraph 315s; MIDAIR, subparagraph 315m; and CFIT, subparagraph 315d).

o. Pilot Loss of Control In-Flight (PLOCI). Aircrew failure to maintain control of the aircraft or UAV while in flight. Flight, UAV. Includes: Mishaps resulting from failure to control the aircraft or UAV during flight, when that loss of control is not primarily related to environment, weather or any system failure. Includes departures, stalls and spins. For UAVs, includes "lost link" mishaps when the "lost link" is not attributable to a system failure or malfunction. Excludes: Control loss due to a power plant or system failure or malfunction (see POWER, subparagraph 315p and SYSTEM, subparagraph 315r). Control loss due to environment or weather (see Environment and Weather (ENV and WX), subparagraph 315e). Helicopter, tilt-rotor and vertical takeoff and landing aircraft or UAV mishaps resulting from encounters with WOBO conditions (see WOBO, subparagraph 315s). Helicopter, tilt-rotor and vertical takeoff and landing aircraft or UAV mishaps resulting from IPOWER (see IPOWER, subparagraph 315l).

p. Power Plant Failure or Malfunction (POWER). Failure or malfunction of a thrust-producing system or related components. Flight, ground-ops, UAV. Includes: Mishaps resulting from failure or malfunction of an aircraft or UAV thrust-producing system or related component (e.g., fuel controls, engine-mounted gearboxes, propellers, thrust reversers, thrust vectoring components). Includes maintenance and crew induced failures. Excludes: Damage due to ingestion of foreign objects and debris (see FOD, subparagraph 315h). Damage from wildlife strikes (see BASH, subparagraph 315t). Damage to gearboxes that are not engine-mounted (e.g., aircraft mounted accessory drives) (see SYSTEM, subparagraph 315r).

q. Ship-Related (SHIP). Mishaps resulting from ship-board flight or ground operations or the failure of unique ship-board equipment for launching, maintaining or recovering aircraft or UAVs. flight, flight related, ground ops, UAV. Includes: Mishaps which are a result of flight or ground operations onboard any ship (e.g., ramp strikes, aircraft or UAV movement, cargo loading or unloading events, refueling, etc.) or the failure of unique ship-board equipment (e.g., parted wires, catapult failures, etc.). Excludes: Events that do not physically involve the shipboard environment, such as flights originating from a ship but not in direct contact with the ship. Events that could equally have occurred in a non-ship board environment (e.g., power plant or system failure, wildlife strike) (see POWER, subparagraph 315p; SYSTEM, subparagraph 315r; and BASH, subparagraph 315t).

r. System Failure or Malfunction (non-power plant) (SYSTEM). Failure or malfunction of a system or component - other than the power plant. Flight, ground-ops, UAV. Includes: Mishaps resulting from failure of aircraft or UAV system or component - other than the power plant. Includes maintenance and crew induced failures. Excludes: Damage from wildlife strikes and wildlife activity (see BASH, subparagraph 315t). Failure of low dollar value components (e.g., fasteners, sealant, fairings, panels, tires, etc.) that result in significant FOD to aircraft or UAV or power plants (see FOD, subparagraph 315h). Damage from wildlife strikes and wildlife activity (see BASH, subparagraph 315t).

s. Whiteout or Brownout (WOBO). Mishaps resulting from encounters with WOBO conditions during takeoff or landing.

Flight, flight related, UAV. Includes: Mishaps involving helicopters, tilt-rotors and vertical takeoff and landing aircraft or UAV resulting from encounters with WOBO conditions during takeoff or landing. Excludes: All mishaps involving conventional takeoff and landing aircraft or UAV. All mishaps to vertical takeoff and landing aircraft or UAV when flown conventionally. Mishaps involving helicopters, tilt-rotors and vertical takeoff and landing aircraft or UAV where WOBO conditions are present, but the mishap results from another condition such as power plant failure, system failure, or rotor droop (see POWER, subparagraph 315p; SYSTEM, subparagraph 315r; and IPOWER, subparagraph 315l).

t. Wildlife Strike (BASH). Damage due to collisions with wildlife or resulting from wildlife activity. Flight, ground-ops, UAV. Includes: Collisions with birds and other wildlife. Damage resulting from wildlife activity such as nesting within aircraft or UAV.

u. Other (OTHER). Any occurrence not covered under another category. Flight, flight related, ground ops, UAV. Includes: Used when insufficient information exists to categorize the occurrence (unknown and undetermined). Also used for mishaps that occur infrequently such as aerodrome issues (e.g., design, services and functionality).

316. Determining Aircraft or UAV Mishap Costs. The AMB calculates aviation mishap costs by totaling the cost of property and aircraft or UAV damage. The NAVSAFECEN will add injury costs to the total.

a. DoD Property Costing

(1) The intent of this subparagraph is to provide direction on how to determine costs of damage to DoD aircraft, DoD UAVs, non-aircraft DoD property and non-DoD property as a result of a mishap. Parts, labor, repair costs and environmental damage repair are used as a methodology to determine the scope of the incident and determine when mishap thresholds are met. Therefore, there are no "free" parts such as those that are removed from a stricken aircraft to replace damaged parts. For aircraft that are not destroyed, a financial decision to not repair an aircraft (e.g., strike the aircraft early) or replace a component does not affect the cost for

mishap reporting purposes. Mishap damaged parts, even when they are due for replacement when an aircraft is scheduled for a modification or overhaul, shall be included in mishap costing. Compute the cost of damage to DoD property using the best-known cost of repair or replacement. Base these cost estimates on the price of materials and man-hours necessary to repair the damage. For assessing damage cost to aircraft, use figures provided by the fleet readiness center that has cognizance of the damaged aircraft. If depot man-hour cost estimates are not available, use \$75 per depot-level man-hour. For intermediate and organizational level repair, use \$24 per man-hour for labor costs. Report direct man-hours spent removing and replacing damaged components. Direct man-hours are the cumulative man-hours - expended at any maintenance level - to affect complete repair of the aircraft or UAV and restore it to serviceable condition. Aircraft parts which may be damaged and which require removal from the aircraft for intermediate or depot level inspection to ascertain the extent of damage shall be reported via a WAMHRS if the potential cost equals or exceeds \$20,000. If the inspection shows the damage to be less than \$20,000, use WAMHRS to downgrade the incident.

(2) When a component, including engines, is economically repairable and sent to an intermediate level or higher maintenance facility, and planning and estimate (P&E) information is not available, calculate the cost of repair by computing 15 percent of the item's initial cost - not the turn-in cost. Report man-hours spent removing and replacing the damaged part.

(3) Base cost estimates on damaged engines sent to intermediate or higher-level maintenance facilities for repair on engine cost information from the NAVSAFECEN. Use 15 percent of the original engine cost as the estimate. Report man-hours spent in removing and replacing the engine(s).

(4) Include in the cost estimates the man-hours spent removing undamaged parts to gain access to those that are damaged. Do not report man-hours spent removing or disassembling undamaged parts to gain access to areas where damage is suspected unless damage is found. Count those efforts as direct man-hours if damage is found. Include those man-hours spent in anticorrosive work following salt water immersion, as the result of an aviation mishap. Do not include those man-

hours consumed setting up maintenance stands or other support equipment in preparation for the repair effort. If commercial equipment is rented for aircraft movement or space is rented for aircraft repair, do not include those costs in the cost of the mishap. It is a violation of the intent of this instruction to remove a damaged assembly and replace it with a new one in an attempt to decrease the number of man-hours spent on repairs and, thereby, lower the mishap classification.

(5) If an aircraft or a UAV is destroyed, the originator of the report need only state that fact in the aircraft or UAV damage section of reports and COMNAVSAFECEN will enter the costs in the appropriate records.

(6) Include in the cost estimates only that damage sustained as a direct result of the mishap. Do not include costs of any further aircraft damage resulting from rescue or salvage efforts. Do not include the cost of intentionally jettisoned or released equipment. See subparagraph 305b if the jettison or release damages the aircraft or UAV.

(7) Use supply system "as new" cost for any parts acquired from salvage for repair.

(8) Determine non-aircraft DoD property damage costs from the damage sustained as a result of the mishap. Do not include any further damage that results from rescue or salvage efforts. The cost of decontamination, environmental restoration and restitution at the crash site is part of the mishap total cost. If the actual cost is unavailable, use the best estimate.

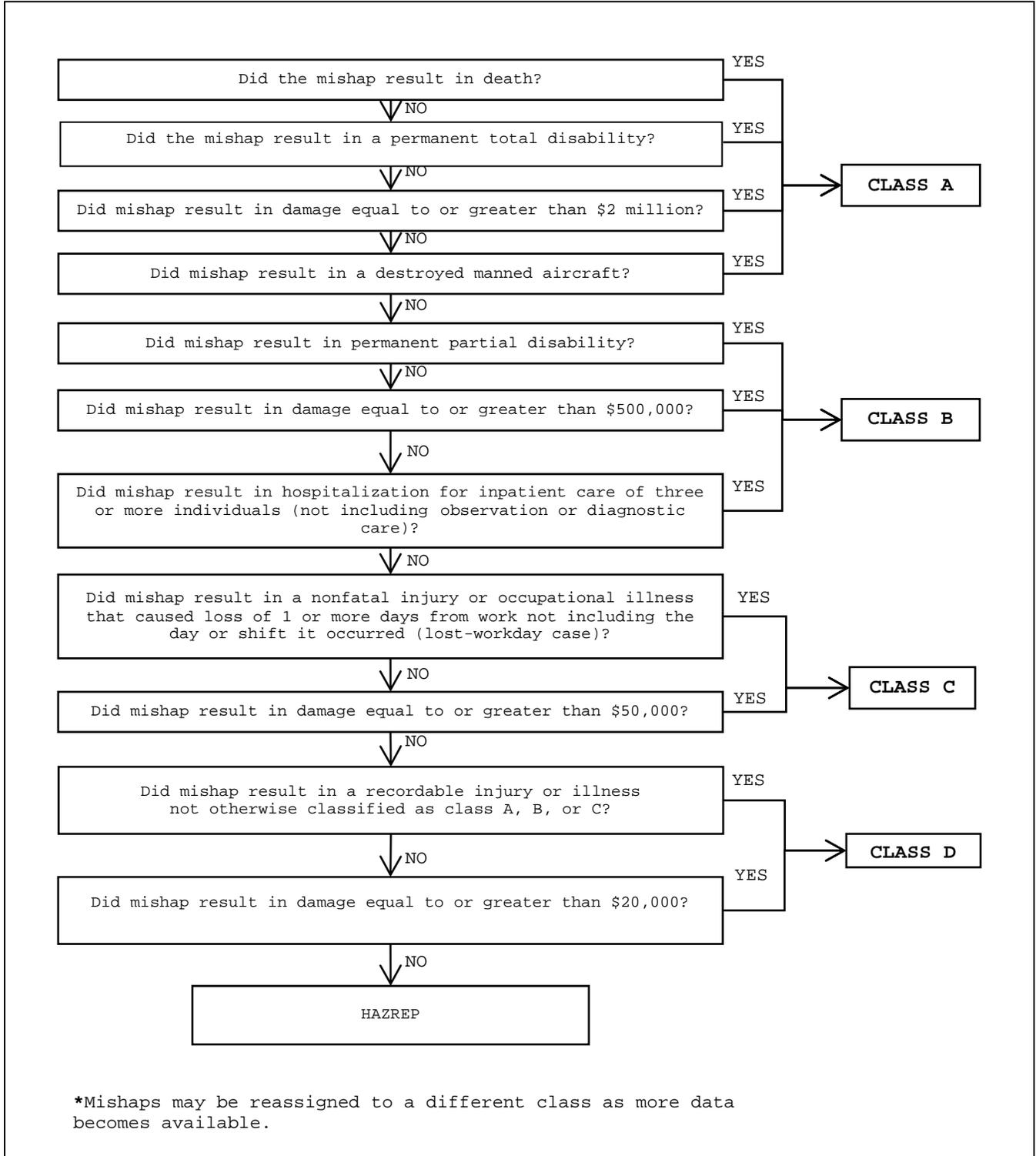
(9) Reporting custodians are responsible for informing the endorsement chain, via the WAMHRS MDR update feature, when changes in total cost will change mishap severity classification.

b. Non-DoD Property Costing. Information about the actual cost of damage to non-DoD property shall be provided by a representative from the claims section of the nearest naval activity or a representative from the nearest naval legal service office. Use their best estimates until this information is available. Determine non-DoD property damage costs from the damage sustained as a result of the mishap and include any further damage that results from rescue or salvage efforts. The

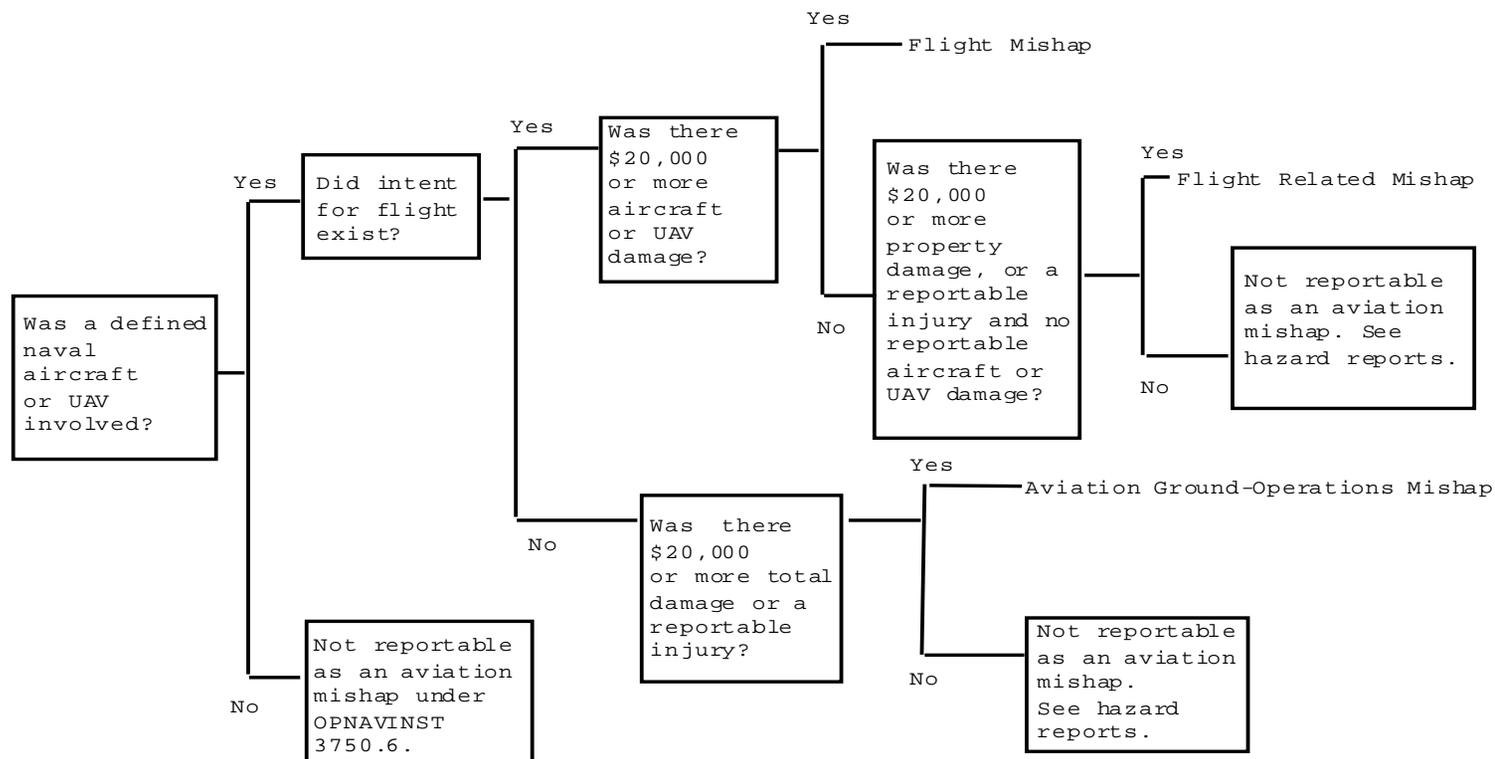
cost of decontamination, environmental restoration and restitution at the crash site is part of the mishap total cost. If the actual cost is unavailable, use the best estimate. The policy is to capture all costs associated with putting non-DoD property back in operation or undamaged condition whether or not an actual claim is made against DoD.

317. COI Use. COMNAVSAFECEN was designated as the authority for a set of message traffic aviation safety collective address designators (CAD). The message traffic CADs were disestablished and replaced by WAMHRS COIs. Each set is composed of addressees for a specific type aircraft and its command and support structure. The purpose of a WAMHRS COI is to disseminate essential aviation safety information. Reporting custodians are only authorized to use the COI appropriate to the type aircraft they operate when reporting within the guidelines of this instruction. With COMNAVSAFECEN Director, Aviation Safety Programs (Code 10) or Deputy Director, Aviation Safety Programs (Code 10A) approval, reporting custodians, endorsers in the chain of command, and controlling custodians may address WAMHRS reports to COIs, other than the type aircraft being reported on, to facilitate dissemination of hazard information that may transcend more than one type aircraft or community. Use of any COMNAVSAFECEN designated COI for other than dissemination of safety information (e.g., change of command announcements, aircraft community event announcements, NATOPS changes, etc.) is strictly prohibited and will not be approved.

APPENDIX 3A
MISHAP CLASSIFICATION DECISION TREE



APPENDIX 3B
MISHAP SUBCATEGORY DECISION TREE



CHAPTER 4
WEB-ENABLED SAFETY SYSTEM
AVIATION MISHAP AND HAZARD REPORTING SYSTEM

401. Purpose. This chapter provides guidance on the procedures for receiving a WAMHRS account, for acquiring the proper WAMHRS access privileges, and for online and offline mishap and hazard reporting.

402. General. WESS is a data collection system that allows submission of all reportable mishaps and hazards by electronic means. The aviation module within WESS is the WAMHRS. WESS alleviates administrative burdens, eases routing, and provides timely access to data reports.

403. Electronic Reporting

a. All Navy and Marine Corps reportable aviation mishaps and hazards shall be reported using the WAMHRS module of WESS, located on the COMNAVSAFECEN Web site at <http://www.safetycenter.navy.mil/>. If bandwidth limitations make online submission impossible, use OPNAV 3750/59 through OPNAV 3750/69 listed in the forms paragraph at the beginning of this instruction. Forms should be downloaded and saved prior to deployment or any other anticipated circumstances of limited Internet connectivity. The various forms provide data fields matching the information required in WAMHRS. Mishaps reported via forms shall be forwarded via e-mail to SAFE-Codell@navy.mil for input into WAMHRS. HAZREP information should be e-mailed to the next higher shore-based command for input into WAMHRS. If these options are not available, contact COMNAVSAFECEN for further guidance.

b. The online WAMHRS will automatically indicate which data elements are required for entry based on the selected classification, type of mishap, and reporting activity.

c. The online WAMHRS is common access card enabled.

d. To allow for local management of access to WAMHRS mishap and hazard reporting and data retrieval, each Navy and Marine Corps command or activity shall:

(1) Designate at least two individuals to serve as the safety authority. This is typically the safety officer, executive officer, ASO, etc., who manages WAMHRS account requests and mishap reporting for one or more commands or activities.

(2) Provide the name and rank, rate or grade, and position title of the designated safety authority by naval message, fax, or scan a request on command letterhead and e-mail to COMNAVSAFECEN. A sample message or letter can be obtained by clicking on the WESS tab of the COMNAVSAFECEN Web site at <http://www.safetycenter.navy.mil/>. The command or activity's safety authority will then be electronically recorded as having permission to recommend approval of WAMHRS account applications for personnel under their cognizance.

e. Any requests for WAMHRS accounts from a command or activity will go through the safety authority for endorsement, selection of the appropriate permissions, and then will be forwarded to COMNAVSAFECEN for approval and account creation.

f. If a command or activity does not have a designated safety authority on file, request one from COMNAVSAFECEN per subparagraph 403d(2). Existing account requests will be reviewed and acted upon by COMNAVSAFECEN delegated administrators.

g. The command or activity, through their safety authority, will manage the access, notifications, release authority, routing, and report permissions given to their personnel for WAMHRS use at their activity.

(1) Everyone within a command, activity or chain of command using WAMHRS for initiating entries, report completion, review, endorsement, approval, or editing of records or reports must have their own account to access the system. The account permissions available in WAMHRS include:

(a) Draft and Route. Allows the user to create mishap and HAZREPs and route them through the chain of command for release.

(b) Aviation Endorser. Allows the user to complete and release endorsements on behalf of the CO.

(c) HAZREP Notification. Allows the user to receive notifications via e-mail of HAZREPs in their COI.

(d) Aviation Draft Releaser. Allows the user to release mishap and HAZREPs.

(e) Privileged Access. Allows the user to read full SIRs with privileged information.

(f) IN. Allows the user to release IN for a mishap.

(g) MISREC and Hazard Report Recommendation (HAZREC) Responder. Allows the user to enter and release responses to mishap and HAZREP recommendations in which they were an action agency.

(h) Full Notification. Allows the user to receive notification via e-mail of SIRs in their COI.

(2) WAMHRS has functions allowing reports to be saved, retained in the system, routed, edited, approved, released or submitted electronically, and provides e-mail notification of released reports. Commands and activities must establish their own review, approval, release, and notification policies for WAMHRS reports by local directive or notice to ensure the accuracy and quality of the information contained in the report.

h. WAMHRS entries should be made as frequently as feasible to ensure data are entered and available for retrieval. Where connectivity with Internet service is intermittent, WAMHRS has a function to allow partial entries to be entered and saved, then re-accessed, completed, and submitted to COMNAVSAFECEN at the next opportunity for Internet connectivity.

i. For any unit that has no consistent or reliable Internet connectivity, submit reports per paragraph 403.

j. Mishap reports must be submitted within 30 days of mishap occurrence.

k. If a submitted report must be updated, changed or amended, WAMHRS provides the capability to search for a WAMHRS report, using the original locally assigned serial number, date of mishap, and involved unit identification code (UIC),

reporting unit code or Marine command code. For information gained after submitting the WAMHRS data, commands and activities shall amend or edit the original record in WAMHRS.

l. Data from submitted reports is electronically transmitted to COMNAVSAFECEN, where it is reviewed for quality assurance purposes (data is validated and narratives checked to ensure they contain no personal information) and entered into the database.

(1) Entered data may be retrieved as data reports and logs directly from WAMHRS online and maintained locally either in hard copy format or electronically.

(2) WAMHRS provides a selection of pre-formatted report types for download or printing, as well as a function for creating custom reports. Reports and injury logs may also be retrieved in portable document format (PDF) prior to submission after drafting in WAMHRS.

m. WAMHRS allows users to route reports within WAMHRS to other WAMHRS users that may be required to review or modify the report before submission. An e-mail notification is automatically generated and sent to the WAMHRS user(s) selected.

n. Once a WAMHRS report is submitted, an e-mail notification, with a link to the report, is automatically generated and sent to the WAMHRS account holder(s), command(s), and COIs selected by the user. COIs are available for each type-model-series of aircraft, COIs are also available for all rotary, fixed wing, and multi-engine and training aircraft and all Navy and Marine Corps air stations. They provide a copy of the SIR or HAZREP to all commands that may have particular interest in the mishap for lessons learned. The activity or command can select from pre-determined COIs in WAMHRS.

o. Activities and commands using worksheets to submit SIRs via e-mail have the responsibility for protecting privileged information and information protected under the Privacy Act and the Health Insurance Portability and Accountability Act of 1996 (HIPAA), title II. Therefore, users must encrypt the e-mail prior to sending mishap data.

p. Any WAMHRS user with an account and locally granted permission may download non-privileged, pre-formatted or custom MDRs, tables, queries, and graphs for any UIC or reporting unit code or Marine command code.

(1) The WAMHRS help link may be used to request additional data, or tailored reports, if certain data is not available through the pre-formatted or custom reports in WAMHRS.

(2) Activities or commands requiring access to the complete WAMHRS database for ad-hoc queries, including all Privacy Act information, HIPAA, and privileged data, must request specific permission for that access. Requests for access shall be made to COMNAVSAFECEN as part of the request for a WAMHRS account process.

404. IN via WAMHRS. Class A, B or C INs shall be made using WAMHRS. Class D INs may be submitted but are not required. If unable to access WAMHRS notify COMNAVSAFECEN via telephone or e-mail the IN worksheet to SAFE-Codell@navy.mil. This does not eliminate the need for a command to make other appropriate notifications per OPNAVINST F3100.6J, Special Incident Reporting (OPREP-3 Pinnacle, OPREP-3 Navy Blue, and OPREP-3 Navy Unit SITREP Procedures).

405. Reports and Endorsements. Reports and endorsements are to be generated and submitted per chapter 5 for HAZREPs, chapter 6 for INs and MDRs, chapter 8 for SIR and chapter 9 for endorsements.

406. WAMHRS Access and Users' Guide. For information on requesting a WAMHRS account and to view the WAMHRS Users' Guide, go to <http://www.safetycenter.navy.mil/> and click on the WESS tab.

CHAPTER 5
HAZARD REPORTS

501. Purpose

a. This chapter defines hazards and describes hazard detection and reporting. This chapter does not include instructions for reporting a naval aviation mishap. See chapter 3 for the definition of a naval aviation mishap. A hazard is any real or potential condition that can cause injury, illness, or death to personnel; damage to or loss of a system, equipment or property; or damage to the environment. A near miss is an undesired event that, under slightly different circumstances, would have resulted in personal harm, property damage, or undesired loss of resources. The goal of the Naval Aviation SMS is to identify and eliminate hazards and identify near misses before they result in mishaps. While HAZREPs are by definition not privileged, and promises of confidentiality are not offered, HAZREPs shall not be used for any administratively or judicially adverse process. The following subparagraphs explain how to detect and report hazards before a mishap occurs.

b. The four purposes of HAZREPs are:

(1) To report a hazard and the remedial action taken, so others may take similar action.

(2) To report a hazard and recommend corrective action to others.

(3) To report a hazard so another organization may determine and take appropriate corrective action.

(4) To document a continuing hazard in order to establish risk severity and exposure.

502. General

a. Corrective Actions. HAZREPs and SIRs are the media for recommending corrective action to eliminate hazards. Both require endorsements when they address a severe hazard or recommend corrective action by another command. Regardless of whether the hazard is identified and reported before or after a mishap, corrective action is essentially the same.

b. Hazard Detection Before a Mishap. Observing, identifying and analyzing hazards, near misses and incidents that fall short of mishap thresholds, conducting safety surveys, and reviewing command plans, policies, procedures and instructions will aid in detecting hazards before a mishap occurs. Proper risk management, applied in the planning stages of an operation, will identify hazards at the earliest possible opportunity. Individuals or commands with direct, first-hand knowledge of the circumstances surrounding a hazard are the most effective at detecting and reporting hazards. An essential element of an effective command safety program, risk management includes a review of operating procedures, analysis of equipment failures, etc., for hazard detection and assessment. Two vital parts of hazard assessment are: classifying the hazard according to the severity of the expected damage, and determining the probability, or likelihood, that the identified hazard will occur. HAZREP deadlines vary depending on the risk assessment of the reported hazard.

c. Hazard Reporting. Everyone associated with naval aviation has an obligation to report hazards. It is essential that COs encourage, and command safety programs foster, hazard reporting. Once identified, the attendant risk should be assessed both for mishap probability and severity. Hazards that threaten people or organizations outside the command must be reported to higher authority. Local hazard reporting programs (i.e., Flash Reports, ASAP entries) are not a substitute for reports outlined in this instruction. Reports may include descriptions of corrective action (risk control options) undertaken by the command which would benefit other commands facing similar problems.

(1) Consider the following when an incident falls below mishap thresholds or a near miss occurs. Using Reason's model, these adverse incidents can be defined by saying there were a number of significant holes aligned in the Swiss cheese model but fortunately one or two remaining holes were not aligned. The path was blocked and a mishap did not occur. So when an adverse incident occurs, here are the questions that should be asked:

(a) What created the original holes that become aligned in the first place? How many defensive layers broke down and contributed to what could have been a mishap? What were they?

(b) When submitting a HAZREP, consider not only what went wrong (the holes that aligned), but also consider and assess what went right (those barriers in the model that prevented a mishap).

(c) What procedures, programs, or equipment was put in place or enabled to prevent a full scale mishap? Not only can the things that went wrong be reported, but the things that went right can be praised, encouraged and validated.

(2) It is contrary to a right and just safety culture to look for someone to blame. If personnel believe that sharing a near miss episode with the wardroom or with the ASO will result in any kind of personal retribution, they are much less likely to report the incident.

(a) If reporting an incident or pointing out a latent condition does not result in some form of action to remove that condition, people are also going to be less likely to report because they do not think they can make a difference.

(b) A less than mishap threshold incident must be treated as a rare gift. When given a chance, with no loss of life or less than mishap threshold property damage, both latent conditions and active failures that could prevent a mishap can be examined.

(c) Instead of looking for someone to blame, investigators must identify latent conditions and include them with corrective actions or recommendations in a HAZREP. When hazards occur but do not cause an aviation mishap, submit a HAZREP via WAMHRS.

(3) The following hazards shall be reported and may require details in a special data section:

(a) Human factors, near midair collision (NMAC), unintentional out of control flight, embarked landing (EMBLAND), ATC, PHYSEP, BASH, electromagnetic interference (EMI), laser strikes on naval aircraft, and FF hazards.

(b) If an incident meets the criteria for NMAC, out of control flight, EMBLAND, ATC, PHYSEP, BASH, EMI or FF and has human factors as causal factors (a likely occurrence) report as the appropriate NMAC, out of control flight, EMBLAND, ATC, PHYSEP, BASH, EMI or FF hazard.

(c) Use human factors for incidents that fall outside these categories and contain human factors as causal factors.

(4) The quality of HAZREPs depends directly on the quality of the investigation into its attendant circumstances. Using an AMB to investigate and report hazards keeps the board's skills honed and produces excellent results.

(a) Risk management techniques simplify the assessment of risks and help determine the best risk control options.

(b) Discussing which risk management procedures proved helpful during a hazard investigation is appropriate in the remarks section of the HAZREP.

(c) Investigations into PHYSEPs should include the services of a flight surgeon or a physiologist.

(5) Success of the Naval Aviation Safety Program depends on the complete, open and forthright exchange of information and opinions about safety matters. Any effort on the part of seniors in the chain of command to edit, change or censor, in any way, the content of reports is contrary to the spirit of the program. A senior's endorsement is the only acceptable method of expressing disagreement with the basic report.

d. Anonymous HAZREPs. Commands or individuals desiring to submit an anonymous HAZREP should use the worksheets available on the Aviation page of the NAVSAFECEN Web site. This method is pertinent when unique situations or embarrassing circumstances

exist. COMNAVSAFECEN protects the confidentiality of these anonymous reports, sanitizes them and then redistributes the information as necessary.

503. Submission Criteria

a. General Submission Criteria. A hazard is a potential cause of damage or injury under human control. Submit HAZREPs whenever less than mishap reportable damage or injury occurred, a hazard is detected or observed, or whenever an incident occurs that should have been a mishap but was averted due to luck or quick reaction. Keep in mind that the reports submitted under this instruction are the only consistent source of data for the Naval Aviation SMS. Unreported hazards do not get into the safety database. The same thing is true of reports submitted under other directives, such as those submitted using reference (e). Sending an HMR instead of an aviation HAZREP deprives the safety community of long-term trend information, data, and documentation useful in mishap prevention. HMRS are maintenance reports, and as such, do not require chain of command endorsement and lack the visibility of HAZREPs. It is often appropriate to issue both a HAZREP and an HMR concerning the same incident, especially when safety of flight is an issue. Appendix A is a graphic representation of HAZREP and mishap general reporting requirements.

b. Specific Submission Criteria. Submit a HAZREP for specific occurrences of human factors, EMI, and unintentional out of control flight, a BASH incident, an NMAC incident, a PHYSEP incident, an EMBLAND hazard, ATC hazards, FF incidents and other circumstances as outlined in the following paragraphs.

c. Human Factors Reports

(1) Personnel in naval aviation do a commendable job of detecting, analyzing, understanding, and correcting mechanical defects and faulty design features in aircraft. However, there has been considerably less success at understanding and combating those failings of a human kind that continue to constitute upwards of 80 percent of the causal factors in naval aviation mishaps. Human factors such as personal and professional stress, physiological impairment, lapses of attention, confusion, and willful violations of flying regulations, to name but a few, stand as a great barrier between

today's commendable mishap rates and a genuine breakthrough in naval aviation safety. The ability to accomplish the mission of naval aviation in the future will depend in large measure on how well these aspects of human behavior in aircrew and maintenance personnel are understood and controlled today.

(2) No one needs to be embarrassed by reports containing human factors. Where the anonymity of an individual or organization is a concern, send the HAZREP from a senior command, or send an anonymous HAZREP to COMNAVSAFECEN. Above all, never fail to report.

(3) Analyze and report human factors in the Human Factors Analysis and Classification System (HFACS) in HAZREPs. No special data is required.

d. NMAC Reports

(1) An NMAC occurs when aircraft pass close-by one another in the air and, as a result, the pilot-in-command feels the safety of the aircraft or UAV was in jeopardy. Use these criteria to determine when to report:

(a) A collision was avoided by chance rather than by a conscious act on the part of the pilot.

(b) A collision would have occurred had no action been taken.

(c) Two aircraft inadvertently passed within 500 feet of each other.

(2) Pilots involved in an NMAC must:

(a) Report the incident by radio to an FAA air traffic facility or flight service station. Inform them the crew will file a written NMAC HAZREP; or

(b) At the next point of landing, contact the nearest FAA air traffic facility or flight service station and report the incident. Inform them the crew will file a written NMAC report; and

(c) Under this instruction, file a written, formal NMAC HAZREP. No special data is required.

e. Unintentional Out of Control Flight Reports

(1) Unintentional out of control flight includes mishaps and near-mishaps encountered during air combat maneuvering, guns defense, air intercept control or other flight regimes. These mandatory reports highlight the risks associated with high angle of attack (AOA), low airspeed flight. Unplanned departures from controlled flight or unintentional out-of-control flight are hazards to naval aircraft and their crews. Any un-briefed or unexpected departure from controlled flight, deliberately or unintentionally entered into is an out-of-control flight incident. Pre-briefed departure recognition training or high AOA and low airspeed flight excursions deliberately conducted for training need not be reported.

(2) The reporting custodian shall submit a naval aviation HAZREP whenever an unintentional out of control flight incident occurs.

f. EMBLAND Reports. An EMBLAND hazard is a potential cause of damage or injury directly associated with an EMBLAND. Incidents which require an investigation and an EMBLAND HAZREP include, but are not limited to:

(1) Ramp strikes (a part of an aircraft hit on or below the round down).

(2) Part of the aircraft other than the landing gear or tailhook strikes the landing area.

(3) An aircraft collides with other aircraft, personnel or equipment on the flight deck.

(4) Low visibility approaches for helicopters and emergency low visibility approaches.

NOTE: Forward Integrated Launch and Recovery Television System (ILARTS) tapes of EMBLAND hazards to the U.S. Navy Landing Signal Officer (LSO) School, NAS Oceana, Virginia Beach, VA 23460-5129, with each nuclear aircraft carrier (CVN) EMBLAND HAZREP.

g. ATC Reports

(1) An ATC hazard is an occurrence attributed to an element of the ATC system that:

(a) Results in less than the applicable separation minima between two or more aircraft, or between an aircraft and terrain or obstacles, as required by FAA JO 7110.65 and supplemental instructions. Obstacles include vehicles, equipment, and personnel on runways; or

(b) Places aircraft that are in a tower pattern in close proximity to other aircraft, terrain, or obstacles whereby collision would have occurred had no action been taken by the pilot; or an

(c) Aircraft lands or departs on a runway closed to aircraft operations after receiving ATC authorization.

(2) Also considered a reportable hazard is a controlled occurrence where applicable separation minima, as referred to in subparagraph 503d(1)(a), was maintained, but:

(a) Less than the applicable separation minima existed between an aircraft and protected airspace without prior approval.

(b) An aircraft penetrated airspace that was delegated to another position of operation or another facility without prior coordination and approval.

(c) An aircraft penetrated airspace that was delegated to another position of operation or another facility at an altitude or route contrary to the altitude or route requested and approved in direct coordination or as specified in a letter of agreement, pre-coordination or internal procedures.

(d) An aircraft, vehicle, equipment or personnel encroached upon a landing area that was delegated to another position of operation without prior coordination and approval. These landing areas include runways, landing spots, and unprepared surfaces.

(3) Report ATC hazards as follows:

(a) A severe ATC HAZREP shall be submitted if an incident found in subparagraph 503g(1)(a), 503g(1)(b) or 503g(1)(c) occurs.

(b) A routine ATC HAZREP shall be submitted if the incidents in subparagraph 503g(2)(a), 503g(2)(b) or 503g(2)(c) occur.

(c) Runway incursions as defined in subparagraph 503g(2)(d) that result in a wave off, aborted takeoff or ATC cancelled takeoff clearance are RAC 1 or RAC 2 hazards and a severe ATC HAZREP shall be submitted. Other runway incursions are RAC 3, 4 or 5 require a routine HAZREP.

(d) A WAMHRS IN shall be submitted for severe ATC incidents within 3 working days. The complete severe HAZREP shall be submitted as soon as possible but within 30 sequential days. Routine ATC HAZREPs shall be reported within 30 sequential days.

(e) Include the appropriate naval representative to the FAA as an addressee by selecting them as an individual command on the COI page in WAMHRS when an ATC HAZREP involves civilian aircraft.

(f) The chain of command, through the Commander Naval Installations Command, region commander, shall endorse all severe ATC HAZREPs for shore air stations and tactical USMC units. The chain of command, including the ATC officer on COMNAVAIRPAC or COMNAVAIRLANT command staff shall endorse all severe ATC HAZREPs for CVNs and applicable L-class ships.

h. PHYSEP Reports. A PHYSEP occurs whenever any of the following conditions exist outside of a naval aviation mishap:

(1) Hypoxia, proven or suspected.

(2) Carbon monoxide poisoning or other toxic exposure.

(3) Decompression sickness because of evolved gas (bends, chokes, neurocirculatory collapse) or severe reaction to trapped gas resulting in incapacitation.

(4) Hyperventilation.

(5) SD or distraction resulting in unusual attitude.

(6) Loss of consciousness for any cause.

(7) An unintentional rapid decompression exposing personnel to cabin altitudes above flight level 250, regardless of whether dysbarism or hypoxia occurs.

(8) Other psychological, pathological or physical problems that manifest during or after actual flight.

i. BASH Reports

(1) The scope of the BASH reporting system includes collisions with birds and all other animals. The term "bird (animal) aircraft strike hazard" is the correct terminology for referring to incidents involving collisions between any and all wildlife and a naval aircraft, even though "bird strike" is the category into which most of these reports will fall. A bird (animal) aircraft strike occurs anytime a naval aircraft collides with any wildlife or domesticated animal whether the incident causes damage to the aircraft or not. Submit a BASH report, via WAMHRS, for all instances of animal aircraft strikes where no damage occurred or when the damage or injuries fall below the mishap threshold. Air stations shall also submit BASH HAZREPs for all incidents involving other DoD and civilian aircraft at the air station. If damage or injuries to a defined naval aircraft exceed class D severity, do not submit a BASH report. Submit an IN (as required), updated MDR (as required) and the appropriate SIR. Ensure the U.S. Navy or Marine Corps air station of occurrence is included in the WAMHRS distribution. If a report is submitted for a BASH event at a civilian airfield it is recommended that a copy of the report is sent to the airfield.

(2) The most critical element of the BASH reporting process is the collection and positive identification of any remains remaining from a damaging or non-damaging strike incident. This species identification data is vital to the installation BASH program to reduce the risk of future strike incidents and increase the safety margin for aircrew. Therefore

all units, after completing the WAMHRS BASH reporting process, shall forward strike remains to the Smithsonian Institution for positive species identification.

j. EMI Reports

(1) EMI has the potential to cause damage or injury and is associated with an in-flight or on-the-ground interruption or loss of aircraft or UAV instruments, flight controls, radio communication, navigation, electrical equipment, etc., in which electrical interference is experienced or suspected. EMI types include:

- (a) Radio frequency interference
- (b) Electrical storm interference
- (c) Electrical noise
- (d) Precipitation static

(2) EMI exists when undesirable voltages or currents adversely influence the performance of an electronic device. The extent to which it degrades performance depends on the level of interference encountered. These levels are:

(a) Mild - Detectable, but does not hamper the detection and interpretation of a desired signal.

(b) Medium - Interferes with the detection and interpretation of a desired signal. This level causes partial breakup or masking of the desired signal with some loss of signal content.

(c) Severe - Causes a complete loss of a desired signal.

(3) There are two types of interference classification:

(a) Intra-system interference. The source of the interference is on the same aircraft as the affected victim system.

(b) Intersystem interference. The source of the interference is external to the aircraft. Atmospheric interference including lightning, precipitation static, and St. Elmo's fire is in this classification.

k. FF Reports

(1) JP 1-02 defines FF as: "In casualty reporting, a casualty circumstance applicable to persons killed in action or wounded in action mistakenly or accidentally by friendly forces actively engaged with the enemy, who are directing fire at a hostile force or what is thought to be a hostile force." This instruction includes unintentional damage to friendly forces as follows: FF, blue on blue, harm to friendly forces are terms used to describe a circumstance in which members of a U.S. or friendly military force are mistakenly killed, or wounded, or equipment damaged by U.S. or allied forces actively engaged with an enemy, or a presumed enemy.

(2) Report all combat zone FF incidents involving active engagement with the enemy that do not meet the class D or higher mishap thresholds, as an FF HAZREP. When class D or higher mishap thresholds are met, convene an AMB, following the requirements in paragraph 208, and report via an SIR.

(3) When aviation training event that involves simulated or actual ordnance delivery is conducted inside or outside of a combat zone and the following occur, report the incident as an FF HAZREP.

(a) Hazards are discovered that could have resulted in damage to friendly forces or damage to friendly forces did occur but did not meet class D or higher mishap threshold; and

(b) The incident involves problems with, or violations of, joint or Service specific training, standard operating procedures (SOP) or joint or Service tactics, techniques and procedures.

(4) If conducting an FF mishap investigation and a severe hazard is discovered that requires immediate attention, send an FF HAZREP with recommendations to the appropriate combatant commander, component commander, joint forces command and action agency. Comply with subparagraph 503m(1) or 503m(2).

1. Related Aviation Reports

(1) Incidents which meet the criteria in reference (e) for submission of HAZMAT reports, aviation-related explosive mishap reports, technical publication deficiency reports, and quality deficiency reports may also require a HAZREP under this instruction if there is a safety of flight or other significant safety issue. The hazardous material reporting system does not reach the same audience as the safety reporting system. The safety reporting system requires endorsements by action agencies and tracking of corrective action.

(2) Submit deficiencies in other publications that have established procedures for changes (NATOPS, Naval Warfare Publications (NWP), etc.) as recommended changes to those publications.

m. Submission by an AMB Investigating a Mishap

(1) Occasionally, an AMB will discover among their causal factors, severe hazards that require immediate attention. In such cases, review the restrictions concerning privileged information described in paragraph 509, then promptly submit a HAZREP. Do not include information such as names, bureau numbers, dates, locations or any other details that could be traced to a specific mishap. Take care not to divulge any privileged information from the ongoing SIR process when describing the hazard. Be sure the analysis, conclusions, and recommendations contained in the HAZREP clearly define the hazard and possible corrective actions. HAZREPs submitted under these circumstances do not relieve the AMB of the responsibility for submission of a complete SIR.

(2) During an investigation, the AMB may detect hazards that are not themselves causal factors (present but not causal) in the mishap under investigation. Report such findings under this chapter as a separate HAZREP. Do not use the SIR as a vehicle to address unrelated hazards (however severe), which are not causal factors in the mishap under investigation.

504. Originator. Anyone can initiate a HAZREP, but investigating hazards and preparing the HAZREP should be left to members of the standing AMB. While the reporting custodian

involved usually submits HAZREPs, any naval activity may do so. See subparagraph 502d for anonymous reporting procedures.

505. Risk Assessment. Originators of HAZREPs shall assign a RAC which best describes the risk associated with the report hazard, e.g., RAC 1, RAC 3, etc. Refer to appendix B of this instruction for information concerning RACs.

506. Deadlines

a. ATC HAZREPs. A WAMHRS IN shall be submitted for severe ATC incidents within 3 working days. The complete severe HAZREP shall be submitted as soon as possible but within 30 sequential days. Routine ATC HAZREPs shall be reported within 30 sequential days. Complete reports that require information from tape recordings of ATC communications or radar video in a timely manner. ATC records over these tapes after 45 days unless investigators request a copy.

b. All Other HAZREPs. Incidents that could have resulted in a fatality and result in a severe RAC shall be reported in 3 working days. Make every effort to submit reports of hazards with a severe RAC within 3 working days of detecting the hazard. All other HAZREPs should be submitted within 30 sequential days following hazard detection.

507. Method of Submission. On-line reporting via WAMHRS the method for submitting HAZREPs. If HAZREP submission by WAMHRS is not possible, e-mail the hazard details to the first shore based immediate superior in command for entry into WAMHRS.

508. Distribution. When reporting via WAMHRS, select appropriate COI for distribution. Any naval command may readdress or redistribute HAZREPs.

509. Non-privileged Status. HAZREPs are not privileged. Do not give promises of confidentiality. Although the Navy and Marine Corps may only use HAZREPs for safety purposes, the contents may be divulged to outside agencies in response to FOIA requests. Avoid the identification of specific individuals.

510. FOUO. HAZREPs are FOUO. See SECNAV M-5510.36, Department of the Navy Information Security Program, of 30 June 2006 for instructions on their handling.

511. Security Classification. Normally, HAZREPs are unclassified. Omit any portion of the report that warrants classification and substitute the word "classified" in its place. In the unlikely event that a meaningful report cannot be produced in this fashion, submit a classified report on Secret Internet Protocol Router Network (SIPRNet). Do not enter classified information into WESS.

512. HAZREP Serialization. The originator serializes HAZREPs and mishap reports in order of incident occurrence by fiscal year (FY) based on incident date not report submission date. For example, Strike Fighter Squadron 99 (VFA-99) discovers a hazard in September 2012 (FY-12) but reports it in October 2012 (FY-13). That hazard, assuming it was their tenth FY-12 incident, would be serialized: "VFA-99, 10-12." If they subsequently had a class C mishap in FY-12 that incident would be serialized: "VFA-99, 11-12." The total number of incident reports (HAZREPs and mishap reports) for a given year is equal to only the number of incidents submitted under this instruction (i.e., do not include HMR, FOD incident reports and other reference (e) required reports in determining the total number of incident reports for a given year).

513. HAZREP Format. Submit HAZREPs in WAMHRS using the on-line formats and help screens for guidance. The forms listed in the forms paragraph will also help.

514. CO HAZREP Endorsement. Keep in mind there is no separate CO's endorsement to a HAZREP. The CO's comments are to be included in the HAZREP and are required if further endorsement is requested or required. RAC 1 and 2 (serious risk) require further endorsement. The CO's comments may close out the HAZREP, including severe hazards, if no action is required outside the command, unless an endorsement is directed by the controlling custodian or someone in the CO's chain of command. WAMHRS is programmed to require all RAC 1 and 2 HAZREPs to be endorsed. If the controlling custodian determines the CO can close out the endorsement, put the squadron CO in as the first endorser. When the report enters the endorsement process the system will recognize the report comes from the same command, automatically concur with all factors and recommendations and import the CO's comments from the original HAZREP. Squadrons need only release the endorsement to complete the process.

515. OIC HAZREP Endorsement. If the hazard is released by a detachment OIC, the OIC can request endorsement by the unit CO. However, the detachment OIC comments can be written on behalf of, and in coordination with, the unit CO. In this case all hazards are endorsed as indicated in paragraph 514.

CHAPTER 6
PHONE REPORTS, INs AND MDRs

601. Purpose. A phone report, an IN and a subsequent updated MDR inform interested commands of a naval aviation mishap. They also present preliminary information and describe the mishap investigation progress. Reporting custodians may request help with their investigations, relief from investigative responsibilities, or extension of deadlines for SIRs. Do not use MDRs to submit hazard elimination information, such as causal factors or corrective actions. Chapter 5 tells how to submit this kind of safety information immediately following a mishap.

602. General. This chapter describes the phone report, the IN and the updated MDR. It explains who submits the report and when, how, and why it is sent. Make a class A mishap telephone report to NAVSAFECEN and class A, class B and class C INs in WAMHRS. While the telephone report provides COMNAVSAFECEN with the timeliest information about the mishap and starts action for NAVSAFECEN's possible participation in the investigation, a WAMHRS IN provides the information to other interested commands. MDRs provide additional information to the IN as well as updating any previously submitted MDRs thereby enhancing and correcting information.

603. Submission Criteria. All class A mishaps require a telephone report to the NAVSAFECEN. Classes A, B and C mishaps require a WAMHRS IN. Any naval command may submit a telephone report or an IN; however they are normally submitted by reporting custodians.

604. Originator. Submitting phone reports, INs and updated MDRs is the responsibility of the reporting custodian of the naval aircraft or UAV involved in a mishap. When a command assumes the responsibility for investigating and reporting a mishap from a reporting custodian, the appointing authority of the AMB assumes responsibility for any further reporting. If aircraft of more than one reporting custodian are involved, the senior command does the reporting unless relieved by higher authority. In the event of a mishap where the reporting custodian for an aircraft cannot be contacted, or the reporting custodian lacks communication capabilities, the first naval command to become aware of the mishap, with appropriate

communication capabilities, shall assume phone report and IN responsibilities. Pre-mishap plans of commanders of Navy and Marine Corps air stations must include procedures for submitting telephone reports and WAMHRS INs for reporting custodians who cannot be contacted immediately following a mishap in the air station commander's area of responsibility.

605. Deadlines

a. Telephone Reports. Within 60 minutes of their occurrence, submit telephone reports on all class A mishaps to COMNAVSAFECEN. Provide additional information in subsequent calls as it becomes available.

b. WAMHRS IN. Submit a WAMHRS IN within 4 hours of the mishap for all class A and class B mishaps. Submit class C INs within 24 hours of the mishap. Class D INs may be submitted but are not required.

c. Updated MDR. The first updated MDR adds additional information to the IN. If an IN is correct, no updated MDR is required and the next required report is the HAZREP or SIR. Subsequent updated MDRs update or correct data in the IN or previous MDRs. MDRs help inform the endorsing chain of the progress of the investigation. Submit updated MDRs when additional information is available.

606. Telephone Reports. During normal East Coast working hours call DSN 564-2929 or (757) 444-2929 to report a mishap. After working hours call at DSN 564-3520 or commercial (757) 444-3520 to report a mishap. Include this information in the telephone IN to COMNAVSAFECEN:

- a. Reporting custodian(s)
- b. Aircraft type, model and series, and bureau number
- c. Mishap location
- d. Brief narrative
- e. Damage

- f. Injuries and fatalities
- g. Points of contact
- h. Request for investigator (most class A mishaps)

607. Distribution. WAMHRS has preprogrammed addressees for commands required to receive INs and MDRs. The submitting command must select the COI and any other individual commands that require notification (e.g., U.S. ship, naval or Marine Corp air station, etc.). Any naval command may redistribute INs or MDRs. AMBs must remember that distribution of INs and MDRs is different from distribution of SIRs. For example, Navy JAG can receive INs or MDRs but SIRs are never sent to Navy JAG.

608. Non-privileged Status. INs and MDRs are not SIRs, they are not limited-use reports, and shall not contain any privileged information. They shall not contain the source of any information, nor any information from statements made to an AMB, nor any information discovered as a result of statements made to an AMB. Do not include any analysis, conclusions or recommendations of an AMB, nor any known, probable, or possible causal factors of a mishap.

609. FOUO. Phone reports, INs and MDRs are FOUO. See SECNAV M-5510.36, Department of the Navy Information Security Program, of 30 June 2006 for instructions on their handling.

610. Security Classification. Phone reports, INs and MDRs are unclassified. Omit any portion of the report or notification that warrants classification and substitute the word "classified" in its place. If no meaningful report can be submitted in this fashion, submit a classified report using secure telephone or SIPRNet. Contact the NAVSAFECEN for details on accomplishing classified submissions.

611. Report Serialization

a. The originator serializes HAZREPs and mishap reports in order of incident occurrence by FY based on incident date not report submission date. For example, VFA-99 discovers a hazard in September 2012 (FY-12) but reports it in October 2012 (FY-13). That hazard, assuming it was their tenth FY-12 incident, would be serialized: "VFA-99, 10-12." If they subsequently had

a class C mishap in FY-12 that incident would be serialized: "VFA-99, 11-12." The total number of incident reports (HAZREPs and mishap reports) for a given year is equal to only the number of incidents submitted under this instruction (i.e., do not include HMR, FOD incident reports and other reference (e) required reports in determining the total number of incident reports for a given year).

b. When mishaps involve aircraft or UAVs of more than one reporting custodian, the command transmitting the IN shall assign a local serial number. Example: In FY-13 an FA-18A aircraft lands well to the right of the centerline during a carrier landing and hits two parked aircraft - one FA-18G and one MH-60S. The FA-18A received class B damage, the FA-18G received class A damage and the MH-60S received class C damage. Although the FA-18A has class B damage, the command submitting the IN will report this incident as a class A mishap (assuming they will do the investigation and reporting), because the summation of damage to all three aircraft exceeds the class A threshold. Report this incident as a class A "VFA-99 01-13" (their first mishap or HAZREP of the FY). The VF-98, FA-18G and HSC-92, H-60 will be listed in involved aircraft. COMNAVSAFECEN can assign or reassign serial numbers if the reporting and investigating command changes or if accountability for the mishap is determined through the investigation, reporting and endorsement process to be another command. Normally however, if a command assumes reporting responsibilities they shall use their next local serial number. In the example above, accountability for the mishap rests with VFA-99 and the final mishap serial number would be "VFA-99 01-13." As a general rule, serial numbers are not reused unless the incident is completely deleted in WAMHRS and the follow-on number or numbers have not been used.

c. To change the severity or the category of a mishap, submit an updated MDR in WAMHRS with the new classification or category and explain the change in the justification box. Example: When the class C FRM IN was submitted, HC-55 estimated \$180,000 DoD property damage and \$19,000 aircraft damage. However, the P&E team calculates \$321,000 aircraft damage (changes to an FM). This revised calculation changes the total to \$501,000 (now a class B mishap). In WAMHRS, change the category of the mishap from FRM to FM using the radio buttons, and change the severity to class B using the radio buttons. The

justification block would read; "Mishap upgraded to a class B and changed to an FM. Estimate \$180,000 DoD property damage and P&E estimates \$321,000 aircraft damage."

612. Combat Zone Reporting

a. High tempo operations associated with operating in a designated combat zone may dictate abbreviated AMB requirements and abbreviated reporting requirements for DEA incidents only. The definition of "combat zone" for reporting under this instruction is any area designated by the CNO or CMC where extended hostilities occur. Unintentional damage or injury as a result of FF or blue on blue engagements in a designated combat zone is reportable under this instruction. There is a combat zone and DEA reporting decision tree in appendix 6A.

b. When investigating operational mishaps in a combat zone proceed as follows:

(1) Class A mishaps require a standard AMB using the guidelines in chapter 2. For investigating and reporting classes B, C and D mishaps, the AMB may consist of one investigating officer (naval aviator or naval flight officer) and one flight surgeon. The investigating officer must be senior to the pilot and mission commander involved in the mishap.

(2) Telephone NAVSAFECEN, if able, to make a telephone report for class A mishaps. Report all combat zone mishaps with a WAMHRS IN and updated MDRs as required. Submit the SIR via WAMHRS.

(3) Time limits for combat zone aircraft class A mishaps are IN within 12 hours and updated MDRs as required. Send class B or C mishaps INs within 7 days of the mishap. A class D IN is optional. Submit combat zone operational mishap SIRs not later than 30 calendar days after the mishap.

(4) WAMHRS reports must contain only unclassified information and data. Use the word "classified" to omit data that is in fact classified. If for reasons of clarity, a classified report is necessary, contact the NAVSAFECEN to discuss sending the report via SIPRNet.

(5) Combat zone INs, MDRs and SIRs will use the standard WAMHRS formats.

(6) Combat zone INs, MDRs and SIRs will receive the same distribution as outlined in this instruction and WAMHRS.

613. DEA Reporting

a. Combat Losses. It is important that combat losses caused by DEA are documented. Over the years NAVSAFECEN records have been a valuable source of information in the search for and the identification of comrades missing in action. These records also provide valuable data for research into the design of new combat aircraft. While much information is collected for many purposes at the time of action, experience shows that NAVSAFECEN records are the ones that endure. Details, such as extent of damage, systems lost, and the last known altitude and heading of the aircraft play an important role in future attempts to reconstruct and understand the loss.

b. DEA Incidents Defined. DEA incidents are by definition not mishaps although the mishap reporting portion of WAMHRS is used to report DEA incidents. A DEA incident is damage or injury by direct action of an enemy to include maneuvering conducted relative to hostile fire or a perceived hostile threat, or hostile force, not including suspected cases of FF. Note that DEA incidents do not have to occur in a combat zone. These involve incidents in which the reporting custodian perceives one of the following conditions exist.

(1) Damage or loss of aircraft, or injury on the ground, or in the air, by enemy action, weapons fire, or sabotage.

(2) Damage or loss of aircraft, or injury due to evasive action taken to avoid enemy fire or perceived hostile threat.

(3) Aircraft fails to return from a combat mission and there is no evidence that an operational mishap occurred.

c. Reporting Requirements. The reporting requirements outlined in this paragraph are the minimum required when reporting DEA incidents. If deemed appropriate, reporting custodians may employ a full or partial investigation board and submit more detailed information in an SIR. If only an IN and

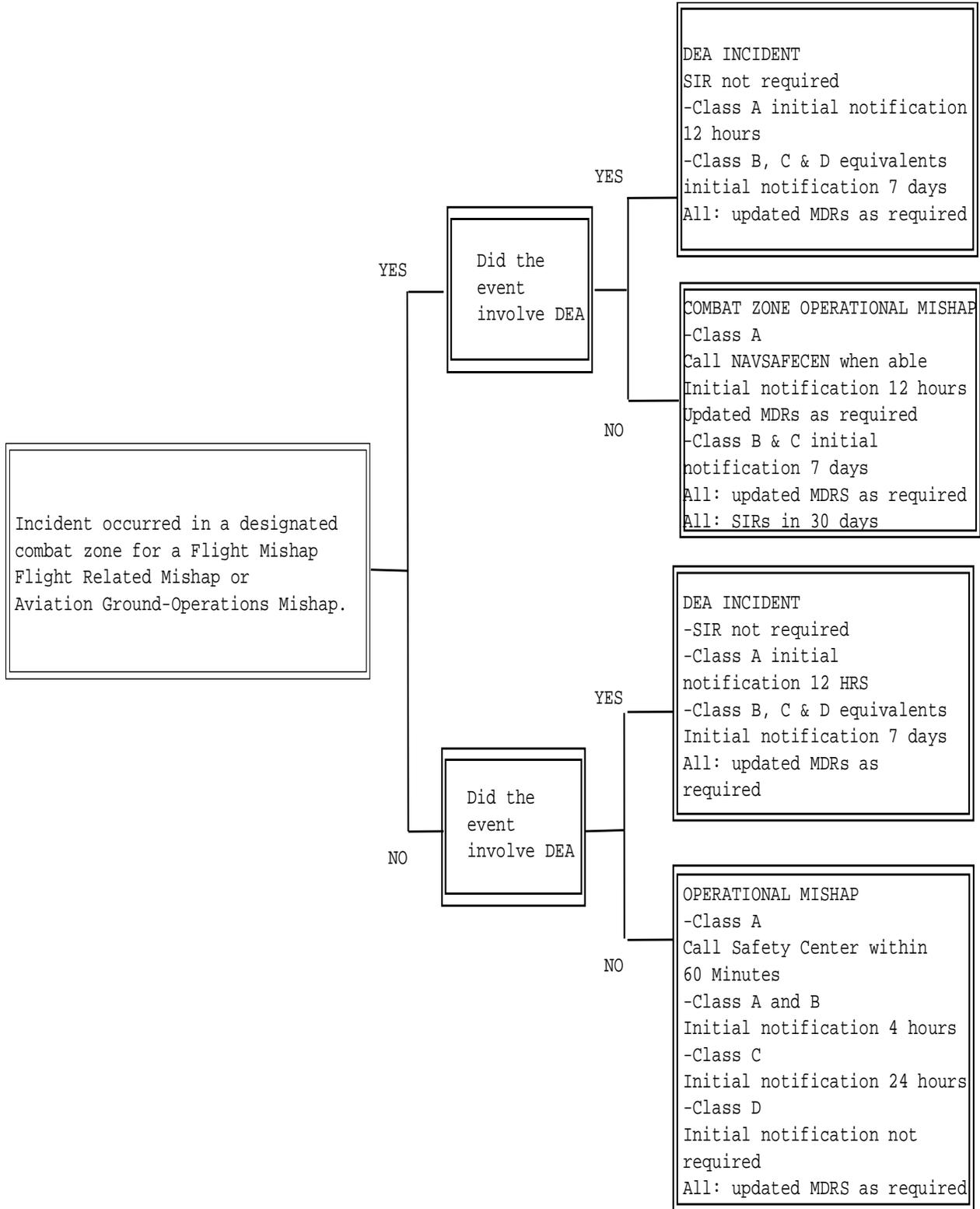
MDRs are submitted with no SIR, contact the NAVSAFECEN by e-mail or telephone for final processing of the MDR to close out the incident reporting. The IN and MDR do not replace reports required by NWP 3-56 (NOTAL).

(1) DEA incidents require only a standard IN and at least one updated MDR. To distinguish DEA incidents from mishaps, select DEA in the mishap type drop down. Omit names of pilots, crewmen and passengers in the IN who are fatalities. Include them in the updated MDR after notification of the next of kin. Include injury data in the involved person section prior to submission of the updated MDR if aircrew are injured or killed.

(2) The time limit for DEA incidents is a WAMHRS IN submission for class A equivalent incidents within 12 hours and an updated MDR as required. For classes B, C and D equivalent incidents submit an IN within 7 days and updated MDRs as required.

(3) All reports submitted in WAMHRS must be unclassified. Use the word "classified" to omit data if it is in fact classified. If, for reasons of clarity, a classified report is necessary contact the NAVSAFECEN to discuss sending the report via SIPRNet.

APPENDIX 6A
DEA AND COMBAT ZONE REPORTING DECISION TREE



CHAPTER 7
MISHAP INVESTIGATIONS

701. Purpose. Naval aviation mishap safety investigations have but one purpose and that is to answer the question, "Why?" The mishap investigation is a search for causes; it looks for undetected hazards and tries to identify those factors that caused the mishap as well as those that caused any additional damage or injury during the course of the mishap. Mishap investigations also demonstrate an organization's commitment to their safety program. All naval aviation mishap safety investigations are conducted solely for safety purposes. This chapter defines who is responsible for conducting naval aviation mishap investigations, describes the relationship these investigations have to other investigations, as well as the purposes and procedures for naval aviation mishap investigations.

702. General. A naval aviation mishap signals a failure in the Naval Aviation SMS. It is evidence naval aviation failed to detect and eradicate the hazards that caused a mishap before it was too late. It is not too late, however, to prevent a mishap recurrence. This is why naval aviation investigates aviation mishaps with such vigor.

703. Types of Investigations

a. Investigation Differences. As a result of aviation mishaps, various agencies conduct separate investigations for different purposes. Naval aviation personnel must have a clear understanding of the differences between these investigations and work to preserve the relationship between them. The primary purpose of a safety investigation is to prevent recurrence. Safety investigations are conducted under the concept of privilege which provides certain protections to the deliberative process and to statements made under a promise of confidentiality. The primary purpose of an administrative investigation, also known as a JAGMAN investigation, is to provide the convening authority and reviewing authorities with information regarding a specific incident which occurs in the DON. JAGMAN investigations are not privileged. That report may be used as the basis of any disciplinary action, as evidence in any claims that may result, and as evidence in court.

Occasionally, the NCIS may be involved in an aviation mishap, especially if there is evidence of criminal activity. As the criminal investigative arm of the DON, NCIS civilian special agents have investigative responsibility within the DON for all crimes punishable under the Uniform Code of Military Justice.

b. Aviation Mishap Safety Investigations. Naval aviation mishap safety investigations encompass FMs, FRMs and AGMs and are conducted under the auspices of this instruction. No other investigation relieves a command from the responsibility to conduct a mishap safety investigation. AMBs, appointed and maintained by aircraft and UAV reporting custodians, conduct naval aviation mishap investigations. Squadron officers, trained at the ASO's course, and flight surgeons, trained at the Naval Aerospace Medical Institute are members of the board. This system of squadron-level AMBs is consistent with one of the basic tenets of the Naval Aviation SMS, that an individual or command detecting hazards is obliged to others in this profession to report hazards as soon as they are detected. The system supports and encourages mutual trust and confidence common among naval aviators and avoids both the specter of adversarial investigations of one command by another and the implication that safety is the business only of higher authority. In addition:

(1) Squadron AMBs provide for close coordination with other mishap-related responsibilities of the reporting custodian, which include:

- (a) Operational reports and situation reports.
- (b) Telephone and WAMHRS initial reports and MDRs.
- (c) Casualty reports.
- (d) Notification of next of kin.
- (e) Reports of loss of classified material.
- (f) Aircraft custody and status change (X-ray) reports.

EIs. (g) Material deficiency reports and requests for

(h) Requests for P&E services.

(i) Requests for technical assistance.

(j) Requests for recovery of submerged wreckage.

(2) Squadron level AMBs also ensure that board members will have knowledge of:

(a) Squadron or UAV unit mission and current commitments.

(b) Squadron or UAV unit aircraft or UAV characteristics and configurations.

(c) Current squadron or UAV unit operating area(s).

(d) Squadron or UAV unit SOPs, policies, and directives.

(e) Pertinent policies of all echelons within and above the squadron or UAV unit.

(f) Squadron or UAV unit personnel and their dependents.

(g) Squadron or UAV unit training, personnel, and aircraft records.

(h) Pre-mishap plans and AMB task organization.

(i) AMB capabilities and limitations.

(j) Availability of technical assistance.

(k) Contingency arrangements with appropriate activities for:

1. Wreckage location, security, recovery, movement, preservation, reconstruction, disposal and release.

2. Rescue.
3. Firefighting.
4. EOD.
5. Hazardous material removal.
6. Logistic support.
7. Photographic coverage.
8. Medical support.
9. Release of information.

(3) Preexisting squadron AMBs avoid delays in commencement of investigations, shifts in investigative responsibilities, and the travel and temporary additional duty costs, which often result when mishaps are investigated by other than squadron AMBs. Additionally, it would often be wholly impractical for other than a squadron's AMB to investigate a naval aviation mishap occurring at a remote Marine deployment site or at sea.

c. Interagency Investigations. OPNAVINST 3750.16C points out that the NTSB and FAA can participate in naval aviation mishap investigations whenever mishaps involve civil aircraft or FAA functions, facilities or personnel. The NTSB has primary investigative responsibilities and authority when a mishap involves both naval and civil aircraft. Sometimes naval personnel may be asked to participate in NTSB investigations. These investigations are separate from the Naval Aviation mishap investigation. NTSB or FAA investigations are legal proceedings; testimony taken in them is not privileged. Contact COMNAVSAFECEN for guidance in dealing with aviation mishap investigations involving other U.S. Government agencies.

d. Special Weapons Investigations. Refer to OPNAVINST 3440.15C if an aviation mishap involves nuclear weapon(s) or material.

e. JAGMAN Investigations. Naval aviation mishaps may also require a JAGMAN investigation. These investigations are conducted independently from any safety investigation.

(1) Do not assign members of AMBs, or other persons who have participated in a naval aviation mishap investigation conducted under the authority of this instruction, to a JAGMAN investigation of the same mishap.

(2) Do not append SIRs, or extract privileged or non-privileged excerpts from an SIR for inclusion in a JAGMAN investigation report, nor any other report. Do not list Navy JAG as an addressee on SIRs in WAMHRS. Statements made to an AMB are the property of the Naval Aviation SMS; do not release them for inclusion in the JAGMAN investigation report.

(3) To prevent any inference of association with disciplinary action, do not append the JAGMAN investigation report to, nor make it a part of, the SIR. Include no reference to any disciplinary action, naval aviator or naval flight officer evaluation boards, field flight performance boards, or any other administrative action taken as a result of this mishap in the SIR. Do not use any information or material from an SIR for naval aviator or naval flight officer evaluation boards, field flight performance boards, or any other administrative action taken as a result of a mishap.

f. NATO and Other Allied Partner or Coalition Investigations. Plan to conduct a combined, non-privileged safety investigation pursuant to NATO STANAG 3531, whenever an aviation mishap involves another NATO member nation. Investigations involving two or more of Australia, Canada, New Zealand, the United Kingdom, and the United States may be investigated under Air Standard 85/2A(1). When mishaps occur involving nations that are not signatories to STANAG 3531 or Air Standard 85/2A(1), consider investigating and reporting using the procedures outlined in those documents. If a defined naval aircraft is involved, plan to conduct a sequential mishap investigation in following with this instruction. Historically, the best way to conduct these investigations involving a defined naval aircraft and another nation is to conduct the combined investigation first. When the combined investigation is complete or nearly complete, the United States only AMB can meet

and conduct additional privileged deliberation and produce a report under this instruction. Additionally, some DON training squadrons may have allied personnel and aircraft assigned resulting in a combined command. Pre-mishap plans must be carefully written to cover various combinations of aircraft and personnel to help meet the investigation and reporting requirements of the DON and the allied nation. These investigations are always complex. Contact the NAVSAFECEN for assistance.

g. NAVSAFECEN Investigations and Support. In special cases, COMNAVSAFECEN may conduct an independent naval aviation mishap safety investigation under the authority of the CNO or CMC. These investigations do not relieve activities of their responsibilities for mishap investigation and reporting. Most often, however, NAVSAFECEN's involvement takes the form of help with the mishap board's investigation. In class A FMs, where wreckage is available or a fatality is involved, NAVSAFECEN will generally send an experienced aviation mishap investigator to assist the AMB. In cases involving wreckage at sea, an investigator will not normally be dispatched until the commencement of the ocean salvage. Full cooperation and the unrestricted exchange of information and opinions is essential between the NAVSAFECEN representative and the AMB. This may extend to division of labor, joint interview of witnesses, and joint deliberations. NAVSAFECEN investigators are direct representatives of the CNO; they control all evidence pertaining to the mishap (including parts undergoing EIs) until released to the AMB. NAVSAFECEN investigators may invite additional experts, military or non-military, to assist in the investigation and provide analysis to the board. The AMBs appointing authority shall provide administrative and logistic support to NAVSAFECEN investigators.

h. Joint Investigations

(1) Only the COMNAVSAFECEN may enter into agreements or understandings about mishap reporting and investigations with other Services outside DON.

(2) Occasionally, it may be worthwhile for one Military Service to ask another to provide a member for the AMB.

(3) There are three methods by which joint participation in a naval AMB may be accomplished:

(a) Sister Services may assign members as observers on a naval AMB;

(b) They may assign one of their members to a naval AMB as liaison; or

(c) Any number of Military Services may form a joint AMB.

(4) In all these cases, naval aviation will investigate and report the mishap according to this instruction. Joint AMBs may report according to the other Service's instructions as well.

(5) Conversely, naval aviation may send a member of a Naval Service to sit as an observer on another Service's mishap board.

(6) Forward all requests for joint participation on AMBs to COMNAVSAFECEN for approval.

(7) Chapter 1 should answer any questions about accountability in joint mishaps.

i. Naval Aviation Mishaps Involving Fire, Explosion, or Damage to a Ship or Shore Facility

(1) Ships must use OPNAVINST 5100.19E, Navy Safety and Occupational Health (SOH) Program Manual, for forces afloat to report a fire, explosion, or other damage caused by a naval aviation mishap.

(2) Shore facilities must use OPNAVINST 11320.23G, Navy Fire and Emergency Services Program, to report fire damage resulting from a naval aviation mishap.

j. Criminal Activity. If evidence suggesting criminality (e.g., sabotage) is discovered the senior member shall immediately pause the safety investigation and notify the convening authority. The convening authority must consult with

the COMNAVSAFECEN before terminating the investigation and calling for the NCIS. The senior member must turn over all non-privileged physical evidence, but shall not share privileged witness statements with the NCIS or any other investigative body.

704. Mishap Investigation Responsibilities

a. Unless relieved by higher authority, when two or more naval aircraft are involved in a naval aviation mishap, the senior reporting custodian is responsible for investigating and reporting the mishap.

b. An AMB must investigate every naval FM, FRM, and AGM, then report on them as this instruction directs.

c. Occasionally, albeit rarely, circumstances surrounding naval aviation mishaps may meet the reporting criteria of more than one mishap reporting system. In those situations, reporting custodians shall send an IN describing the unusual circumstances. COMNAVSAFECEN and the controlling custodian will consult to determine the most appropriate reporting system.

705. Transfer of Mishap Investigation Responsibilities

a. As a matter of policy, reporting custodians shall not be relieved of their reporting responsibilities in a naval aviation mishap investigation, but it could happen. If such is the case, the reporting custodian still must provide whatever assistance the AMB requires. This may include assigning personnel to temporary duty with the AMB, sending requests for EIs, clerical assistance, and other support normally provided by a command to its own AMB.

b. When reporting custodians cannot fulfill their mishap investigation and reporting responsibilities, they should request relief from the controlling custodian in an MDR.

c. Seniors in the chain of command may decide to relieve subordinates of reporting responsibility. In such cases, the relieving senior must appoint an AMB of their own to investigate and report the mishap. The relieving senior must also notify the reporting custodian by naval message of this action and the

reasons for doing so. Include CNO, CMC, COMNAVSAFECEN, appropriate controlling custodian(s), and other interested commands as in any notifications as necessary.

d. When a squadron CO is a member of the aircrew involved in a mishap, the immediate superior in command takes the action required by subparagraph 705b. Controlling custodians may waive this requirement.

e. When a mishap occurs while an aircraft is in a ferry status, the aircraft's reporting custodian is responsible for investigating and reporting the mishap.

f. COMNAVAIRSYSCOM is responsible for investigating and reporting mishaps involving naval aircraft in the physical custody of fleet readiness centers. The safety centers of the Services involved will decide who is responsible for investigating mishaps involving aircraft in the custody of another Service's depot or readiness center.

g. Except for those mishaps that occur at commercial facilities operating under contracts administered by other commands, COMNAVAIRSYSCOM has the responsibility for investigating and reporting mishaps involving naval aircraft in the physical custody of commercial contractors. In those exceptional cases, the responsibility rests with the command exercising contract control over the facility. Contracts shall describe the contractor's responsibilities concerning investigating and reporting naval mishaps. COMNAVAIRSYSCOM may request that Defense Contract Management Agency military personnel participate in AMBs investigating contractor mishaps.

h. Specific requirements concerning a maintenance contractor's obligations in a Navy aircraft mishap investigation are found in the contract. On any contract in which the Government assumes risk of loss for an aircraft, the applicable Defense Federal Acquisition Regulations Supplement clauses and the NAVAIRINST 3710.1G require the contractor to cooperate with the mishap investigators, and provide a certain degree of support to them. The contracting officer, or the duly appointed GFR or contracting officer technical representative, is responsible for interpreting these sections, and shall assist

the AMB in obtaining the needed help from the contractor. Unique aspects of contractor maintenance involvement in mishap investigations are:

(1) Contractor witnesses are usually unavailable outside normal working hours, legal counsel may accompany them, and their cooperation may be restrained. Conduct a thorough briefing on privileged testimony with these witnesses before the interview.

(2) Contractors regularly work 8 hours a day. Wreckage recovery routinely involves 12-hour workdays. The military maintenance representative can get overtime authorization.

(3) Use squadron, wing or base resources, if needed, to reinforce manpower. Look to indoctrination classes, restricted personnel, and transient personnel barracks as a source of help.

(4) While a contractor's maintenance records may not be in correct reference (e) format or filled out on familiar forms, all their records, books and information, if not already sequestered by the military maintenance representative or squadron safety officer, must be made available upon request. Per the National Archives and Records Administration, contractor records of work performed for a Government agency are the property of the agency and must be maintained per the records schedules located in SECNAV M-5210.1 of January 2012, part I, page 6, paragraph 16.

i. The senior reporting custodian is responsible for conducting the investigation and writing the report on multi-aircraft, multi-party mishaps. Seniority is the key here, not the presumption of accountability. The final endorser assigns responsibility for the mishap for record purposes. Examples of multiple aviation mishaps are:

(1) Collisions between aircraft or UAVs.

(2) Parts separating from one aircraft damaging another.

(3) Prop, jet, or rotor blast from one aircraft damaging another.

(4) In-flight refueling mishaps.

(5) Formation flights where aircraft are damaged.

j. Sometimes aircraft or people or facilities from one Military Service are involved in mishaps with another. In such cases, COMNAVSAFECEN shall identify the command responsible for the mishap investigation.

k. COMNAVSAFECEN will resolve any ambiguities concerning who is responsible for investigating and reporting a naval aviation mishap. Accountability is usually assigned to the command with all, or most, of the causal factors. COMNAVSAFECEN, working with the appropriate controlling custodian(s), will determine accountability for mishaps and make adjustments in WAMHRS.

706. Privileged Information in Mishap Investigations. A thorough understanding of the following information on the concept of privilege is essential for the proper investigation of naval aviation mishaps.

a. Limited Use. Every SIR contains privileged information and shall be used only for safety purposes. Privileged information shall not be used for any other purposes including, but not limited to, the following (prohibited) uses:

(1) In any determination affecting the interest of an individual making a statement under a promise of confidentiality.

(2) As evidence or to get evidence in making a misconduct or line-of-duty determination pursuant to the JAGMAN.

(3) As evidence to determine the susceptibility of personnel to discipline.

(4) As evidence in claims on behalf of the Government.

(5) As evidence to determine the liability of the Government for property damage caused by a mishap.

(6) As evidence before administrative bodies such as naval aviator and naval flight officer evaluation boards, field flight performance boards or administrative separation boards.

(7) As evidence before, or as any part of, a JAGMAN investigation report.

(8) In any other punitive or administrative action taken by the DON.

(9) In any investigation or report other than aviation mishap safety investigations report.

(10) As evidence in any court, civilian or military.

b. The Purpose of Offering Confidentiality. The above actions are taken to:

(1) Overcome an individual's reluctance to reveal complete and candid information about the circumstances surrounding a mishap.

(2) Encourage AMBs and endorsers of aircraft SIRs to provide complete, open and forthright information, opinions, and recommendations about a mishap.

c. Rationale. Privilege allows those involved in mishaps to tell the truth about their actions (or inaction), command climate, or anything else that may have contributed to a mishap, safe from fear of retribution. If privileged information was allowed to be used for purposes other than safety, vital safety information might be withheld.

(1) Requiring them to take an oath prior to making a statement is prohibited. Advise them in writing, using the appropriate version of OPNAV 3750/16, as to why they are providing their statement and of the limitations placed on the release of the statement they are providing. Witnesses need not limit their statements to matters to which they could testify in court. Invite them to express opinions and speculate on possible causes of the mishap.

(2) In one respect, the rationale for designating mishap investigative information as privileged is more important than the rationale for encouraging witnesses to be candid. AMBs and endorsers must feel free to develop information that could be vital for mishap prevention without fear that it could be used for purposes other than safety. Every SIR involves AMB members and endorsers. Not every mishap has witnesses who would require a promise of confidentiality as encouragement to make a statement.

(3) Individuals may be reluctant to reveal information pertinent to a mishap because they believe that information could be embarrassing to themselves, their fellow Service Members, their command, their employer, or others. They may also elect to withhold information by exercise of their constitutional right to avoid self-incrimination. Members of the Military Services must be assured that they may confide in safety professionals for the mutual benefit of fellow Service Members without incurring personal jeopardy in the process.

d. Protection of Privileged Information. To continue the revelation, development, and submission of privileged information in aviation SIRs and endorsements, everyone in naval aviation must keep faith with the promises that are made while gathering it. Every failure to protect privileged safety information from improper release or use weakens the protections against the same that have been acquired in numerous court opinions. Defenders of naval aviation safety have argued all the way to the Supreme Court that the efforts taken to protect privileged safety information are the normal course of business. When the rules for use and protection of privileged information are not followed, the argument loses its fidelity. Repeated violations of this trust will destroy the credibility of the Naval Aviation SMS that has always depended on its ability to protect privileged information for its success. The following safeguards will help protect privileged information:

(1) Witness Statements. Do not share privileged or non-privileged witness statements with any one or any organization except as authorized in this instruction. The AMB's appointing authority must retain copies of all statements used in the SIR until the final endorsement is complete, and then destroy them.

(2) Investigations. The distinction between aviation mishap safety investigations and other investigations is important and must be understood. Aviation mishap safety investigations shall be independent of, and separate from, all other investigations. The safety investigation is the primary investigation and shall initially control all witnesses and evidence unless there is clear evidence that criminal activity caused the incident. Parallel investigations (JAGMAN and NCIS) will be conducted also and the sharing of non-privileged information between investigations is encouraged. The safety investigation shall ensure that other investigations are given access to non-privileged factual information and documents not derived from privileged safety sources. Witness statements (privileged and non-privileged) shall not be given to other investigative bodies. If evidence of criminal activity is discovered, the safety investigators shall suspend their investigation, preserve the evidence, and immediately notify the safety investigation convening authority and COMNAVSAFECEN. The convening authority will contact the NAVSAFECEN for further guidance.

(a) Inter-Service (joint or combined) participation in aviation mishap investigations (authorized by COMNAVSAFECEN or higher authority) is the only time information and opinion may be shared outside the AMB. Cooperation between investigative boards may include division of labor, joint review of evidence, exchange of witness' statements, and joint deliberations.

(b) Requests for help from other activities are not privileged and must be meticulously reviewed to be sure they do not contain privileged information. Technical specialists assisting the AMB are not members of the board. Do not give them access to AMB deliberations or access, except as authorized elsewhere in this instruction, to the content of SIRs. At the discretion of the senior member of the AMB, privileged information may be shared with technical specialists working with the AMB if necessary. This sharing is applicable only for those technical specialists who have access to privileged information and will read the mishap report once published (e.g., test pilots, COMNAVAIRSYSCOM Civil Service employees, etc.).

(3) Investigators. Members of AMBs shall not, nor may they be requested to, divulge their opinion or any information that they arrived at, or to which they became privy, in their capacity as a member of an AMB. Do not assign members of AMBs to any other investigation convened as a result of the same mishap, including JAGMAN investigations, field naval aviator or fleet naval aviator evaluation boards, or field flight performance boards. Members of AMBs shall not keep a copy of any part of an SIR after completion of the investigation.

(4) Data Recorders. Electronic recording devices are used extensively in aviation today. They include: ATC center raw radar plots and associated audio tracks, control tower radio communications tapes, heads-up display (HUD) tapes, ILARTS tapes, forward looking infrared and radar video tape recorder tapes, and data from mission computers and flight data recorders. All such data in this raw, undisturbed state is real evidence. However, if this data is enhanced, manipulated or animated for analysis, correlated and interlaced with other data, or interpreted in any way as part of the AMB's deliberative process, the products of these efforts are privileged.

707. AMB Investigations. The following is a general description of AMB investigations of naval aviation mishaps:

a. Responsibilities. Mishap investigation and reporting responsibilities of AMB members take precedence over all other duties. Chapter 1 describes individual responsibilities connected with a mishap investigation.

b. Organization for Investigation

(1) The Standing AMB. The program requires reporting custodians appoint an AMB in writing, or if undermanned, have access to a standing AMB through the controlling custodian. Chapter 2 requires a minimum of four members with experience and knowledge in the specialized fields of safety, aeromedical, operations, and maintenance. The AMB's senior member must be sure their board is trained and ready to investigate mishaps.

(2) Changes in Board Membership. When changes in board membership are necessary, it is the responsibility of the senior member to recommend to the appointing authority changes of AMB

membership to comply with this instruction. The senior member may also recommend additional members be seated as required by the investigative effort. For example, the AMSO can provide valuable information in reference to many physiological and ALSS concerns.

(3) Use of Board Members. The senior member may excuse any member from active participation in the investigation if that individual's particular skills are no longer needed. The individual retains board membership until removed by the appointing authority.

c. Conduct of the Investigation. NAVAIR 00-80T-116, volumes I through II, Technical Manual, Safety Investigation Techniques, and Aviation Safety Programs, Aircraft Mishap Investigation Notebook explains how to conduct a naval aviation mishap investigation.

(1) The Investigative Effort. The amount of investigative energy expended in discovering the causes of mishaps has nothing to do with the amount of damage they cause. There is no correlation between the severity of a mishap and the potential for damage or injury inherent in the hazards detected during investigation of that mishap. Accidents that cause little or no damage may expose a hazard with the potential to cause frequent and severe mishaps. On the other hand, a catastrophic mishap may reveal a hazard that would rarely cause future problems. Do not, therefore, tailor the AMB investigative effort to the severity of the mishap. The job of the AMB is to identify the hazards associated with the mishap. A complex or mysterious mishap may require extensive investigative efforts; a simple, well-defined mishap might be investigated with minimal effort. The extent of the investigative effort depends on the senior member's assessment.

(2) Climate, Culture and Readiness Metrics. Senior members and AMBs should pay close attention to the command climate, culture and readiness to determine if they play a role leading to a mishap. These factors may include:

(a) Command climate and an introspective examination of senior leadership's obligations in the incident.

(b) The command's pre-mishap aviation safety tracker dashboard status.

(c) The command's ASAP 12-month trends and actions.

(d) The command's pilot, naval flight officer, enlisted aircrew and maintenance personnel manning metrics.

(e) The specifics of the pilot, naval flight officer, enlisted aircrew and maintenance personnel training and qualifications.

(f) These items are likely to be captured as DoD HFACS nanocodes in the supervisory or organizational tiers. See appendices C and D. If these items are included in the final SIR, the report shall address these factors with detailed justification for rejection or acceptance.

(3) Collection of Evidence. It is impossible to accurately predict what kinds of evidence should be collected under what circumstances in every mishap investigation. For this reason, the Naval Aviation SMS relies on the AMB senior member's judgment. It must be noted that no one other than a COMNAVSAFECEN investigator may conduct a safety investigation of a naval aviation mishap under the authority of this instruction, except those personnel who are AMB members and are under the supervision of the AMB senior member. This supervision begins before the mishap, during pre-mishap planning and AMB training. This training is the responsibility of the unit standing AMB's senior member.

(4) Maintenance Records and Aircrew Logbooks. Due to the flight data reporting requirements outlined in this instruction and the fact that maintenance and pilot logbooks and training jackets are often valuable evidence in the investigation process, squadron pre-mishap plans should identify personnel to immediately retain and impound all records pertaining to the mishap aircraft and aircrew. At a minimum, the following records should be retained: pilot and aircrew logbooks, training records, health records, flight schedules, weather brief (including existing and forecast weather at the time of mishap), and aircraft maintenance records and logbooks. Squadrons that use Naval Aviation Logistics Command Management Information System for organizational maintenance activities

should perform a Sybase data backup and make a copy of the mishap aircraft's automated Aircraft Discrepancy Book in Powersoft Report format following notification of an aircraft mishap.

(5) Medical Evidence. Because medical evidence is quickly lost, the AMB flight surgeon must be immediately notified when a mishap occurs. The flight surgeon is primarily concerned with medical, physiological, social, behavioral and psychological factors which may reveal mishap causal factors. The flight surgeon must coordinate the collection and analysis of medical and human factors evidence with all other aspects of the investigation. When investigating a mishap, the flight surgeon participates fully in the AMBs investigation and deliberations, which help insure the contents of the AA and the SIR are coordinated and complementary.

(a) Pre-Mishap Planning. The flight surgeon shall participate fully in AMB pre-mishap planning, including planning for the collection of medical evidence.

(b) Physical Examinations. Regardless of their Military Service affiliation, the first flight surgeon on a mishap scene, or the one to whom mishap victims are brought, shall immediately perform examinations and laboratory procedures required by the flight surgeon's Service. However, the parent Service of the victims must delineate unique requirements and assume responsibility for the aeromedical portion of this investigation as soon as possible. Flight surgeons may record and report their examinations using their own Service's reporting forms and procedures. Examinations should be as complete as the examinee's condition and other circumstances permit, with special emphasis on those areas that may be pertinent to mishap causal factors. They must examine all crewmembers, and if indicated, passengers, and anyone else who may have been a cause factor of the mishap.

(c) Radiographs. Flight surgeons shall request radiology studies as clinically indicated. Full spinal X-rays are required after all ejections, bailouts, and crashes with or without suspected back injuries.

(d) Biological Samples. In all class A and class B mishaps biological sampling shall take place immediately after the mishap. Except as noted below, following class C mishaps and incidents with potential to meet defined naval mishap limits, biological sampling shall take place immediately after the mishap. Biological samples are not required for class C mishaps and incidents with potential to meet defined naval mishap limits when it is clearly evident no human factors were involved (e.g., material failure only, some bird strikes, etc.) Where there is even a remote chance of human error, those involved shall submit biological samples. The importance of this knowledge is unrelated to the severity of the mishap. Include biological sampling policies that conform to current Navy and DoD directives in every pre-mishap plan. Take sufficient blood and urine quantities for blood alcohol, carbon monoxide, drug screen, hematocrit, hemoglobin, glucose and urinalysis testing. Freeze and store an aliquot of each specimen for at least 90 days following the mishap for verification or for other studies as may be necessary later. Promptly submit all toxicological (drug screen, alcohol, carbon monoxide, etc.) specimens to the AFMES for analysis. All other biological specimens may be analyzed by qualified biological laboratories, at the discretion of the AMB. Conduct any other clinically indicated laboratory studies at the AMB flight surgeon's discretion.

1. The results of toxicology tests on biological samples are factual data releasable to other investigators. Results for each individual tested can be uploaded into WAMHRS and included in the AA.

2. Per SECNAVINST 5300.28E, enclosure (2), subparagraph 3a(4) and paragraph 4, this testing is considered command-directed and results can be used for administrative purposes but not for disciplinary purposes.

3. Chain of custody for biological samples sent to the AFMES shall be maintained and recorded on AFMES Form 1323, Armed Forces Medical Examiner/Division of Forensic Toxicology Toxicological Request.

(e) Pathological Studies. Conduct an autopsy, including full body X-rays, whenever a fatality occurs as a result of a naval aviation mishap. The prerogatives of command

(Navy Regulations 1990, chapter 8, article 0815), BUMEDINST 6510.2F and NAVMED P-117, Manual of the Medical Department, article 17-2, constitute the authority to perform autopsies on military aviation mishap fatalities when the mishap occurs at sea or on a military base where the Federal Government has legal jurisdiction. Furthermore, any Military Service's medical examiner has the authority to order a medicolegal investigation, including an autopsy of the aviation mishap related deaths of Service Members, where the Federal Government has exclusive jurisdictional authority. Whenever a military aviation mishap occurs outside Federal jurisdiction, on State or private property, a waiver or a release from the local coroner or medical examiner must be obtained. Include these waiver provisions in the command's pre-mishap plan. After the autopsy, the prompt release of the remains for preparation, encasement and shipment is important. See NAVMED P-117, BUMEDINST 5360.26 and BUMEDINST 6510.2F for details.

(f) Drug-Assisted Interviews and Hypnotic Techniques. Drug-assisted interviews and hypnosis are prohibited without the specific, written authority of COMNAVSAFECEN/OPNAV N09F. These interviews and techniques will be authorized only when critical safety-related information cannot be obtained any other way and the subject agrees voluntarily. When authorized, the procedure shall be conducted by a member of the medical department qualified in the procedure, with the AMB flight surgeon in attendance. Other attendees are discouraged. (The value of these efforts is suspect and the probability of getting false, inaccurate, and misleading information from them must be considered.)

(g) Fatigue, and Fatigue-Modeling Software. Fatigue resulting from sleep deprivation, circadian desynchronization, or associated conditions is a commonly cited aeromedical cause factor in naval aviation mishaps. Fatigue is four times more likely to contribute to workplace impairment than drugs or alcohol. Flight surgeons shall use fatigue-modeling software on all 72-hour and 14-day histories to assist in the investigation of fatigue as a possible mishap cause factor. The Fatigue Avoidance Scheduling Tool (FASTtm) is available on the NAVSAFECEN Web site and from the aeromedical division at the NAVSAFECEN.

d. Deliberations

(1) Collection of Evidence. As the AMB collects evidence, it must begin to attach significance to that evidence and decide what part it may have played in the mishap. The SIR format provides a guide for the deliberations of the board. The SIR outline reflects a pattern of deductive reasoning:

(a) What the board knows or information, narrative and evidence.

(b) Reasoning or analysis and deductions or conclusions captured as accepted or rejected causal factors.

(c) The board's recommendations to prevent recurrence.

(2) Analysis and Causal Factors. The AMB must analyze the evidence available to them in order to determine the causes of the mishap. The first thing the AMB must do is discuss everything that could possibly have led to the mishap, then reject those things too remote to consider, and systematically investigate those possibilities that remain. Eventually, the AMB must phrase each possibility in language designed to aid formal classification and explain which, based on the evidence, they have accepted and which they have rejected. The resulting list constitutes the causal factors of the mishap. Each cause factor is a potential starting point for corrective action. Experience has shown that human factors play a role in most mishaps, while a significant number of others involve material failure. Thus, causal factors fall into two general classifications: human and material.

(a) Human Factors. Drawing upon Reason's (1990) and Wiegmann and Shappell's (2003) concept of active failures and latent failures and conditions, a taxonomy was developed to identify hazards and risks called the DoD HFACS. Guidance for use of the HFACS taxonomy as well the detailed nanocodes guidance can be found in appendices C and D. HFACS describes four main tiers of failures or conditions called acts, preconditions, supervision, and organizational influences. Investigators will determine and select the appropriate HFACS tiers, categories, subcategories and nanocodes associated with accepted causal factors. A brief description of the major

tiers, beginning with the tier that is usually most closely tied to the mishap (acts), with associated categories and sub-categories follows:

1. Acts. Acts are those factors that are most closely tied to the mishap, and can be described as active failures or actions committed by the operator that result in human error or unsafe situation. Human factors analysts have identified these active failures or actions as errors and violations.

a. Errors. Errors are factors in a mishap when mental or physical activities of the operator fail to achieve their intended outcome as a result of skill-based, perceptual, or judgment and decision making errors, leading to an unsafe situation. Errors are unintended. Human factors analysts classified errors into three types called skill-based, judgment and decision making, and misperception errors. Using this error analysis process, the investigator must first determine if an individual or team committed an active failure. If so, the investigator must then decide if an error or violation occurred. Once this is done, the investigator can further define the error as:

(1) Skill-based Errors. Skill based errors are factors in a mishap when errors occur in the operator's execution of a routine, highly practiced task relating to procedure, training or proficiency and result in an unsafe situation. Skill-based errors are unintended behaviors.

(2) Judgment and Decision Making Errors. Judgment and decision making errors are factors in a mishap when behavior or actions of the individual proceed as intended yet the chosen plan proves inadequate to achieve the desired end-state and results in an unsafe situation.

(3) Misperception Errors. Misperception errors are factors in a mishap when misperception of an object, threat or situation (such as visual, auditory, proprioceptive, or vestibular illusions, cognitive or attention failures) results in human error.

b. Violations. Violations are factors in a mishap when the actions of the operator represent willful disregard for rules and instructions and lead to an unsafe situation. Unlike errors, violations are deliberate.

2. Preconditions. Preconditions are factors in a mishap if active and or latent preconditions such as conditions of the operators, environmental or personnel factors affect practices, conditions or actions of individuals and result in human error or an unsafe situation. In this error analysis model, preconditions include environmental factors, condition of the individuals and personnel factors.

a. Environmental Factors. Environmental factors are factors in a mishap if physical or technological factors affect practices, conditions and actions of individuals and result in human error or an unsafe situation. Environmental factors include:

(1) Physical Environment. Physical environment is a factor in a mishap if environmental phenomena such as weather, climate, white-out or dust-out conditions affect the actions of individuals and result in human error or an unsafe situation.

(2) Technological Environment. Technological environment is a factor in a mishap when cockpit or vehicle and workspace design factors or automation affect the actions of individuals and result in human error or an unsafe situation.

b. Condition of the Individual. Condition of the individual is a factor in a mishap if cognitive, psycho-behavioral, adverse physical state, or physical or mental limitations affect practices, conditions or actions of individuals and result in human error or an unsafe situation. Conditions of the individual include:

(1) Cognitive Factors. Cognitive factors are factors in a mishap if cognitive or attention management conditions affect the perception or performance of individuals and result in human error or an unsafe situation.

(2) Psycho-Behavioral Factors. Psycho-behavioral factors are factors when an individual's personality traits, psychosocial problems, psychological disorders or inappropriate motivation creates an unsafe situation.

(3) Adverse Physiological States. Adverse physiological states are factors when an individual experiences a physiologic incident that compromises human performance and this decreases performance resulting in an unsafe situation.

(4) Physical and Mental Limitations. Physical and mental limitations are factors in a mishap when an individual lacks the physical or mental capabilities to cope with a situation, and this insufficiency causes an unsafe situation. This often, but not always, indicates an individual who does not possess the physical or mental capabilities expected in order to perform the required duties safely.

(5) Perceptual Factors. Perceptual factors are factors in a mishap when misperception of an object, threat or situation (visual, auditory, proprioceptive, or vestibular conditions) creates an unsafe situation. If investigators identify SD in a mishap the preceding cause illusion should also be identified. Vice versa, if an illusion is identified as a factor in a mishap then the investigator should identify the resultant type of SD.

c. Personnel Factors. Personnel factors are factors in a mishap if self-imposed stressors or CRM affects practices, conditions or actions of individuals, and result in human error or an unsafe situation. Personnel factors include:

(1) Coordination, Communication and Planning. Coordination, communication and planning are factors in a mishap where interactions among individuals, crews, and teams involved with the preparation and execution of a mission resulted in human error or an unsafe situation.

(2) Self-Imposed Stress. Self-imposed stresses are factors in a mishap if the operator demonstrates disregard for rules and instructions that govern the individual's readiness to perform, or exhibits poor judgment when it comes to readiness and results in human error or an

unsafe situation. These are often violations of established rules that are in place to protect people from themselves and a subsequent unsafe condition. One example of self-imposed stress is drinking alcohol prior to operating a motor vehicle.

3. Supervision. A mishap can often be traced back to the supervisory chain of command. As such, there are four major categories of unsafe supervision: Inadequate supervision, planned inappropriate operations, failed to correct a known problem, and supervisory violations.

a. Inadequate Supervision. The role of supervisors is to provide their personnel with the opportunity to succeed. To do this, supervisors must provide guidance, training opportunities, leadership, motivation, and the proper role model, regardless of their supervisory level. Unfortunately, this is not always the case. It is easy to imagine a situation where adequate CRM training was not provided to an operator or team member. Conceivably, the operator's coordination skills would be compromised, and if put into a non-routine situation (e.g., emergency), would be at risk for errors that might lead to a mishap. Therefore, the category inadequate supervision accounts for those times when supervision proves inappropriate, improper, or may not occur at all. Inadequate supervision is a factor in a mishap when supervision proves inappropriate or improper and fails to identify a hazard, recognize and control risk, provide guidance, training or oversight and results in human error or an unsafe situation.

b. Planned Inappropriate Operations. Occasionally, the operational tempo or schedule is planned such that individuals are put at unacceptable risk, crew rest is jeopardized, and ultimately performance is adversely affected. Such planned inappropriate operations, though arguably unavoidable during emergency situations, are not acceptable during normal operations. Included in this category are issues of crew pairing and improper manning. For example, it is not surprising to anyone that problems can arise when two individuals with marginal skills are paired together. During a period of downsizing and or increased levels of operational commitment, it is often more difficult to manage crews. However, pairing weak or inexperienced operators together on the most difficult missions may not be prudent. Planned inappropriate operations are factors in a mishap when

supervision fails to adequately assess the hazards associated with an operation and allows for unnecessary risk. It is also a factor when supervision allows non-proficient or inexperienced personnel to attempt missions beyond their capability or when crew or flight makeup is inappropriate for the task or mission.

c. Failed to Correct a Known Problem.

Failed to correct a known problem refers to those instances when deficiencies among individuals, equipment, training or other related safety areas are "known" to the supervisor, yet are allowed to continue uncorrected. For example, the failure to consistently correct or discipline inappropriate behavior certainly fosters an unsafe atmosphere and poor command climate. This is a factor in a mishap when supervision fails to correct known deficiencies in documents, processes or procedures, or fails to correct inappropriate or unsafe actions of individuals, and this lack of supervisory action creates an unsafe situation.

d. Supervisory Violations.

Supervisory violations, on the other hand, are reserved for those instances when supervisors willfully disregard existing rules and regulations. For instance, permitting an individual to operate an aircraft without current qualifications is a flagrant violation that invariably sets the stage for the tragic sequence of events that predictably follow. Supervisory violations are factors in a mishap when supervision, while managing organizational assets, willfully disregards instructions, guidance, rules, or operating instructions and this lack of supervisory responsibility creates an unsafe situation.

4. Organizational Influences.

Fallible decisions of upper-level management directly affect supervisory practices, as well as the conditions and actions of operators. These latent conditions generally involve issues related to resource or acquisition or management, organizational climate, and organizational processes. Organizational influences are factors in a mishap if the communications, actions, omissions or policies of upper-level management directly or indirectly affect supervisory practices, conditions or actions of the operator(s) and result in system failure, human error or an unsafe situation.

a. Resource Acquisition Management. This category refers to the management, allocation, and maintenance of organizational resources human, monetary, and equipment or facilities. The term "human" refers to the management of operators, staff, and maintenance personnel. Issues that directly influence safety include selection (including background checks), training, and staffing or manning. "Monetary" issues refer to the management of nonhuman resources, primarily monetary resources. For example, excessive cost cutting and lack of funding for proper equipment have adverse effects on operator performance and safety. Finally, "equipment or facilities" refers to issues related to equipment design, including the purchasing of unsuitable equipment, inadequate design of workspaces, and failures to correct known design flaws. Management should ensure that human factors engineering principles are known and utilized and that existing specifications for equipment and workspace design are identified and met. Resource acquisition and management is a factor in a mishap if resource management and or acquisition processes or policies, directly or indirectly, influence system safety and result in poor error management or create an unsafe situation.

b. Organizational Climate. "Organizational climate" refers to a broad class of organizational variables that influence worker performance. It can be defined as the situational consistencies in the organization's treatment of individuals. In general, organizational climate is the prevailing atmosphere or environment within the organization. Within the present classification system, climate is broken down into three categories--structure, policies, and culture. The term "structure" refers to the formal component of the organization. The "form and shape" of an organization are reflected in the chain of command, delegation of authority and responsibility, communication channels, and formal accountability for actions. Organizations with maladaptive structures (i.e., those that do not optimally match to their operational environment or are unwilling to change) will be more prone to mishaps. "Policies" refer to a course or method of action that guides present and future decisions. Policies may refer to hiring and firing, promotion, retention, raises, sick leave, drugs and alcohol, overtime, accident investigations, use of safety equipment, etc. When these policies are ill-defined, adversarial, or conflicting, safety may be reduced. Finally, "culture" refers to the unspoken or unofficial rules, values,

attitudes, beliefs, and customs of an organization ("The way things really get done around here."). Other issues related to culture include organizational justice, psychological contracts, organizational citizenship behavior, esprit de corps, and union and management relations. All these issues affect attitudes about safety and the value of a safe working environment. Organizational climate is a factor in a mishap if organizational variables including environment, structure, policies, and culture influence individual actions and results in human error or an unsafe situation.

c. Organizational Processes. This category refers to the formal process by which "things get done" in the organization. It is subdivided into three broad categories-- operations, procedures, and oversight. The term "operations" refers to the characteristics or conditions of work that have been established by management. These characteristics include operational tempo, time pressures, production quotas, incentive systems, and schedules. When set up inappropriately, these working conditions can be detrimental to safety. "Procedures" are the official or formal procedures as to how the job is to be done. Examples include performance standards, objectives, documentation, and instructions about procedures. All of these, if inadequate, can negatively impact employee supervision, performance, and safety. Finally, "oversight" refers to monitoring and checking of resources, climate, and processes to ensure a safe and productive work environment. Issues here relate to organizational self-study, risk management, and the establishment and use of safety programs. Organizational processes are factors in a mishap if organizational processes such as operations, procedures, operational risk management and oversight negatively influence individual, supervisory, or organizational performance and result in unrecognized hazards or uncontrolled risk and lead to human error or an unsafe situation.

(b) Material Factors. Even in material failures, there may be enough evidence for the AMB to identify human factors; someone misused something, or did not maintain or service it, or designed it improperly, or made or reworked it below standards. If that is the case, select a cause factor and the appropriate HFACS in addition to the accepted material factor. Causal factors involving resource or acquisition management may require HFACS selection starting and finishing at

the organizational influences tier. Including material factors in the set of mishap causal factors is important because, while human factors are likely to be involved, the material factor is often the weak link in the chain. It may be possible, for example, to redesign and strengthen a part. On the other hand, there may be no evidence supporting human factor involvement and a material failure may be the only possibility. Thus, the AMB includes material factors in this set of mishap causal factors. The AMB should identify as factors all material failures that significantly affect the events leading to the mishap. The set of elements for material factors is component, mode, and agent. There is no matrix comparable to HFACS for material factors. The AMB should describe the material factor elements using standard nomenclature, in plain language as explained below. Use applicable technical reports, such as EIs or outside laboratory reports, as a guide.

1. Component. The smallest, most specific part, assembly, or system identified as having failed is the component.

2. Mode. How the component failed. Specifically, "WHAT" occurred, is the mode. Typical examples are: fracture (load bearing member broke), stripped threads, jammed, leaked, etc.

3. Agent. The acts or events, which led to the failure mode, are the agents. Typical examples are overload, fatigue, fire, or spalling. These are the "technical" agents; each component failure should have at least one "technical" agent. In addition, the AMB may discover further "human factor" agents. These might include improper maintenance procedures, poor design or improper aircrew procedures. The AMB will address "human factor" agents as separate causal factors and will analyze them using HFACS more fully.

(3) Conclusions. AMBs must base their conclusions as to which hazards caused the mishap, damage, or injury during the mishap, on all available information and their own deductions. They may test the conclusions under consideration with the question: "Absent this cause factor would there have been a mishap?" The AMB may use the terms "hazard," or "mishap cause factor," interchangeably.

(a) Mishap Cause Factor Determination. The SIR is the report of the mishap causal factors determined by the AMB. Most mishaps result from two or more causal factors that combine to produce a mishap. Without one of them, there would be no mishap. There is, therefore, no logic in labeling causal factors as "direct," "primary," "principal," "contributory" or the like. Irrefutable proof is not always available, nor is it required, to determine the cause of a mishap. Determining causal factors is a difficult task requiring deductive and inductive reasoning in the analysis of the evidence. The AMB must, in their best judgment, decide on the most likely reasons for the mishap and express their conclusion. There are four ways to classify AMB conclusions about the mishap plus accepted causal factors of other damage or injury.

1. Rejected Cause Factor. This classification indicates the AMB has completed an analysis of a suspected or possible cause factor and determined that there is not enough evidence to include it as an accepted cause factor. The AMB must state in their analysis the justification for rejection.

2. Accepted Cause Factor. This classification indicates the AMB has specific evidence pointing to a definitive, verifiable series of events and that other alternatives did not occur. For example: Following an aircraft crash, the AMB finds an engine bearing badly scored - indicating catastrophic failure. Coincidentally, investigators find the maintenance publication describing the procedure for installing this bearing is incorrect and following it could lead to premature bearing failure. The aircrew states that just before the engine failed the oil pressure abruptly dropped to zero. All other parameters were normal. No thumps (thus, no bird strike), fuel quantity and flow were normal (they had fuel and tests showed no contamination), no evidence of FOD, and everything else was within specifications. The logical conclusion is that an improper maintenance procedure resulted in the bearing failure. There are no other plausible explanations. Thus, the cause factor for this mishap is accepted. In this example, the AMB not only resolved the major type of failure engine failure but also determined the cause bearing failure due to improper installation caused by an inadequate technical publication. The AMB would conclude that a cause factor for this mishap is: "Human Factors Maintenance. Improper installation procedures resulted in failure of engine bearing."

Likewise, it is appropriate to include a material factor for the failed bearing. However, had the AMB not been able to identify the reason for the engine failure, this mishap should still be classified as "accepted" as a "material factor" - engine failure of undetermined origin.

3. Special - No Fault Assigned. Whenever they encounter that rare mishap with no human factors to consider; when aircraft damage or personnel injury results from collisions with birds or animals or hail or lightning strikes and, when a qualified pilot was flying an authorized mission and the crew took all possible precautions, AMBs may choose this determination. "No fault" assigned does not mean the mishap was inevitable. It simply recognizes that naval aviation is a risky business and that sometimes, in spite of best efforts, mishaps occur. AMBs must include, as material factors, the damage or the material failures that result from the bird strike, lightning strike, etc. COMNAVSAFECEN will carefully screen every proposed no fault determination. AMBs must fully explain their rationale in the analysis paragraph of the mishap report.

4. Special - Undetermined. Used only when there is no evidence of what caused the mishap. No causal factors are determined and the cause of the mishap is not fixed.

(b) Accepted - Other Damage or Injury. The same logic applies here as to mishap causal factors. What causes damage during a mishap is any hazard that causes unnecessary or avoidable damage, just as what causes injury during a mishap is any hazard that causes unnecessary or avoidable injury. This subparagraph provides AMBs with the opportunity to report on any additional factors discovered during the mishap investigation that, while not causing the mishap, increased its severity by producing additional damage or injury. Things commonly associated with causing additional damage or injuries during a mishap include: poorly designed fuel systems, inadequate survival training, faulty life support and survival equipment, etc.

(c) Environmental Conditions. Environmental conditions are not causal factors. Mankind has no control over the environment. The time of day, the weather, the sea state, tidal waves, hurricanes, and tornadoes do not cause mishaps; inadequate weather forecasts and flying into thunderstorms do.

Since causal factors, by definition, are under human control and subject to elimination, the environment - something entirely outside human control - cannot be a cause factor.

(d) Noncontributory Hazards Discovered During the Investigation. AMBs must not include hazards discovered during the investigation that were not causal factors in the mishap. To do so clouds the issues surrounding the accident. Instead, report them in a HAZREP.

(4) Recommendations. AMBs shall use the following guidelines when formulating their recommendations, and test these recommendations with the question: "If this had been done before the mishap, would these additional hazards have been eliminated?" Do not include any recommendations that fail this test; rather, include them in a HAZREP. The following guidelines shall be used in the composition of recommended corrective actions:

(a) A cause factor may call for more than one recommendation.

(b) State only one recommendation at a time.

(c) Address only one subject in each recommendation. Avoid dual recommendations (do this and do that) and avoid alternative recommendations (do this or do that). If alternatives are apparent, select and recommend the best one or include a second recommendation that does not conflict with the first.

(d) Express each recommendation in a complete, self-explanatory statement. Recommendations are often separated from their parent report. They must stand alone. As a minimum, each recommendation shall state who should do exactly what. Sometimes, how, where and when are also appropriate. Determination of appropriate action agencies (who) may require some research.

(e) Recommend final solutions. Avoid recommending interim steps toward a desired end. Recommend final, definitive solutions, rather than half-measures such as "study," "review," "research," "evaluate," "vigorously explore," or "pursue."

(f) Make practical recommendations. Avoid vague wishful thinking which usually includes terms such as "all pilots do XYZ," "all aircrews read and comply," "good airmanship is to be re-emphasized," and "NATOPS compliance is to be stressed." Describe precisely how the desired end is to be accomplished, and by whom. The exception to this rule is recommendations to brief the contents of an SIR to an identifiable group such as all aircrew, all maintenance personnel, and all Hornet pilots as a means to raising awareness about the hazards encountered in mishap.

(g) Make comprehensive recommendations. When a hazard is common to an entire aircraft community and recommended corrective action could be of benefit to all, do not limit a recommendation to local actions. Write it to apply to all who could benefit.

(h) Make uninhibited recommendations. Do not suppress valid recommendations because they appear to be too expensive, too difficult, or imply criticism. A decision in favor of the desired action may be pending only the impetus of a recommendation.

(i) Recommend use of established procedures for changes of publications. When appropriate, recommend who (usually the reporting custodian that sustained the mishap) should submit exactly what change to NATOPS, Naval Aircraft Maintenance Program directives, an NWP, etc. When possible, include a verbatim draft of the recommended change to show exactly what is intended.

(j) Confine recommendations to the investigated mishap or hazard. Ensure that recommendations are pertinent to hazards detected in the investigation. Do not make recommendations that are a community agenda item that is not attached to a causal factor of the mishap.

708. Technical and Medical Assistance to AMBs

a. Sources of Technical and Medical Assistance. Help with medical or physiological issues can be found at local naval medical facilities, AMSO personnel, Navy Medicine Operational Training Center, Naval Survival Training Institute and its Aviation Physiology and Water Survival Training Centers, AFMES,

and the National Institute of Health. Technical assistance is available from: fleet readiness centers, COMNAVAIRSYSCOM, maintenance engineering CFAs, naval laboratories and development centers, aircraft and component manufacturers, Naval Air Technical Data and Engineering Service Command detachments, and technical representatives. COMNAVSAFECEN mishap investigators can discuss questions about technical assistance.

b. Request for Technical and Medical Assistance. An AMB's requests for assistance are not privileged and must be carefully reviewed to be sure they contain no privileged information. To get help from distant activities and from agencies senior or external to commands of the controlling custodians, send the request to the controlling custodian usually via an amended MDR. Requests for aid from local activities should be part of pre-mishap planning.

c. Advisory Nature of Technical and Medical Assistance. Medical or technical specialists advising the board are not members of the board, and they have no access to privileged communications, or the deliberations of the board, or privileged portions of the SIR. They are advisors; their advice is just that - advice - and nothing more. The board may accept or reject their conclusions as they see fit. Give them only that information deemed absolutely necessary. Take care when granting those rare exceptions to this rule (such as using a local flight surgeon in lieu of the one assigned to the board) to be sure these people are thoroughly briefed about their responsibilities to safeguard privileged communications.

d. General Aeromedical Support to the AMB. Naval medical facilities must train their staff members in the general medical and administrative requirements of this instruction, prepare and keep current a pre-mishap plan, and have ready both personnel and material to support the Naval Aviation SMS. They must train flight surgeons and prepare them fully for assignment to an AMB. When requested, medical facilities shall provide a flight surgeon for appointment as an AMB member. If local medical facilities cannot provide a flight surgeon, the controlling custodian will. AMB duties take precedence over all others. Any request for medical help from an AMB must be treated as a priority and handled with dispatch.

e. AFMES Assistance. Forensic pathologists are a valuable addition to a mishap investigation. Due to the urgency of such requests, the NAVSAFECEN will request AFMES participation in investigations of most fatal aircraft mishaps without prior request from AMB. In these cases, the NAVSAFECEN shall promptly inform all interested commands of actions taken. When responding to a request for assistance in investigating a naval aircraft mishap, the AFMES representative is a direct representative of the CNO and controls medical evidence until the investigation is complete. The AFMES team will perform autopsies, visit the mishap site and inspect the wreckage in an effort to correlate injury patterns with aircraft damage. They are authorized to record aircraft and medical evidence in the course of their investigation by any means available. Prior to departure from the area, the team will debrief the AMB.

f. EIs. When AMBs need help with maintenance engineering technical assistance, they should ask the mishap aircraft's reporting custodian to send an EI request to the maintenance engineering fleet support team. (See reference (e).) Include a description of the physical circumstances of the mishap, photographs of the part as found in the wreckage, and if practical, a statement of the possible cause of the part's failure (not the cause of the mishap) when the material is shipped. Do not tamper with, adjust, remove parts from, or clean the material forwarded. EIs are an important source of factual information for not only the SIR but other reports as well. Do not include privileged information or statements about causal factors of mishaps. That would violate their non-privileged status and threaten the Naval Aviation Mishap Investigation System. Include in all system-related class A and class B SIRs, the system program office analysis of hazards that contributed to the mishap and recommendations for materiel risk mitigation measures, especially those that minimize potential human errors.

g. EIs of ALSS. AMBs must conduct EIs on ALSS used in a mishap or recovered in an investigation. Unfortunately, unlike other parts and equipment in the aviation profession, there is no single activity responsible for all ALSS subsystems. Technical assistance for ALSS investigations is available at the crash site by contacting a NAVSAFECEN investigator or

COMNAVAIRSYSCOM. A known or suspected ALSS malfunction must be reported under reference (e). AMBs must request an ALSS EI through the reporting custodian as follows:

(1) Mishaps Involving Ejection Seat Equipped Aircraft

(a) AMBs must examine ejection malfunctions as a total system. Ship the ejection seat(s), all escape system and ALSS parts, and all aircrew personal protective and survival equipment to the aircraft CFA. Mark the container: "For engineering investigation. This equipment has been used in an emergency situation." Provide a written summary of the circumstances surrounding the use of the ALSS items. In cases of multiple crewmembers, label each person's ALSS to be sure the equipment is not mixed. The CFA shall request assistance from the subsystem CFAs in examining interaction between ejection seat and other ALSS items. While the aircraft CFAs conduct their EIs, the subsystem CFAs shall conduct EIs on the subsystems. Send the results of all EI investigations to: NAVSAFECEN, COMNAVAIRSYSCOM Human System Department (AIR-4.6), reporting custodian, the aircraft CFA, and other interested CFAs. The Program Manager for Aircrew Systems (PMA-202) has chartered and funded the aircrew systems mishap investigation support team to provide on-site technical engineering assistance and analysis to the AMB for all aircrew systems products on a request basis. The AMB should request on-site mishap investigation support team assistance from the NAVSAFECEN on-site investigator. The mishap investigation support team will debrief the AMB on its preliminary findings prior to departing the area and will forward a written report within 7 days of completing any EIs.

(b) A malfunctioning parachute assembly or a parachute deployment system requires an on-site examination of the complete parachute system and related deployment components by the Naval Air Warfare Center Weapons Division, China Lake, CA. Send the results of this examination to the NAVSAFECEN and other appropriate subsystem CFAs.

(c) If seat and man separation occurs during an ejection sequence with no reported problems, ship the recovered ALSS equipment to the appropriate CFA. The CFA need not send an EI report unless the AMB requests it.

(2) Helmets

(a) Request an EI on all recovered aircrew helmets whenever there is:

1. Damage to the helmet;
2. A visor fails;
3. The oxygen mask separates from the helmet (remember to send all the recovered oxygen mask components);
4. The helmet lost on ejection but recovered;
5. Neck injuries including sprains, fractures, abrasions, contusions, or lacerations that may have been caused by the helmet;
6. Facial injuries;
7. Skull fractures;
8. Unconsciousness; or
9. Fatal injuries.

(b) Ship helmets accompanied by a complete identification of the mishap and the failure to: the Naval Air Warfare Center Aircraft Division, Escape and Systems (Code 4.6.2.1) 47123 Buse Rd., Unit IPT, Patuxent River, MD 20670-1547. In cases of ejection seat-equipped aircraft mishaps, send the equipment only after the total system ALSS investigation is complete.

(c) In all cases in subparagraph 708g(2)(a), the CFA must conduct an EI on all submitted items and send the results via naval message to COMNAVSAFECEN, COMNAVAIRSYSCOM (AIR-4.6) and the reporting custodian.

h. EIs of Night Vision Devices (NVD). If the AMB suspects an NVD failure, ship the entire system battery, power pack, helmet mounting devices and counter-balance weights everything, to the Naval Surface Warfare Center, 300 Highway 361, building 65NE Code 805C, Crane, IN 47522-5001. Mark the container

"Night Vision Devices. For Engineering Investigation. Handle With Care." Segregate and label separately equipment from each crewmember. The CFA must conduct an EI on all submitted items and send the results via naval message to: COMNAVSAFECEN, COMNAVAIRSYSCOM Avionics Department (AIR-4.5) and Human Systems Department (AIR-4.6) and the reporting custodian.

709. Wreckage

a. Preservation and Release of Wreckage

(1) Do not move or disturb aircraft wreckage for at least 24 hours, except to protect life, limb, or property, to ease military or civil activities, or to protect the wreckage from loss or further damage. This allows those commands concerned time to decide about their interests in conducting an independent investigation. Before wreckage can be moved (for any reason) the officer ordering such removal must first map and photograph the wreckage and the wreckage distribution pattern. Record any damage inflicted on the wreckage during recovery.

(2) Request salvage for submerged wreckage as soon as possible and commence anticorrosion measures immediately thereafter. Record any damage inflicted on the wreckage during salvage. Although it is difficult, attempt to get an accurate diagram of the submerged wreckage. Make every effort to retrieve all items associated with the aircraft or its crewmembers.

(3) The COMNAVSAFECEN mishap investigator assigned owns and controls all wreckage and real evidence connected with the mishap until the investigator releases it to the AMB's senior member. Absent an assigned COMNAVSAFECEN investigator, responsibility for control and ownership of the wreckage and the real evidence falls to the AMB's senior member alone. The AMB senior member will not relinquish control of the wreckage and real evidence to the reporting custodian until all other investigative teams have completed their work. In the case of class B, C or D mishaps, the senior member may release the aircraft to the reporting custodian as soon as his or her investigations is complete, assuming there is no other investigation ongoing. For class A mishaps, the reporting custodian will notify by naval message Naval Supply Systems Command (NAVSUP) Weapons Systems Support (WSS), the controlling

custodian and all commands holding wreckage (info the Navy JAG, COMNAVSAFECEN, COMNAVAIRSYSCOM), parts or components that the wreckage is ready for final disposition. The controlling custodian, in coordination with NAVSUP WSS stricken aircraft program manager, will provide final disposition instructions.

b. Obliterating and Marking Abandoned Wrecked Aircraft. To forestall any reinvestigation of mishaps, obliterate all wreckage left at the crash site. If this cannot be done, determine the precise geographic location of the mishap and photograph the site from as low an altitude as practical. Furnish all search and rescue (SAR) agencies within the area with the information and photographs. The controlling custodian and NAVSAFECEN will include the above info addresses on all wreckage disposition messages.

c. Submerged Wreckage. When the wreckage is in deep water, ask the controlling custodian for help. The controlling custodian, in consultation with COMNAVSAFECEN, will decide if the salvage is worth the effort. If the answer is yes, the controlling custodian will send a naval message containing the following information to ask the cognizant fleet commander for help with the recovery:

(1) Type of aircraft or UAV.

(2) Exact location of wreckage.

(3) Whether the wreckage is marked by a buoy or pinger. If marked with a pinger, include its frequency and the date and time it will start transmitting.

(4) Type of ordnance on board the aircraft, if any.

(5) Whether classified material is on board.

(6) Names and phone numbers of points of contact.

(7) Information the following:

(a) CNO WASHINGTON DC//N98/N31//

(b) CMC WASHINGTON DC//A/SD// (as appropriate)

- (c) COMNAVSEASYSKOM WNY DC//00C//
- (d) COMNAVAIRSYSKOM PATUXENT RIVER MD
- (e) COMUSFLTCOM NORFOLK VA (for Atlantic)
- (f) COMPACFLT PEARL HARBOR HI (for Pacific)
- (g) COMUSNAVEUR LONDON UK (for Europe and West Africa)
- (h) COMUSNAVCENT (for Middle East and Eastern Africa)
- (i) COMSIXTHFLT (for Europe and West Africa)
- (j) COMFIFTHFLT (for Middle East and Eastern Africa)
- (k) COMTHIRDFLT (for Eastern Pacific)
- (l) COMSEVENTHFLT (for West Pacific and Far East)
- (m) COMNAVSURFOR NORFOLK VA//N37/N32// (as appropriate)
- (n) COMNAVSURFPAC SAN DIEGO CA (as appropriate)
- (o) COMNAVSAFECEN NORFOLK VA//10/13/37//

d. Water Salvage. Water salvage takes a lot of planning, time and money. Expect to have a board member at sea with the recovery ship for the duration of the salvage effort, as well as the AMB's flight surgeon whenever the recovery effort may bring up human remains. The fleet commander has the option to salvage the wreckage. COMNAVSAFECEN Aircraft Mishap Investigation Division will liaise with the Supervisor of Salvage, Naval Sea Systems Command, for salvage operations including assignment to a civilian contractor, if the fleet commander cannot handle the tasking. Call the COMNAVSAFECEN Aircraft Mishap Investigation Division, DSN 564-2929 or commercial (757) 444-2929, for further information.

e. Help with Wreckage Recovery. AMB's should request assistance from the nearest military base when recovering wreckage. Additionally, the commander of the local Coast Guard District, Air Force Headquarters, or Army Area Headquarters, will know what heavy military equipment is available in the local area.

710. Mishap Investigations in Foreign Countries

a. General Procedure

(1) A good source of information about this subject is NATO STANAG 3531, as international agreements between the U.S. and foreign governments tend to follow these same general guidelines. Each will:

(a) Notify the other of aircraft or missile accidents or incidents between themselves.

(b) Provide operational or technical consultants to the investigating nation, which may use them either as observers or members of its investigating committee.

(2) Expect nations concerned to conduct disciplinary, litigation, claims, or administrative investigations under their own laws. These investigations remain separate from the aircraft or missile accident safety investigation.

(3) When allied forces occupy airfields or launch sites in a host nation and mishaps involving only those allied forces occur within the boundaries of those sites, the allied forces, not those of the host nation are responsible for all measures taken. Respect all the laws and consult with civil authorities of the host nation whenever mishaps involve their civil aircraft.

(4) Cooperate with other nations in mishap investigations and, wherever possible, exchange relevant information which will neither compromise security nor conflict with practices regarding privilege.

(5) Host nations must respect the security restrictions of the operating nation and not issue statements to the press

without the concurrence of the operating nation. Both nations should consult with one another before statements are made to the press.

b. Actions, Reporting and Investigation Procedures

(1) Actions. When an accident involving equipment or personnel from one country occurs on the territory of another, the military authorities of the host nation shall:

(a) Help the injured in every way possible and remove any fatalities.

(b) Provide a medical doctor, preferably with aeromedical specialist qualifications, to begin the investigation and help the medical member or advisor to the accident safety investigation committee.

(c) Secure the accident site until accident safety investigation committee has taken action to have the wreckage removed or has accepted the responsibility to guard it. Whatever their source, guard details will abide by the rules of the host nation. Do not move the wreckage without first mapping, drawing or photographing it.

(d) In the case of fatal accidents:

1. The host nation will detail an officer to insure all necessary legal steps required by the local civilian authority are completed expeditiously.

2. The local military authorities shall honor the dead and respect the desires of the involved nations.

(2) Reporting. The host nation shall also:

(a) Report the accident to the appropriate agencies in their own country. Inform the nearest representatives of the military authorities of the countries concerned. Invite the operating nation to send an accident safety investigation committee.

(b) Report the names, location, and condition of any injured persons to the operating nation's authorities.

(c) The country of occurrence shall immediately send an officer to the scene of the accident to help with the accident safety investigation committee's work. This officer should collect any statements or other evidence and be prepared to help the Committee as liaison between the civilian authorities of the host nation and the accident safety investigation committee.

(3) Investigations

(a) There are three types of national safety investigations.

1. If there is military hardware only, the operating nation will normally be allowed to conduct its own safety and legal investigation when the only damage and injury are to its own hardware and personnel. The country of occurrence may assign a liaison officer or observer to the safety board. Note that this may only be done with COMNAVSAFECEN concurrence. Do not share privileged information with these people.

2. If there is military hardware belonging to more than one nation, the operating nations of the two or more involved parties will form a combined safety investigation board or committee. Each nation will conduct its own legal investigation.

3. In the case of military and civil aircraft mid-air collisions, most nations require civil aviation authorities to be the primary investigative agency when civil aircraft are involved. In this situation, ask to assign a military representative to the civil investigation. Reporting custodians must still conduct a separate investigation under the rules of this instruction.

(b) Combined Safety Investigations into Military Accidents or Incidents

1. After consulting with NAVSAFECEN, use a combined aircraft or missile accident safety investigation

committee to investigate all aircraft and missile accidents or incidents involving equipment, facilities or personnel of two or more nations. Aircrew on foreign exchange duty are exempt.

2. Promises of confidentiality will not be given when a combined investigation is convened.

3. Composition of combined safety investigation committee:

(a) Construct the combined aircraft or missile safety investigation committees from such investigators and technical advisors as the countries involved feel is necessary.

(b) When notified of this kind of mishap, the affected nations shall tell their counterparts in the country of occurrence of the names of the officers in their investigating group and will, after consulting with COMNAVSAFECEN, designate a senior member.

(c) Form the investigators and technical advisors of member nations involved into one investigating committee, working under the unified direction of a coordinating group.

(d) The senior member of each nation's investigation group comprises the coordinating group for the investigation.

(e) The senior member of the group appointed by the operating nation becomes president of the combined safety investigation committee.

(f) All nations involved must agree on the presidency of the combined safety investigation committee whenever aircraft or missiles of two nations are involved in an accident over the territory of a third.

(g) When the committee cannot agree on the causes of an accident, each nation may state its point of view.

(h) The U.S. members will submit a report to COMNAVSAFECEN using the format in this instruction after the combined investigation has been completed.

c. Combined Safety Investigations into Military and Civil Aircraft Accidents. Conduct international investigations of accidents involving civil and military aircraft under annex 13 to the Convention on International Civil Aviation. The coordinating group shall be responsible for overall direction of the investigation, shall organize the investigating committee into specialized subcommittees as necessary, and shall conduct the investigation under the procedures normally used by the operating nation.

CHAPTER 8
SIRs

801. Purpose. This chapter describes the SIR, explains who submits the report and when, and how and why it is submitted. After a mishap, use the SIR to report the hazards uncovered by the investigation. SIRs are vital to the success of the Naval Aviation SMS. Their succinct, open and forthright information, opinions, and recommendations help prevent the recurrence of aviation mishaps. Any attempt at command or chain of command influence, any effort to edit, change, or in any way censor the content of SIRs, contradicts the spirit of the program and constitutes a direct violation of this instruction. All such activity is prohibited. Anyone wishing to comment on or change the contents of any SIR must do so in the open using WAMHRS during the endorsement process. Do not ask for a review of the SIR, inside or outside of the endorsing chain, prior to SIR transmittal. If assistance is required with SIR content contact the NAVSAFECEN investigator, if one assisted with the mishap investigation, the investigation division, or the type-model-series analyst at the NAVSAFECEN.

802. General. SIRs report the hazards which cause mishaps and the damage or the injuries that occur during a mishap. They also provide a method for accounting for personnel injuries and damage or loss of DoD or non-DoD property. Equally important is the opportunity they offer to submit recommendations as action items for specific commands to prevent the mishap and the resultant damage or injury from recurring. Submit SIRs for all naval aviation mishaps as defined by this instruction.

803. Privilege in the SIR

a. Older SIRs that were submitted using message traffic and hard copy enclosure packages were submitted in two parts. Part A contained all MDR messages and non-privileged enclosures. Part B was privileged and consisted of the complete SIR message and all privileged enclosures. Though EIs, requests for salvage, aircraft wreckage disposition, and requests for mishap absolution remain valid naval message requirements, the mishap IN, MDRs, SIR, requests for extension and endorsements are solely transmitted via WAMHRS.

b. SIRs are submitted using WAMHRS. Lines of evidence are delineated by the person writing the report as privileged using the notation "(P)" or, if not privileged, by using no notation. Narratives, analysis, causal factors and recommendations are all privileged. For all narrative fields within WAMHRS a check box is provided to designate a field as privileged. This will block out all privileged information from WAMHRS users who are not allowed access to privileged information.

804. Originator. The senior member of the AMB approves the final version of the SIR and, using WAMHRS, releases it for comment to the endorsing chain and other interested parties.

805. Risk Assessment. AMBs must assign RACs to each hazard they wish to eliminate. The RACs must correspond to the causal factors listed in the SIR. When all risks assessed in the SIR are classified as "routine (RAC 3, 4 or 5)," ensure the overall RAC in the General Information section is "routine" as well. If any one of the risks are assessed as "severe (RAC 1 or 2)," ensure the overall RAC in the "General Information" section is label as "severe." Said another way, the SIR reflects the most significant hazard reported therein. Appendix B contains information on RACs.

806. Deadlines. Submit SIRs within 30 calendar days of the mishap. If aircraft or UAVs are missing, submit the report 30 calendar days after completion of the organized search. Ask the appointing authority to request an extension from the controlling custodian if necessary. Describe the specific reason(s) for the request; "administrative delay," or "investigative delay" is not enough. In some cases, combined requests for assistance and a deadline extension are appropriate. For example, when all the wreckage is not yet located, or when results of an EI, a pathological study, or a toxicology report have not yet been received, an extension may be appropriate. Include details on the status of any help requested in the extension request.

807. Methods of Submission

a. WAMHRS Submission. Submit all SIRs via WAMHRS. Most evidence or other documents that cannot be uploaded into WAMHRS,

is mailed (do not include aeromedical information) with one copy of the SIR PDF to COMNAVSAFECEN, via registered mail, return receipt requested as follows:

Commander, Naval Safety Center
Attn: Code 61
375 A Street
Norfolk, VA 23511-4399

b. SIR

(1) Submit SIRs as delineated in this chapter.

(2) Only the CNO, CMC, or COMNAVSAFECEN may provide SIRs to organizations outside the Navy or the Marine Corps. All the above and the controlling custodians may share SIRs and endorsements for further endorsement or for remedial action.

(3) Do not distribute SIRs to individuals or commands not specified in this instruction under any circumstances. To do so is a direct violation of the Uniform Code of Military Justice and will subject civilian personnel to disciplinary action under sections 7503, 7405, 7513, 7514, 7121, 7701, 7702 and 7703 of title 5, U.S.C.

(4) Receiving commands shall limit their internal distribution to only those individuals who require the report for safety purposes. COs must configure their command's distribution system so that only authorized personnel receive the SIRs and their endorsements.

(5) Aeromedical information such as autopsy photos, other photos of the deceased or otherwise sensitive or privileged photos, reports detailing personal or sensitive material, such as psychiatric or psychological consult reports shall be properly marked and sealed in a separate envelope. In addition to data identifying the mishap (date, squadron, aircraft model, submitting flight surgeon's name), the envelope shall be plainly marked: "PASS DIRECTLY TO THE AEROMEDICAL DIVISION, NAVAL SAFETY CENTER." Please send only relevant photographs depicting aeromedical or physiological evidence that support findings in the AA. These items are mailed with one copy of the SIR PDF to COMNAVSAFECEN, via registered mail, return receipt requested as follows:

Commander, Naval Safety Center
Attn: Code 14
375 A Street
Norfolk, VA 23511-4399

(6) The AA and SIR contain privileged and sensitive information. If sent via e-mail over Internet connections they should be encrypted or password protected.

808. Determining and Submitting Privileged Information

a. Military and Federal courts recognize that information given to the AMB under promises of confidentiality, and the AMB deliberative process that produces the SIR (including narratives, analysis, causal factors and recommendations) and endorsements to the SIR are protected from release under executive privilege. An AMB appointment directs members to protect privileged information. The AMB members may offer a promise of confidentiality to witnesses, although witness names are not privileged. Any information that is derived from a statement given under a promise of confidentiality is privileged. Therefore, the deliberative analyses of findings, conclusions, and recommendations of the AMB and witness statements given under a promise of confidentiality are privileged. Also deemed privileged is information directly calculated by the AMB, or development of which is specifically required by the AMB, when disclosing that information would reveal the AMB's deliberative process.

b. Data from the many various electronic recording devices now in common use is real evidence until the AMB manipulates the information into tables, multidimensional imagery or animation during the deliberation process. This effort is part of the AMB's analysis of the evidence and is, therefore, privileged information.

c. Cockpit voice recorder tapes will not be released. The NAVSAFECEN may release some portions of the transcript under FOIA or in response to litigation but the actual voice recordings are subject to the Privacy Act.

d. Photographs staged by the AMB (i.e., photographs that are preplanned or posed to illustrate a specific condition or situation) as a result of their deliberative process are

privileged. All other photographs are not. However, those captions and markings placed on photographs indicative of the AMB's deliberative process are privileged. The captions and markings only, not the photographs, are privileged.

e. COMNAVSAFECEN is the only command authorized to determine the privileged or non-privileged status of all information contained in the SIR.

809. Special Handling

a. The term "Special Handling" means the handling of privileged reports to ensure that their use is limited strictly to safety. Common sense must be applied to determine exactly what handling actions would be appropriate.

(1) For example, uncontrolled dissemination of SIRs which could result in their disclosure to personnel not requiring knowledge of their content for safety purposes (such as placement in reading racks, on bulletin boards, etc.) would not be appropriate.

(2) On the other hand, controlled passage of SIRs from individual to individual or from office to office in file folders to ensure their disclosure to specific individuals requiring knowledge of their content for safety purposes, or use of a similar control method, would be appropriate.

b. Organizational distribution lists for dissemination of SIRs electronically via any dissemination software should be limited to only individuals requiring immediate access, i.e., CO, executive officer and the safety department personnel.

c. WAMHRS provides special permissions to limit the distribution of SIRs. Safety authorities shall only give the "privilege and full notification" permissions to individuals who require privileged access to SIRs.

810. Independence of SIRs

a. Do not append, or extract excerpts, from any part of an SIR for inclusion in a JAGMAN investigation report, nor any other report. Never include Navy JAG in any SIR distribution. Statements made to AMBs, whether or not under a promise of

confidentiality, become the property of the Naval Aviation SMS and may not be released for inclusion in the JAGMAN investigation report.

b. Items that do not show deliberative process such as mishap photos (that do not indicate the thought process of the AMB), EIs, and a list of witnesses interviewed or flight data recorder visualizations are not privileged and may be shared with other investigators. Other SIR materials, even though non-privileged, are not to be provided to the JAG investigator. The JAG investigator is required to develop such evidence independently of the AMB. Contact the NAVSAFECEN if the AMB has questions about what can be shared.

c. To preclude any inference of association with disciplinary action, JAGMAN investigation reports shall not be a part of any SIR. SIRs shall not include any reference to disciplinary action, naval aviator or naval flight officer evaluation boards for Navy personnel, field flight performance boards for Marine Corps personnel, or any other administrative action in connection with the mishap being reported. Personnel that have read the SIR or participated in the investigative process of a specific incident must not participate in the FNAEB or FFPB board of that same incident.

811. FOUO. SIRs are FOUO. The FOUO and privileged warning statement is automatically appended to reports in WAMHRS. See SECNAV M-5510.36, Department of the Navy Information Security Program, of 30 June 2006 for instructions on their handling.

812. Security Classification. SIRs are unclassified. Omit any portion of the report that warrants classification, and substitute the word "classified." Treat any classified evidence in a like manner.

813. SIRs

a. SIRs are formatted by WAMHRS. This instruction prescribes a single format for all classes A, B and C SIRs. This is done for administrative convenience, for ease of use through familiarity, and because the information required does not vary for those mishaps. Class D SIRs do not require the

same level of detailed reporting that is required for classes A, B and C SIRs. WAMHRS operates using relaxed (HAZREP) validation rules for class D reporting.

b. The amount of information in an SIR may vary considerably, depending on the circumstances surrounding the mishap. If a lot of information is required to explain a mishap or support the conclusions and recommendations of an AMB, an SIR might contain several pages. On the other hand, a simple, well-defined mishap can be reported in a short SIR. This chapter is not intended to provide details on every field in WAMHRS. Some detail will be provided to support general and policy guidance for submitting SIRs using WAMHRS follows.

(1) General Information Section. Fill out the "General Information" section following WAMHRS guidance. This section is divided into various entry screens. Additional guidance, as well as work sheets, is available on the NAVSAFECEN Web site. Contact Code 11A in the NAVSAFECEN Aviation Safety Directorate if assistance is required. If an IN was submitted, a draft of the SIR was automatically started. Details on mishap or hazard types are in chapter 3.

(a) Ensure AMB members' information is updated or correct and ensure that the flight surgeon is included in authorized drafters so he or she can submit the AA. Ensure that the point of contact is correct. Submit all of the required information on the general information and general information other entry screens. Note that a "yes" selection may ask for additional information such as when "Property Damage" is selected. DoD and non-DoD costing details on costing are in chapter 3. Pay special attention to the event short narrative. Succinctly provide a brief description of the mishap, such as: "MH-60R crashed into the water. 4 souls onboard were able to successfully egress the aircraft." Do not disclose suspected causal factors.

(b) Fill out the "Location" and "Weather" entry screens following WAMHRS guidance. Use the location and weather encountered during the incident.

(c) Fill out the "COI" and "References" entry screens. WAMHRS will automatically select some commands for distribution per this instruction. Select a COI for the type of

aircraft involved. WAMHRS will automatically select this instruction and the JAGMAN as references. Add additional references as required.

(d) The "Event Narrative" is included in the general information section. Prepare a narrative that reports, in detail, the events leading up to the mishap, the sequence of events during the mishap, the causes of the mishap and why the mishap occurred. Write this narrative for those inside and outside the endorsing chain so they may quickly understand what happened and the lessons learned. The endorsers will want to read the SIR in full to be sure the investigation and the report are complete and will withstand scrutiny. This paragraph shall contain a concise narrative of the mishap developed from the accepted causal factors. Base this narrative on the accepted analysis. Include information on all causal factors of the mishap and causal factors of other damage or injury. Do not state causal factors verbatim. However, the narrative must make it readily apparent to the reader what mishap events lead to an accepted cause factor. If the AMB wants to include further explanation, conjecture or theory in the narrative, they must first introduce and analyze this new information as a new cause factor. Do not include new causal factors in the narrative that cannot be accepted. Ensure the privileged indicator is selected on the event narrative page and a "(P)" is at the beginning of the narrative.

(2) Involved Aircraft

(a) List all aircraft or UAVs involved in this mishap by DoD component; type-model-series (e.g., SH-60F); inter-deployment readiness cycle phase (deployment phase of operations); reporting custodian UIC, reporting unit code or Marine command code; total DoD and non-DoD damage; bureau number (six-digit serialization), modex or side number (e.g., AC701); operational status; and controlling custodian (for this aircraft or UAV) by using UIC (for this aircraft or UAV) or activity name and carrier air wing (if applicable).

(b) Fill out the "Damage and Mishap Cost" section following WAMHRS guidance. Detailed costing information and guidance is found in chapter 3 of this instruction. Ensure aircraft, other DoD and non-DoD costs are entered. If environmental clean-up and restitution is required and it occurs

on non-DoD property include these costs in "Non-DoD Damaged and Destroyed Property." If environmental clean-up and restitution is required and it occurs on DoD property include these costs in "DoD Damaged and Destroyed Property."

(3) Involved Person. Fill out the "Involved Person" information section following WAMHRS guidance. As a general rule, do not include any personal privacy information such as names, Social Security numbers (SSN), Service numbers, etc. However, if the involved person is injured, Federal law requires the entry of injured person's name and SSN. WAMHRS is designed to not publish names and SSNs to the SIR. For mishaps, adding an involved person will automatically create an AA section.

(4) AA

(a) The AA is the privileged report by the AMB flight surgeon that addresses mishap causes, conclusions and recommendations. The flight surgeon will fill out the aeromedical section of the SIR in WAMHRS in order to generate the AA. The AA documents the aeromedical conditions the flight surgeon has determined to be pertinent to the mishap. These conditions include all human factors contributing to the mishap, injury, or other damage. There may be aeromedical conditions present which did not contribute to the mishap such as the performance of crew restraints, flight equipment, or survival gear. List these in the designated subsection of the AA's conclusions. In order to generate a complete AA for proper mishap data collection and analysis, it is important that all of the relevant aeromedical fields in WAMHRS are completed.

(b) The flight surgeon will review sensitive, personal or speculative topics as pertinent to the mishap and enter these fields in WAMHRS:

1. 72-hour history
2. Physiology training
3. Flight physical
4. Physical qualification waivers

- friends
5. Life stressors
 6. Relationships with co-workers, family and friends
 7. Acute medical problems
 8. Chronic medical problems
 9. Current medication use
 10. Post-mishap biological samples and results
 11. Autopsy and post-mortem lab studies
 12. Escape or egress and survival episodes
 13. SAR effort
 14. Treatment and transport of those injured
 15. FASTtm reports

(c) Upload only the supporting documents required to support the AA. Include the following enclosures only if pertinent and they are not collected in WAMHRS data fields:

1. Chronological account of activities for the past 72 hours on everyone involved.
2. Any medical record extracts required to clarify or support the AA.
3. The AFMES aircraft mishap reconstruction by evaluation of injury patterns report.
4. Do not upload reports detailing personal or sensitive material, such as psychiatric or psychological consult reports. Seal and mark these reports: "PASS DIRECTLY TO THE AEROMEDICAL DIVISION, NAVAL SAFETY CENTER." Send them to the NAVSAFECEN and nowhere else. Send them to:

Commander, Naval Safety Center
Attn: Code 14
375 A Street
Norfolk, VA 23511-4399

5. Sensitive photographs, such as autopsy photographs or other photographs of the deceased, shall not be uploaded. Send them to the NAVSAFECEN (Aeromedical Division (Code 14) and seal and mark these photographs: "PASS DIRECTLY TO THE AEROMEDICAL DIVISION (CODE 14), NAVAL SAFETY CENTER." Send them to the NAVSAFECEN and nowhere else.

6. Include laboratory and X-ray reports, if applicable.

7. Include any other documents that will clarify or support the AA.

(5) Aeromedical Recommendations. Based on aeromedical conclusions make the recommendations here to prevent accepted causal factors from recurring and to prevent or limit the severity of additional damage or injury. Key each recommendation to the appropriate conclusion, and address them to the most appropriate action agency for change. Like SIR recommendations, aeromedical recommendations should be specific and definitive.

(6) Lines of Evidence

(a) Although not mandatory, the actual lines of evidence are best arranged chronologically and should flow much like the mishap narrative. The AMB must include all of the evidence that forms the basis for the analysis and ultimately the items in the recommendations section. Do not include actual conclusions or recommendations in this section. The AMB must collect the evidence, deliberate, and come to conclusions. It is not necessary to substantiate evidence provided in the SIR other than to cite its source. The SIR is not a legal document. Its adequacy has nothing to do with the amount of evidence. The appointing authority must hold any supporting documentation information collected during the investigation that is not uploaded into WAMHRS until the final endorsement. The Lines of Evidence section is a text field that can include abbreviation decodes and definitions if desired.

(b) Place a "(P)" in front of any line of evidence that is derived from a privileged source. The privileged sources are usually statements, written or oral, made to the AMB under a promise of confidentiality. Other privileged sources can include items that show deliberative process of the AMB. An example might be a staged photo from the mishap site or video mishap recreation that was produced as a result of board deliberation. Additionally, after each line of evidence include, in parentheses, the source from which the evidence line was derived. Examples include: mishap pilot statement, deployable flight incident recorder, ILARTS or an EI. If any supporting documentation is mailed to the NAVSAFECEN include a statement at the end of the lines of evidence section, "Additional supporting documentation was mailed to the NAVSAFECEN."

(7) Forwarding Supporting Documentation. Supporting documentation that supports lines of evidence should be uploaded into WAMHRS. Most supporting documentation that supports the lines of evidence can be uploaded into WAMHRS in the evidence section. Audio and video files cannot be uploaded. Do not upload entire publications (e.g., NATOPS manuals, SOPs, etc.) if a chapter, section, page or paragraph is sufficient. If items cannot be uploaded to WAMHRS include a PDF copy of the SIR and send the material to:

Commander, Naval Safety Center
Attn: Code 61
375 A Street
Norfolk, VA 23511-4399

(8) Supporting Documentation Details. Any items that are mailed shall include a PDF copy of the SIR in the package. Ensure that anything that the board considers privileged is appropriately marked. Whenever the AMB directly calculates or specifically requires the development of detailed information during its deliberations, that information and the deliberative process surrounding it are privileged. Upload as much as possible in WAMHRS and ensure it is marked or annotated as privileged.

(a) Witness Statements. Submit witness statements only if the content is critical to understanding the report. Transcribe telephone conversations in the form of a "results of

interview" and submit them as witness statements. Have each witness sign the appropriate page of the OPNAV 3750/16 and ensure it is uploaded into WAMHRS with the witness statement. Transcripts may be uploaded into WAMHRS. WAMHRS does not have the capability to accept uploaded tapes. A summary of interviews may be uploaded into WAMHRS.

(b) Aircrew Statements. If possible, upload a statement made by everyone who ejected, bailed out, made an emergency egress, or was rescued in a SAR operation. Their statements should recount all problems they encountered before or during egress from the aircraft, during parachute descent and landing, and during survival and rescue episodes. Include any information on the use and the effectiveness or any problems with survival and signaling equipment. A promise of confidentiality for such witnesses is not usual but may be granted if necessary to elicit testimony. Have each witness sign the appropriate page of OPNAV 3750/16.

(c) LSO, Landing Signalman Enlisted (LSE) or Taxi Director Statements. Summarized statements from the controlling LSO, the senior LSO present, LSO, LSE, and the taxi director whenever mishaps occur to aircraft under their control may be used. Those should include the following information, if appropriate:

1. A complete account of the mishap from their viewpoints.
2. An analysis of the pilot's landing grades for the previous 30 days.
3. Applicable items requested by section VII of the LSO NATOPS Manual.
4. Have each witness execute the appropriate OPNAV 3750/16.

(d) Other Statements (Specify). Include statements from maintenance, operations, ATC and other personnel if their statements clarify the mishap. Include statements from the SAR pilots, SAR swimmers, or others involved in the rescue, only if their statements clarify the understanding of the rescue. Offer

a promise confidentiality if necessary to elicit testimony. Have each witness execute the appropriate page of the OPNAV 3750/16.

(e) Arresting and Catapult Data. Submit in every mishap where the arresting gear, launching system, optical landing system, or arresting gear and catapult crew malfunctioned. Include as much technical information concerning failure, malfunction, or inadequacy as necessary to identify the difficulty completely.

(f) Takeoff Data. If takeoff data calculation was a possible cause factor, upload a copy of the data calculated before the mishap (probably not privileged) if it is available and a copy of takeoff data calculated by the AMB (privileged).

(g) Weight and Balance. Upload into WAMHRS weight and balance information gathered directly under a specific AMB ordered test as privileged information. If a DD 365-4, Weight and Balance Clearance Form F - Transport or Tactical, was prepared before the mishap, upload it as non-privileged information.

(h) Electronic Information. Summarize all electronic information, such as National Track Analysis Program, Air Combat Maneuvering Range tapes, and other process electronic data available before the mishap in the SIR, if necessary. Upload or mail any additional electronic information specifically developed by or for the AMB as privileged material.

(i) Flight Incident or Data Recorders. Information developed from the raw data contained in flight incident recorders or other data sources, and subjected to AMB analysis (deliberation), is privileged. Upload it into WAMHRS or mail it to the NAVSAFECEN marked as privileged information if it is included in the report. Raw data and visualization developed from raw data that does not show deliberation is not privileged.

(j) ILARTS Tapes

1. Classify all recorded ILARTS tapes as confidential. Classify them as secret if they reveal a serious deficiency in aircraft or carrier operations that would degrade the ability of the fleet to perform its mission. Classify them

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per OPNAVINST 5513.2C, enclosure (1), which includes Security Classification Guide 02-105 Pilot Landing Aid Television/ILARTS tapes. NAVSAFECEN, Deputy Director, Aviation Safety Programs (Code 10A) will eventually review them for declassification. After review by the AMB, forward copies of the tape to:

Officer in Charge
Landing Signal Officer School
NAS Oceana, Virginia Beach, VA 23460-5129

And to:

Commander, Naval Safety Center
Attn: Code 10A
375 A Street
Norfolk, VA 23511-4399

2. Also send a copy to the controlling custodian. These commands will make the tape available for review by the SIR endorsers. The forwarding document for the ILARTS tapes shall include reporting custodian, mishap serial number, and date-time group (local) of the mishap, model aircraft, bureau number, and a brief description of the mishap.

(k) Copies of NATOPS Qualification Jacket Page. Submit mission qualification record, designation record and mishap and flight violation record for crewmembers on all FMs and FRMs where there is aircrew involvement, ejection, bailout or emergency egress.

(l) Photographic Coverage. Photographs are helpful in analyzing the mishap. Most mishap photographs, except for those contained in the AA, autopsy report, and those staged by the AMB, are non-privileged.

(m) Sketches and Diagrams. Submit only if needed to clarify incidents that are difficult to explain in the text of the report.

(n) EI. EIs, technical, laboratory and contractor reports must contain only non-privileged information. Speculation, opinions and mishap casual factors have no place in these evaluations. If the AMB desires information that requires

speculation or opinion from an expert, it should extend a promise of confidentiality to that individual and indicate they will consider it in their deliberations.

(o) Non-Volatile Memory Evidence

1. The information in flight data recorders, flight information recorders, cockpit voice recorders, video tape recorders, MFOQA, health and usage monitoring system and mission computers recovered from mishap aircraft contain non-volatile memory and can be invaluable to the AMB's analysis. Properly preserving and transporting these "black boxes" directly affects the success of data retrieval.

2. Never open or tamper with any recording or memory device. Data can be retrieved from non-volatile memory units even if they have been damaged in a mishap, but special precautions and procedures may be needed to ensure successful extraction of any remaining data. Never attempt to extract the data using equipment at the command without first consulting with appropriate COMNAVAIRSYSCOM or fleet support team engineers or COMNAVSAFECEN Aircraft Mishap Investigation Division.

3. For any data recorders or HUD recorders contaminated by water, fuel, hydraulic fluid, foam, etc., soak and rinse them in de-ionized or distilled water to flush any sources of corrosion. Keep them immersed until sealed in an airtight container for shipping and transport.

4. Ship all non-volatile memory devices using static-free caps on electrical hookup ports, and wrap the device in EMI or static shield (Mil-B-81705C type I, class I or equivalent) before wrapping in bubble wrap or other energy-absorbing material. Take special care to protect any device which employs solid-state circuitry from exposure to static electricity. Then place the protected device in a sturdy shipping container prior to shipment.

5. Labeling, shipment and analysis of non-volatile memory units is accomplished through the EI process via the Joint Deficiency Reporting System (JDRS). Mail via fastest traceable means available according to shipping instructions received in the EI preliminary disposition or hand carry to the

appropriate fleet support team lead. Clearly mark the outside of the package: "DO NOT X-RAY" and "AVIATION MISHAP INVESTIGATION EVIDENCE, DO NOT TAMPER WITH CONTENTS."

(p) Other (Describe). Upload or mail any other information which would be helpful in understanding the report itself.

(9) Causal Factors

(a) The "Factors" section shows the results of the AMB's deliberation and analysis of the evidence. Causal factors shall contain the AMB's analysis of only that evidence discussed and included in the SIR.

1. The first statement of each cause factor shall be the selected type of factor that fits the theory being tested; that is: human factor, material factor or special factor. Follow the selected factor with a short sentence or phrase that describes what happened. In the analysis box discuss events and possible causal factors in chronological sequence with enough depth that later endorsers of the report can judge fairly the validity of the conclusions the AMB reached. For each cause factor be sure the AMB constructs a word picture from the evidence and AMB deliberation that will provide the reader with a clear idea of what the board thinks happened. If the AMB is describing a human act of omission or commission explain the "who" (by position, not by name), what act and the preconditions, supervision factors and organizational influences that led to the act. If the AMB is explaining a material factor, the AMB must specifically define a particular part as a "component," its failure "mode" and the technical "agent(s)" which caused that component to fail. The AMB analysis must also explain how this particular cause factor influenced the mishap. The AMB analysis of this hazard must support its acceptance as a cause factor.

2. Next is the explanation of why this cause factor is accepted or rejected and how it influenced the mishap. The AMB analysis must be sufficient to describe the deliberations of the AMB, including any aeromedical conditions existing at the time of the mishap. It must state the basis for acceptance or rejection of every theory. Describe the details of this deductive reasoning then select either "accepted" or

"rejected." If the cause factor is accepted, conclude with the statement: "Based on the above analysis the AMB concludes (state "who" or "component" - same as the hazard statement, then state, "appropriate human factors failure" or failure "mode" from hazard statement)." Select the preconditions, supervision and organizational influences or agents which caused the specific act of omission or commission. All accepted human factor causal factors must include one act and may include preconditions, supervision and organizational influences. Material factor causal factors must include "Mode" and "Agent." "Component" will be added during the quality assurance process after release of the SIR. Select HFACS nanocodes from appendix D. Nanocode updates will be posted on the NAVSAFECEN Web site. Then assign a RAC code to the accepted factors. For causal factors of other damage or injury select the indicator at the bottom of the factor screen. Describe material causal factors in plain language using standard nomenclature.

3. When the narrative is read, the reader must be able find linkage to accepted causal factors and accepted causal factors causing other damage or injury. Exercise care to keep emotions out of this and all other sections of the SIR. The requirement for this dual statement of accepted causal factors is driven by the AMB's desire to describe its analysis in its own language. The end result will be accepted causal factors and rejected causal factors. Accepted and rejected causal factors can be entered in WAMHRS in any order. WAMHRS will sort the causal factors and list them, "Rejected," "Accepted," and then accepted of "Other Damage and Injury" on the PDF document. Causal factors of other damage or injury can only be listed in the accepted category. Usually there are only two types of causal factors; human and material; however there is a special factor that is rarely used. Contact the NAVSAFECEN and or the controlling custodian for approval prior to selecting a "Special Factor."

(b) In the "Factors" section select a "Factor Type" as "Human Factor," "Material Factor" or "Special." Describe the cause factor as follows.

(c) If "Human Factor" is selected the AMB will be asked to further describe as aircrew, facilities personnel, maintenance personnel, or supervisory personnel. Human causal factors are specific acts of omission or commission.

1. Describe the cause factor statement in a terse sentence or phrase in plain language using an individual or organization-act combination. This is commonly referred to as "who did what" (e.g., "Pilot at controls failed to lower the landing gear."). Reserve the "why" for the analysis section. The analysis must specifically state how the cause factor caused the mishap or other damage or injury and must clearly detail the supporting evidence used to determine that conclusion. For example: "The pilot stated a radio call interrupted his landing checks, but he thought he lowered the gear." An EI revealed landing gear system was fully operational at the time of the mishap and post-mishap investigation. The photographs of the mishap aircraft indicate the landing gear handle in the up position. The mishap pilot had only 4 hours sleep prior to the flight. The command did not have an adequate duty officer instruction and the duty officer called the pilot to answer scheduling questions, thereby not allowing him the rest required by (cite a reference, SOP, etc.). "Based on the above analysis the AMB concludes the mishap pilot failed to lower the landing gear because he lacked adequate rest and was distracted by a radio call."

2. In "Factor Status" select "Accepted" or "Rejected" based on the AMB's opinion of whether statement is true. If it is rejected provide justification in the analysis box. If "Accepted" is selected for a human factors cause factor, fill in some more details including who the factor "Applies to" and the "Person Type." This is followed by "Act Type." Acts are selected using the DoD HFACS. The analysis must specifically state how the cause factor caused the mishap and must clearly detail the DoD HFACS using the nanocodes, subcategories, and categories that are found in the tiers of act, preconditions, supervision and organizational influences, as applicable. Insert nanocodes from the guidance in appendix D at the appropriate location in the analysis paragraphs to show the AMB's selection rationale.

3. HFACS analysis may lead the AMB to develop separate causal factors, especially if the AMB finds more than one error or violation under "Acts," associated with one individual or more than one individual is associated with the same act. If the accepted cause factor results in a start at an HFACS tier higher level than "Acts" (e.g., "Supervision" or "Organizational Influences"), ensure only one tier with

associated category, sub-category and nanocode combination is used with one accepted "Who." Accepted causal factors never can start at "Preconditions." Avoid double use of supervisory or organization influences tiers. Supervisory or organization influences tiers are best used leading to preconditions and an act. If an accepted cause factor leads directly to a supervisory or organizational level tier do not also use it in a sequence leading to preconditions and then an act. This will result in nanocode double counting and will skew data analysis. If the cause factor is accepted, include the following phrase: "Based on the above analysis, the AMB concludes (make a concise restatement of the accepted cause factor stating who did what act)." For each accepted cause factor, select the HFACS elements in ascending order act, preconditions, supervision and organizational influences with the appropriate factor, nanocode and a plain language reason for selection of the nanocode. There is only one act selected per cause factor. There may be more than one, or there may be no "Preconditions," "Supervision" and "Organizational Influences" HFACS tiers listed when starting at the "Act" tier.

(d) Material factor statements are described in standard nomenclature, in plain language using the component-mode combination (e.g., "Number 3 tail rotor driveshaft viscous damper bearing failed."). The smallest, most specific part, assembly, or system identified as having failed is the component. While the component nomenclature is included in the factor statement, the component nomenclature will appear as blank in the "component-mode-agent" listing. NAVSAFECEN will select the component from the WAMHRS database prior to SIR release. Mode is what occurred or how the component failed. Typical examples are: fracture (load bearing member cracked), stripped threads, jammed, leaked, etc. The technical agent or agents which caused that component to fail is required. These are typically heat, friction, wear, etc.

(e) Special causal factors include "Undetermined" and "No fault assigned." These are only selected with concurrence of the controlling custodian and or NAVSAFECEN.

(10) Recommendations. Recommendations are also considered action items and are an essential part of the investigation and reporting process. Make recommendations to prevent accepted causal factors from recurring and to prevent or

limit the severity of additional damage or injury. Key each recommendation to the appropriate conclusion, and address them to the most appropriate action agency for change. Action agency includes selecting a COI to choose type-model-series community or selecting a command to choose specific organization to complete the recommendation. Express each recommendation in a complete, self-explanatory statement. Recommendations are often separated from their parent report. They must stand alone. As a minimum, each recommendation shall state "who" should do exactly "what." Sometimes "how," "where" and "when" are also appropriate. Any amplifying data, time-lines for action agencies may require some research or an explanation how this recommendation will prevent future mishaps from occurring. All recommendations must be tied to an accepted cause factor.

(11) Endorsing Chain. If any recommendations are outside the command that sustained the mishap, the report requires endorsement higher than the reporting custodian and up to the command that can complete the action assigned. If a recommendation is for COMNAVAIRSYSCOM the report must be endorsed through the controlling custodian for all mishaps and HAZREPs. The AMB will only include the reporting custodian (CO or OIC) in the endorsing chain. Controlling custodians will determine and assign the remainder of the endorsing chain after release of the SIR. At this time, controlling custodians shall coordinate the remaining endorsing chain via electronic correspondence or WAMHRS after SIR review.

814. AMB Review of SIRs. Regardless of the degree of a member's active participation in an investigation, each AMB member shall review the completed report before its release. The AMB arrives at its conclusions by consensus with no one member having veto power over the conclusions of the board. AMB members shall not keep a personal copy of the SIR.

815. Appointing Authority Review of SIRs

a. For all mishap reports it is the responsibility of the AMB senior member to prepare a complete SIR of high quality including the appropriate enclosures whether they are mailed or uploaded into WAMHRS.

b. To ensure the integrity and independence of the AMB, and to prevent any hint of command influence, the pre-briefing or reviewing of the AMB's report with any endorsers prior to the release of a class A SIR is absolutely prohibited.

c. Only appointing authorities of classes B, C and D AMBs may review SIRs for completeness (as opposed to review for concurrence or non-concurrence) prior to the SIR release in WAMHRS and the uploading or mailing of any supporting documentation. Should the appointing authority consider the investigation or report incomplete, they should send the report back to the AMB along with sufficient direction to ensure an acceptable SIR can be produced.

CHAPTER 9
REPORT ENDORSEMENTS

901. Purpose. This chapter describes HAZREP and SIR endorsements, explains who submits endorsements, and when, how, and why they are submitted. Endorsing HAZREPs and SIRs is an important step in hazard elimination. Endorsers have the opportunity to lend their broader perspective and authority to the process of completing recommended corrective actions. Prompt, comprehensive endorsements are the hallmark of a strong aviation SMS.

902. General. HAZREP and SIR endorsements help eliminate the hazards those reports describe. They convey the endorser's position relative to matters contained in the reports.

903. Methods of Submission. Use WAMHRS to send HAZREP and SIR endorsements.

904. Review of Reports and Enclosures. Endorsements require careful review of the basic HAZREP or SIR and any prior endorsements. Endorsers can view the uploaded evidence when it is their turn to endorse. Any evidence which was not uploaded to the SIR can be requested from the AMB'S appointing authority or the NAVSAFECEN. Any endorser who determines that an investigation is incomplete, or a HAZREP or SIR is inadequate, must act to reopen the investigation and the subsequent resubmission of the report. The endorser must reconvene or direct the reconvening of the AMB and direct them to address specific areas of concern. This is accomplished using the reconvene function in WAMHRS. After the AMB completes the additional investigation and deliberation they will resubmit the SIR or HAZREP. The endorsing chain must then endorse the new, modified SIR or HAZREP.

905. Submission of Criteria

a. HAZREPs, SIRs and subsequent endorsements containing severe hazards must be endorsed. Additional endorsement requirements are in the following paragraphs.

b. All class A SIRs - through the endorsing chain as determined by the controlling custodian to COMNAVSAFECEN for the final endorsement. COMNAVAIRSYSCOM is included for a MISREC response, if assigned recommendations, before the COMNAVSAFECEN final endorsement.

c. All other HAZREPs or SIRs until every recommendation requiring action has been addressed through:

(1) the corrective action agency when the corrective action agency is inside the endorsing chain; or

(2) the controlling custodian in those cases where the corrective action agency is outside the endorsing chain. All reports with an action for COMNAVAIRSYSCOM must be endorsed through the controlling custodian before COMNAVAIRSYSCOM will complete their mishap or hazard recommendation (MISREC or HAZREC) response. COMNAVAIRSYSCOM will not formally respond to HAZREPs with a RAC code of 3, 4 or 5.

d. When directed by higher authority.

e. Recommendation(s) for corrective action by higher authority requires an endorsement, or MISREC or HAZREC response from that command. (See chapter 10.) At a minimum, the corrective action agency must acknowledge the tasking within 30 days of the controlling custodian's endorsement.

f. Navy and Marine Corps installation commands, such as Commander, Navy Region Mid-Atlantic; Commander, Navy Region Southeast; Marine Corps Installations Command East, etc., shall endorse ATC HAZREPs that contain severe hazards generated by their subordinate air facilities when there are specific recommendations or actions to be considered by the flag or general officers and their staffs. This excludes reports that are submitted for tracking purposes only. For these reports, Navy and Marine Corps installation commands shall be addressees on the HAZREP. ATC HAZREPs generated by squadrons, that contain severe hazards, shall first be endorsed by the squadron's type wing or MAG commander, then the CO of the appropriate air facility.

906. Requirements

a. HAZREPs and SIRs. When required by paragraph 904, commands, both inside and outside the chain of command, which have been tasked with corrective action, must respond to action assigned in HAZREPs and SIRs.

b. Normal Endorsement Chain. The normal endorsement chain ordinarily mirrors the operational chain of command from the reporting custodian to the controlling custodian. Exceptions to this rule may exist when a unit is not under operational control of a carrier air wing and the mishap has little to do with operational tempo and more to do with aircraft or support issues managed by a type wing or MAG.

c. Exceptions to the Endorsement Chain. Controlling custodians determine the endorsement chain including authorizing final endorsements prior to the controlling custodian under the criteria of paragraph 905. Although controlling custodians may modify the endorsing chain at their discretion, there are certain requirements that must be met. The endorsing chain shall include:

(1) The reporting custodians of all aircraft involved.

(2) The CO of a Navy or Marine Corps airfield, ship, or facility when the command was involved in the mishap. These COs shall only comment on those causal factors and recommendations assigned to their command and not on other causal factors or recommendations of the mishap. Since WAMHRS requires an endorsement to each cause factor and recommendation, for factors or recommendation not pertaining to the command, select "Concur" and enter the following statement into the "Justification" box: "Administratively concur to facilitate the endorsement process."

(3) The CO or OIC of the aircrew involved in a mishap when that CO or OIC is not the reporting custodian of aircraft involved.

(4) If a mishap involves two or more aircraft from different reporting custodians, the controlling custodian of the senior reporting custodian involved will prescribe the endorsing chain.

(5) The controlling custodian of the aircraft involved when the controlling custodian is not in the operational chain of command.

(6) COs of fleet readiness centers endorse SIRs (other than their own SIRs for aviation mishaps occurring within their command) only when the depot is named as a cause factor. Fleet readiness centers' COs shall only comment on those causal factors and recommendations assigned to their command and not on other causal factors or recommendations of the mishap. Since WAMHRS requires an endorsement to each cause factor and recommendation, for factors or recommendation not pertaining to the fleet readiness center select "Concur" and enter the following statement into the "Justification" box:
"Administratively concur to facilitate the endorsement process."

(7) The appropriate Navy type aircraft wing, MAG and Marine aircraft wing (MAW) in the administrative chain of command for reporting custodians, or detachments deployed as part of a carrier air wing, Marine expeditionary unit, Marine air ground task force, MAW forward, or joint task force. Controlling custodians may exclude these commands from the endorsing chain if they determine that their endorsement is not germane.

d. Endorsements Outside of the DON. COMNAVSAFECEN will coordinate endorsements outside the DON.

e. Timeliness of Endorsements. Controlling custodians shall ensure the timeliness of endorsements.

907. RACs. Endorsers who disagree with a previously assigned RAC may restate the RAC in their endorsement. Appendix B explains RACs.

908. Deadlines. The first endorsement is due 15 business days after the release of the report. Sequential endorsers also have 15 business days to complete and publish their endorsements after their predecessors have published theirs. Extensions are available from the controlling custodian (with notification to COMNAVSAFECEN) via the MDR update feature in WAMHRS. The controlling custodians have 28 business days to complete and publish their endorsements. Navy commands that are outside the endorsing chain and are assigned corrective actions must submit

a MISREC or HAZREC response within 30 sequential days of the controlling custodian's endorsement. Commands subordinate to the controlling custodian shall also submit a MISREC or HAZREC response on all corrective actions assigned them within 30 sequential days of the controlling custodian endorsement. Because of the complex nature of engineering studies and budget requirements, COMNAVAIRSYSCOM has 90 sequential days to respond to class A, B, C or D MISRECs.

909. Distribution

a. HAZREP Endorsements. There are no limitations on the distribution of HAZREP endorsements except that required of FOUO documents.

b. SIR Endorsements. WAMHRS is programmed to send the SIR and notice of endorsement to only authorized SIR recipients and endorsers.

(1) Only CNO, CMC and COMNAVSAFECEN may readdress SIR endorsements to activities outside the DON. Only ACCs in the endorsing chain may add additional SIR endorsers or MISREC action agencies and only then when it is required for further endorsement or mishap or hazard recommendation response.

(2) Do not distribute SIR endorsements to any command not authorized by this instruction.

(3) COs must insure only authorized personnel receive SIRs and their endorsements.

910. Non-Privileged and Privileged Status

a. HAZREP Endorsements. HAZREP endorsements are not privileged.

b. SIR Endorsements. SIR endorsements are a part of the SIR and include deliberative process. They are privileged and shall be used only for safety purposes. As a result, SIR endorsers are free to provide complete, open and forthright information, opinions and recommendations regarding the reported mishap. A SIR is not complete until the final endorsement is complete.

911. Special Handling

a. HAZREP Endorsements. HAZREP endorsements do not require special handling, except that required of FOUO documents.

b. SIR Endorsements. SIR endorsements are privileged and require special handling to limit use to safety purposes only. Use common sense to determine exactly what may be appropriate. For example:

(1) It would not be appropriate to put them in reading racks or post them on bulletin boards.

(2) On the other hand, passing SIR endorsements from person to person, or from office to office in file folders is appropriate. It ensures their contents are protected and disclosure limited to specific individuals who require knowledge of their contents for safety purposes.

(3) WAMHRS account permissions shall be managed by the safety authority to ensure only those who are authorized to access privileged information have the privilege permission and full notification permissions their WAMHRS account.

912. Independence of Endorsements

a. HAZREP Endorsements. Endorsements or extracts from HAZREPs may be appended to or included in other reports.

b. SIR Endorsements

(1) Endorsements or extracts from SIR endorsements shall not be appended to, or included in, JAGMAN investigation reports, nor any other reports. Do not include Navy JAG as an addressee on SIR endorsements.

(2) To prevent any inference of association with disciplinary or administrative action, SIR endorsements shall not include any reference to disciplinary action, naval aviator or naval flight officer evaluation boards (U.S. Navy), field flight performance boards (USMC), or any other administrative action in connection with the mishap report being endorsed.

913. FOUO. HAZREP and SIR endorsements are FOUO. See SECNAV M-5510.36, Department of the Navy Information Security Program, of 30 June 2006 for instructions on their handling.

914. Security Classification. Normally, endorsements are unclassified. If any portion of the endorsement warrants classification, omit that information and insert the word "Classified" in its place. If a meaningful endorsement is impossible using this technique, contact the NAVSAFECEN and submit a classified endorsement.

915. Endorsement Formats

a. Format. Submit HAZREP and SIR endorsements using the format provided in WAMHRS.

b. Content. The amount of information provided in a HAZREP or SIR endorsement will vary depending on the circumstances surrounding the HAZREP or SIR. An endorsement that agrees with all conclusions and recommendations will select the "Concur All" button on both the "Factor" and "Recommendation" screens and add in commander's comments prior to transmittal of endorsement. Others, which take exception to the conclusions or recommendations, must take the time to provide justification to any "Restates" or "Do Not Concurs" prior to adding commander's comments and transmitting their endorsement.

916. HAZREP Endorsement Guide

a. While endorsements need not be as extensive as HAZREPs, endorsers must form and clearly express their disagreements in the same manner.

b. If the endorser agrees with the report severity classifications and all conclusions and corrective action as stated by the previous endorsers, current endorsers will select the "Concur All" button on both the "Factor" and "Recommendation" screens and add in commander's comments prior to transmittal of endorsement.

c. If the endorser disagrees with the severity classification, evidence, analysis, any conclusion, or any corrective action as stated by the previous endorser, they must take the time to provide justification to any "Restates" or "Do

Not Concur" prior to adding commander's comments and transmitting their endorsement. To ensure all issues are addressed, each endorser shall review the HAZREP and its endorsements. Although the endorser is reacting to and endorsing the report as last modified, there is no limit to what may be discussed in addition to those conclusions and recommendations. Each factor and recommendation has a justification box which is the AMB's opportunity to explain any additions, restates or non-concurrence to any portion of the previous endorsement.

d. If any changes or additions to any conclusion, RAC, or recommendation in the HAZREP are made, the AMB must restate for clarity purposes in the justification box under the endorsement a summary of pertinent evidence and further analysis that lead to an additional conclusion or recommendation. New conclusions must have corrective action. Later endorsers will address these conclusions as modified by the AMB.

917. SIR Endorsement Guide

a. Use the following guide to draft endorsements. Endorsers must form and clearly express their disagreements. If the endorser disagrees with the severity classification, evidence, analysis, any conclusion, or any corrective action as stated by the previous endorser, they must take the time to provide justification to any "Restates" or "Do Not Concur" prior to adding commander's comments and transmitting their endorsement. To ensure all issues are addressed, each endorser shall review the SIR and previous endorsements. Although the endorser is reacting to and endorsing the endorser immediately prior to them, there is no limit to what may be discussed in addition to those conclusions and recommendations. Each factor and recommendation has a justification box which is the endorser's opportunity to explain any additions, restates or non-concurrences to any portion of the previous endorsement. The endorsement closes with the commander's comments.

b. The final endorser will list the final accepted factors and recommendations in the justification box below each. An example for a human factor is:

(1) The final accepted cause factor is:

Mishap student naval aviator abrupt maneuver caused aircraft to depart controlled flight.

Acts: AE205 - Ignored a caution or warning

Preconditions: PC102 - Fixation and PE111 - Whiteout or Brownout

Supervisory: SF002 - Failed to correct unsafe practices

Organizational: OR009 - Failure to provide adequate funding.

(2) For material factors:

The final accepted cause factor is: Windscreen destroyed when struck by a bird.

Component: Windscreen

Mode: Shattered

Agent: Bird

918. Aviation Mishap Accountability Absolution

a. Reporting custodians may submit requests for mishap absolution for controlling custodian review and approval via naval message or electronic correspondence following release of the final, closing endorsement. Submissions must provide a specific reference to a causal factor, or causal factors, and a tangible, robust supporting justification. Do not request absolution from aviation mishaps in the SIRs or their endorsements. Controlling custodians may grant absolution for safety award purposes and continuation of mishap-free flight hours for all classes of mishaps when the cause (or causes) of the mishap was clearly beyond the control and responsibility of the reporting custodian. Controlling custodians may delegate the authority for granting absolution for class C mishaps only to Navy type wings (or equivalents) or MAGs. Controlling custodians may make a statement in the last paragraph of their SIR endorsement that justifies absolution when granted.

b. In the interest of uniformity the following guidelines are established:

(1) Absolution is not authorized when cause of the mishap is undetermined.

(2) Limit absolution, usually material failure, to those cases where the reporting custodian had no opportunity to have an effect on the failure. Controlling custodians may consider absolution where human factors causal factors exist but are clearly beyond the control and responsibility of the reporting custodian.

(3) Absolution is not required when accountability for a mishap is reassigned to another reporting custodian.

(4) Reporting custodians are responsible for maintaining their own records of absolution.

CHAPTER 10
MISTRAC PROGRAM

1001. Purpose

a. This chapter describes the MISTRAC program, and the process and procedures used to monitor corrective actions and control or eliminate hazards from naval aviation.

b. Recommendations, corrective actions and action items are used synonymously. After the final endorsement is complete, it is mandatory that recommendations be completed by the action agency. Only the controlling custodian or higher authority may relieve an action agency, subordinate to the controlling custodian, of their responsibility to complete a recommendation. Aggressively tracking these actions ensures their timely resolution before the associated hazard can cause additional damage or injury. The numbers of hazards identified in naval aviation each year that require this monitoring is substantial. Some means of prioritizing them is necessary so those with the greatest potential for harm can be addressed first. To facilitate this, RACs are used, which are defined in appendix B. A RAC weighs hazards and assigns priorities for corrective action or action items based on their severity and their expected frequency of occurrence. The more severe the hazard, the lower the RAC, and the more urgent the action required. Hazards with the most urgent RACs receive first priority for action and resources. Anyone, without regard to seniority, can identify and assign corrective action. Responsibility for making the required corrections lies with the command assigned action through the hazard and mishap reporting process. The endorsing process ratifies the assigned Action Items through the chain of command and continues until everyone has had their say and the action is complete. COMNAVSAFECEN and the MISTRAC system is the link that keeps all parties informed.

1002. General. Detection and correction eliminates the hazards that cause mishaps. Hazards detected before they cause accidents are reported in HAZREPs. Those that go undetected or uncorrected are reported in SIRs. Each identified hazard must have corrective action assigned to prevent future mishaps. The NAVSAFECEN maintains the MISTRAC database in order to record corrective actions and track their status and progress.

1003. Program Definitions

a. MISTRAC. MISTRAC is the computer based, human managed system COMNAVSAFECEN uses to monitor corrective action identified through HAZREPs, SIRs, and their endorsements. The MISTRAC program monitors RAC 1 through 5 hazards.

b. MISREC. A MISREC is an action item resulting from mishap causal factors and hazards identified in a SIR after a mishap. All MISRECs are monitored in the MISTRAC program.

c. HAZREC. A HAZREC is an action item identified in a HAZREP. HAZRECs are dangerous conditions discovered before they cause a mishap.

1004. Responsibilities and Procedures

a. Action Agencies. Those agencies and commands assigned recommendation, corrective action or action items by a SIR or HAZREP must complete the assigned items unless relieved by the controlling custodian or higher authority. Action agencies provide a response as described below:

(1) Action Agency in Endorsing Chain. During the endorsement process, the action agency who is also an endorser may agree, disagree, change, or restate the corrective action assigned. They may transfer the action to another agency, change the RAC, or modify any corrective action in their endorsement so long as they explain and justify their position. Later endorsers have the same opportunity until the final endorser determines who will carry out the recommendations or action items. After the final endorsement is complete, each agency is responsible for their assigned recommendation or action items unless relieved by the controlling custodian or higher authority.

(2) Action Agency Not in Endorsing Chain. When not in the endorsing chain, an action agency has the same freedom to accept, reject, or change the corrective action as those in the endorsing chain. These action agencies, however, do not respond with a full endorsement. All that is needed in these cases is a HAZREC or MISREC response within WAMHRS which will be imported into the endorsement PDF. The final endorser will agree or disagree with the position and determine the action required.

(3) Required Action for MISRECs and HAZRECs.

COMNAVSAFECEN monitors corrective actions from HAZRECs and MISRECs through to completion. Action agencies must, therefore, notify the controlling custodian and COMNAVSAFECEN of any changes to their assigned recommendation or action item. Within 30 days of the final endorsement, action agencies must submit their MISREC or HAZREC within WAMHRS. The justification box in WAMHRS must acknowledge their assigned recommendation or action item, describe their plan to accomplish it, indicate the start or completion dates, and provide the name and the phone number of their point of contact. Report all status changes until the action is complete. COMNAVAIRSYSCOM shall consider and take appropriate action on all recommendations directed to them by controlling custodian endorsements, but is only required to formally close out the MISREC or HAZREC in WAMHRS for severe recommendations.

b. Endorsing Agencies. Endorsing agencies can influence the resolution of the hazard. Recommendations or action items, assigned at any level, have the singular goal of eliminating the hazard. Senior agencies may disagree with any assigned recommendation or action item, but the intent of the endorsing process is to build a consensus for an appropriate corrective action without assigning blame. Each endorser must evaluate these items based on urgency, resources, and their individual circumstances while keeping this goal in mind.

c. COMNAVSAFECEN

(1) MISREC AND HAZREC Tracking

(a) To Action Agencies. Twice a year, on 1 March and 1 September, COMNAVSAFECEN provides a listing of all open recommendations to all action agencies. This listing includes a summary of the recommendations, the complete endorsement sequence, and all transactions to date.

(b) To Controlling Custodians. COMNAVSAFECEN sends a similar list to all controlling custodians on 1 June and 1 December.

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(2) Record Status. Although recommendations relating to action items on MISRECs and HAZRECs may be initiated by any concerned agency, opening, closing, and reopening of individual records is the exclusive prerogative of COMNAVSAFECEN.

APPENDIX A
GENERAL REPORTING REQUIREMENTS

TYPE REPORT	SEVERITY	60 MINUTES	4 HOURS	24 HOURS	30 DAYS
HAZREP	SEVERE			WAMHRS HAZREP	
	ROUTINE				WAMHRS HAZREP
REPORT OR MDR	A	TELEPHONE REPORT TO SAFECEN	WAMHRS INITIAL NOTIFICATION	UPDATED MDR IF REQUIRED	
	B		WAMHRS INITIAL NOTIFICATION		
	C & D			WAMHRS INITIAL NOTIFICATION (OPTIONAL CLASS D)	
SIR	A				WAMHRS SIR (MAIL ENCLOSURES THAT CANNOT BE UPLOADED)
	B				
	C & D				

APPENDIX B
RISK ASSESSMENT

1. Risk assessment is the process of determining the level of risk associated with hazards that have been identified. A risk assessment matrix is used to obtain a measure of the level of risk in terms of severity and probability, expressed as a RAC. Although risk matrices vary in the number and exact definition of categories, the basic concept of measuring degree of severity and probability remains the same.

a. Hazard Severity. An assessment of the worst credible consequence, defined by degree of injury, occupational illness, property damage, loss of assets (time, money, personnel) or impact on mission, which could occur as a result of a deficiency. Hazard severity categories are assigned Roman numerals according to the following criteria:

(1) Category I. The hazard may cause death or loss of a facility or asset (i.e., class A level damage).

(2) Category II. This hazard may cause severe injury, severe occupational illness, significant property damage, or severe degradation to the efficient use of assets (i.e., class B level damage).

(3) Category III. This hazard may cause minor injury, minor occupational illness, minor property damage, or minor degradation to the efficient use of assets (i.e., class C level damage).

(4) Category IV. This hazard would not significantly affect personnel safety or health, property, or efficient use of assets, but is nevertheless in violation of an established regulation or standard.

b. Mishap Probability. The mishap probability is the probability that the hazard will result in a mishap of the severity assigned, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation, affected populations (throughout the Navy and Marine Corps), experience, or previously established statistical information. Mishap probability is assigned a letter value according to the following criteria:

(1) Subcategory A. Likely to occur immediately or within a short period of time (one or more times within the next year).

(2) Subcategory B. Likely to occur in time (within the next 3 years).

(3) Subcategory C. Likely to occur several times during the life of the aircraft.

(4) Subcategory D. Unlikely to occur, but is feasible within the lifetime of the aircraft.

c. RAC. The RAC is an expression of overall risk that combines the elements of hazard severity and mishap probability. As defined in the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine hazard abatement priorities. Specifically RAC 1 is critical risk, RAC 2 is serious risk, RAC 3 is moderate risk, RAC 4 is minor risk, and RAC 5 is negligible risk. The RAC is found at the intersection of the selected hazard severity and mishap probability (i.e., a hazard severity of II and a mishap probability of A results in a RAC 1)

	<u>Mishap Probability</u>			
<u>Hazard Severity</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

d. Routine and Severe Hazards. A further breakdown of RACs is necessary for the Naval Aviation SMS. A RAC of 1 or 2 is considered a severe hazard while a RAC of 3, 4, or 5 is considered routine. Severe hazards receive priority by COMNAVAIRSYSCOM when allocating resources for corrective actions. Severe hazards also require endorsements up to the action agency.

2. The following scenario is provided as an example of risk assessment:

a. A squadron is preparing a HAZREP in response to simultaneous precession of both the pilot and copilot attitude-direction indicators (ADI) on a C-9 aircraft. Circumstances surrounding the incident were as follows: Shortly after taking off into the visual flight rules landing pattern, both the pilot's and copilot's ADI began to precess. By the time the aircraft had turned to downwind, both ADIs indicated 30 degrees nose up and 20 degrees left wing down while the aircraft was in level flight. The crew executed a normal landing and the ADIs remained precessed while on the ground.

(1) The following information is available to the squadron's ASO through community and COMNAVSAFECEN data:

(2) This incident is the seventh C-9 dual ADI failure documented in the last 3 years. The reason for the failures has not been identified.

(3) The C-9 has no standby ADI. When dual ADI failure occurs, the pilots must rely on external visual references or altitude and compass indicators for attitude information. These alternate indications are not accurate reflections of the aircraft attitude. Flying the aircraft in instrument meteorological conditions (IMC) with dual ADI failure would demand extraordinary concentration and skill of the pilots, and is likely to result in loss of control of the aircraft. As long as the aircraft is in visual meteorological conditions when dual ADI failure occurs, safe recovery is considered likely.

(4) Over the past 5 years, C-9s averaged 18 percent of their total flight time in actual IMC. Significant change in flight hours or scheduling is not anticipated.

b. Given the above information, the ASO can assess the risk of this hazard in a fairly quantitative manner. If dual ADI failure occurs in certain conditions, loss of a C-9 aircraft, its crew and passengers is a credible outcome. Therefore, hazard severity in this case is I. The mishap probability (the probability that a severity I mishap will occur) depends on several factors. Since there have been seven dual ADI failures in the lasts 3 years, and the reasons have not been identified,

it is reasonable to assume that failures will continue at the same rate 2.33 incidents per year. If a mishap of severity I is only likely if the aircraft is in IMC, multiply 2.33 by .18 (the average percentage of time a C-9 spends in IMC) to obtain a predicted rate of 0.42 severity I mishaps per year. This gives it a probability of B, and a corresponding RAC of 1. Other factors that would influence the probable outcome (i.e., pilot experience, altitude, flight configuration, etc.) should also be considered. If historical data is not available, the best estimate from available information should be used to assign the RAC.

3. Although hazard severity is normally based on the worst credible consequence, there may be situations in which evaluation of a lower category of severity is appropriate. For example, a multiengine aircraft with an engine hazard may have a remote probability (probability D) of catastrophic (category I) damage, resulting in a RAC of 3. However, this same engine hazard may be much more likely (probability A or B) to result in critical (category II) damage, resulting in a RAC of 1 or 2. In this case, the more severe RAC should be reported.

APPENDIX C
DoD HFACS

1. Executive Summary

a. This appendix explains procedures for investigating and reporting human factors in mishaps. It supports reference (a). Reference (a) directs DoD components to "Collect, Maintain, analyze, and report human error, human factors, and human performance data identified in safety investigations." It is intended for use by all persons who investigate, report and analyze DoD mishaps, and is particularly tailored to the needs of persons assigned to interim safety boards and formal safety investigation boards following all classes of mishaps. There are myriad potential human factors, all of which need to be assessed for relevancy during a mishap investigation. No investigator, flight surgeon, physiologist, human factors consultant or aviation psychologist can be expected to be fully familiar with all potential human factors.

b. When using this human factors model, the investigator should consider applying the model to three distinct areas of consideration: environmental, individual and the incident or mishap. The mishap crew, operator, or team reacts to the environment to which they are exposed. The environmental factors cover not only the physical environment to which the individual members are exposed, but also the organizational and supervisory environments and specific physical and technological preconditions. The individual factors cover acts, precondition and supervision factors. The mishap factors can cross all four tiers of the model. The investigator can apply this model by entering at any tier that is specifically related to environmental, individual or mishap factors discovered during the analysis. This model can be used as either a primary or secondary tool to investigate both active and latent failures. This model is designed to present a systematic, multidimensional approach to error analysis. This human factors model covers human error from three perspectives:

(1) Cognitive viewpoint and human system interaction and integration

(2) Human-to-human interaction

(3) Sociocultural and organization

c. When using DoD human factors taxonomy for either the primary investigation or the secondary analysis, the assumption is made that error can mean several things:

(1) Error as the failure itself. For example: The operator's decision was an error (decision, perceptual, or skill based errors).

(2) Error as the cause of failure. For example: This incident was due to human error (failure to provide guidance).

(3) Error as a process or, more specifically, as a departure from some kind of standard (exceptional, routine, intentional or unintentional).

d. A reasonable synthesis of these assumptions, as suggested by Senders and Moray (1991), is the following: Human error occurs when human action is performed that was either (1) not intended by the actor, (2) not desired according to some specified set of rules or by some external observer, or (3) contributed to the task or system "going outside its acceptable limits."

e. This guide starts with a brief history of the development of the DoD HFACS, followed by an introduction and description of the human factor and human performance application of this model. The guide concludes with a high-level structural overview of the taxonomy and definitions.

2. History

a. The Secretary of Defense published a memorandum 19 May 2003 stating, "World-class organizations do not tolerate preventable accidents. Our accident rates have increased recently, and we need to turn this situation around. I challenge all of you to reduce the number of mishaps and accident rates by at least 50% in the next two years." "These goals are achievable, and will directly increase our operational readiness. We owe no less to the men and women who defend our Nation." This memorandum resulted in the creation of the DoD

Safety Oversight Committee to provide guidance to the DoD and individual services on best practices and methods to accomplish this mandate. The Secretary of Defense established the Defense Safety Oversight Council to:

(1) Review accident and incident trends, ongoing safety initiatives, private sector and other governmental agency best practices, and to make recommendations to the Secretary of Defense for safety improvement policies, programs, and investments.

(2) Assess, review and advise on improving all aspects of the coordination, relevance, efficiency, efficacy, timeliness and viability of existing DoD-wide safety and injury prevention information management systems.

(3) Promote the development and implementation of safety initiatives, including systems safety for acquisitions and operations, to improve mission success as well as preserve human and physical resources throughout DoD.

(4) Coordinate with other Federal agencies and industry leaders to facilitate communication, coordination, and integration of best practices into DoD planning, development and implementation of initiatives and programs that support research to improve human performance, safety education standards procedures, and equipment.

b. The Aviation Safety Improvements Task Force was established to meet these DoD requirements. The Aviation Safety Improvements Task Force subsequently established the Human Factors Working Group with a charter to identify data-driven, benefit focused, human-factor and human-performance safety strategies designed to identify hazards, mitigate risk and reduce aviation mishaps inherent in aircraft operations throughout DoD. The Aviation Safety Improvements Task Force chair directed the Human Factors Working Group to accomplish the following tasks:

(1) Promote common HFACS for DoD-wide implementation.

(2) Recommend standardization of human factor and human performance terminology.

(3) Provide human factors subject matter experts to all Aviation Safety Improvements Task Force working groups, and hazard identification and intervention analysis teams

(4) Identify and analyze top human factor and human performance mishap focus areas

(5) Identify, catalog and recommend approaches to improve organizational and cultural assessments.

c. This guide is produced to meet the first two tasks of the Human Factors Working Group. The guide was initially developed to investigate aviation mishaps, and therefore uses an aviation-centric language. During production the authors have attempted to modify definitions to ensure the tool can be used in the investigation of multiple types of incidents. This guide was developed based on the evolution of the works produced by Jens Rasmussen, James Reason as well as Douglas Wiegmann and Scott Shappell. As this dynamic document evolves, the plan is to ensure that it can be seamlessly applied across all Services and will be used to investigate aviation, ground, weapons, afloat, space and off-duty mishaps and incidents.

3. Introduction

a. Mishap or incident investigation can be extremely difficult, time-consuming and stressful, but it can also be rewarding when the contributions that will improve safety are recognized. A thorough mishap investigation is absolutely necessary to determine the cascading events causal to a mishap, and to recommend corrective actions to prevent recurrence. This guide provides the mishap investigator with a proven template that aids in organizing the investigation while providing a detailed analysis of human error for on-scene investigation and post-hoc mishap data analysis, revealing previously unidentified human-error trends and hazards.

b. Human error continues to plague both military and civilian mishaps. Analysis indicates that human error is identified as a causal factor in 80 to 90 percent of mishaps, and is present but not causal in another 50 to 60 percent of all mishaps, and is therefore the single greatest mishap hazard. Yet, simply writing off mishaps to "operator error" is a simplistic, if not naïve, approach to mishap causation and

hazard identification. Further, it is well established that mishaps are rarely attributed to a single cause, or in most instances, even a single individual. Rather, mishaps are the end result of myriad latent failures or conditions that precede active failures (Shappell in "The Naval Flight Surgeon's Pocket Reference to Aircraft Mishap Investigation"). The goal of a mishap or incident investigation is to identify these failures and conditions in order to understand why the mishap occurred and how it might be prevented from happening again.

c. This reference is an adjunct to formal instructions that govern mishap investigation and is not meant to supplant the other references that address service-specific guidance for mishap investigation. Use this guide as a ready reference in the field to ensure that the data retrieval is complete and that perishable evidence is preserved. This guide is also designed to ensure uniformity of inter-service human factors definitions and data driven analysis.

4. Description

a. This guide is designed for use as a comprehensive incident and mishap, human error investigation, data identification, analysis and classification tool. It is designed for use by all members of an investigation board in order to accurately capture and recreate the complex layers of human error in context with the individual, environment, team and mishap or incident.

b. In the past, investigators have thrown human factors analysis to the medical investigator and have asked them to do this work on their own. This practice has sometimes produced human error analyses that differed considerably from the boards' investigation and findings of fact. Integrating human factors analysis into all aspects of the investigation will result in a much more coherent final product.

c. As described by Reason (1990), active failures are the actions or inactions of operators that are believed to cause the mishap. Traditionally referred to as "error," they are the last "acts" committed by individuals, often with immediate and tragic consequences. For example, an aviator forgetting to lower the landing gear before touchdown or showing off through a box canyon will yield relatively immediate, and potentially grave,

consequences. In contrast, latent failures or conditions are errors that exist within the organization or elsewhere in the supervisory chain of command that affect the tragic sequence of events characteristic of a mishap. For example, it is not difficult to understand how tasking crews or teams at the expense of quality crew rest can lead to fatigue and ultimately errors (active failures) in the cockpit. Viewed from this perspective then, the actions of individuals are the end result of a chain of factors originating in other parts (often the upper echelons) of the organization. The problem is that these latent failures or conditions may lie dormant or undetected for some period of time prior to their manifestation as a mishap.

d. The question for mishap investigators and analysts alike is how to identify and mitigate these active and latent failures or conditions. One approach is the "Domino Theory" which promotes the idea that, like dominoes stacked in sequence; mishaps are the end result of a series of errors made throughout the chain of command.

e. A "modernized" version of the domino theory is Reason's "Swiss Cheese" model that describes the levels at which active failures and latent failures and conditions may occur within complex operations. Working backward from the mishap, the first level of Reason's model depicts those unsafe acts of operators (operator, maintainers, facility personnel, etc.) that lead to a mishap. Traditionally, this is where most mishap investigations have focused their examination of human error, and consequently where most causal factors are uncovered. After all, it is typically the actions or inactions of individuals that can be directly linked to the mishap. Still, to stop the investigation here only uncovers part of the story.

f. What makes Reason's model particularly useful in mishap investigation is that it forces investigators to address latent failures and conditions within the causal sequence of events. For instance, latent failures or conditions such as fatigue, complacency, illness, and the physical and technological environment all affect performance but can be overlooked by investigators with even the best of intentions. These particular latent failures and conditions are described within the context of Reason's model as preconditions for unsafe acts. Likewise, supervision can promote unsafe conditions of operators and ultimately unsafe acts will occur. For example, if an

operations officer were to pair a below average team leader with a very junior or inexperienced crew, the result is increased risk of mission failure. Regardless, whenever a mishap does occur, the crew naturally bears a part of the responsibility and accountability. However, latent failures or conditions at the supervisory level are often equally responsible for poor hazard analysis and subsequent increased mission risk, and may ultimately cause the mishap. In this particular example, the crew was set up for the opportunity for failure.

g. Reason's model does not stop at supervision; it also considers organizational influences that can impact performance at all levels. For instance, in times of fiscal constraints, funding may be short and may lead to limited training opportunities. Supervisors are sometimes pressed to task "non-proficient" crews with complex missions. Not surprisingly, unintended and unrecognized errors may appear, and mission performance will consequently suffer. As such, hazards and risks at all levels must be addressed if any mishap investigation process is going to be effective.

h. The investigation process then endeavors to detect and identify the "holes (hazards) in the cheese" (see figure 1). So how are these hazards identified? Aren't they really too numerous to define? After all, every mishap is unique, so the hazards will always be different for each mishap ... right? Well, it turns out that each mishap is not unique from its predecessors. In fact, most mishaps have very similar causes. They are due to the same holes in the cheese, so to speak. The hazards identified in each new mishap are not unique to that mishap. Therefore, if investigators know what these system failures and hazards or "holes" are, investigators can better identify their roles in mishaps or better yet, detect their presence and develop a risk mitigation strategy correcting them before a mishap occurs.

5. DoD HFACS

a. Drawing upon Reason's (1990) and Wiegmann and Shappell's (2003) concept of active failures and latent failures and conditions, a new DoD taxonomy was developed to identify hazards and risks called the DoD HFACS. DoD HFACS describes four main tiers of failures or conditions: 1) organizational influences, 2) supervision, 3) preconditions, and 4) acts. A brief

description of the major tiers with associated categories and sub-categories follows, beginning with the tier most closely tied to the mishap.

b. Appendix D is the in-depth reference document, and contains all the currently accepted definitions for the nanocodes that fall under the four major tiers, categories and sub-categories of human error. Appendix C is subject to periodic review and update. For comments please contact the command flight surgeon of NAVSAFECEN.

6. Acts. Acts are those factors that are most closely tied to the mishap, and can be described as active failures or actions committed by the operator that result in human error or an unsafe situation. These active failures or actions are identified as "Errors" and "Violations." Errors are those factors in a mishap when mental or physical activities of the operator fail to achieve their intended outcome as a result of skill-based, perceptual, or judgment and decision making errors, leading to an unsafe situation. Errors are unintended. "Errors" are classified into three types: "Skill-Based," "Judgment and Decision Making," and "Misperception Errors." Using this error analysis process, the investigator must first determine if an individual or team committed an active failure. If so, the investigator must then decide if an error or violation occurred. Once this is done, the investigator can further define the error.

a. Skill-based Errors. Skill-based errors are factors in a mishap when errors occur in the operator's execution of a routine, highly practiced task relating to procedure, training or proficiency and result in an unsafe a situation. Skill-based errors are unintended behaviors.

b. Judgment and Decision Making Errors. Judgment and decision making errors are factors in a mishap when behavior or actions of the individual proceed as intended yet the chosen plan proves inadequate to achieve the desired end-state and results in an unsafe situation.

c. Misperception Errors. Misperception errors are factors in a mishap when misperception of an object, threat or situation

(such as visual, auditory, proprioceptive, or vestibular illusions, cognitive or attention failures) results in human error.

d. Violations. Violations are factors in a mishap when the actions of the operator represent willful disregard for rules and instructions and lead to an unsafe situation. Unlike errors, violations are deliberate.

7. Preconditions. Preconditions are factors in a mishap if active and or latent preconditions such as conditions of the operators, environmental or personnel factors affect practices, conditions or actions of individuals and result in human error or an unsafe situation. In this error analysis model, preconditions include environmental factors, condition of the individuals, and personnel factors.

a. Environmental Factors. Environmental factors are factors in a mishap if physical or technological factors affect practices, conditions and actions of individual and result in human error or an unsafe situation. Environmental factors include:

(1) Physical Environment. Physical environment are factors in a mishap if environmental phenomena such as weather, climate, white-out or dust-out conditions affect the actions of individuals and result in human error or an unsafe situation.

(2) Technological Environment. Technological environment is a factor in a mishap when cockpit, vehicle and workspace design factors or automation affect the actions of individuals and result in human error or an unsafe situation.

b. Condition of the Individual. Condition of the individual is a factor in a mishap if cognitive, psycho-behavioral, adverse physical state, or physical and mental limitations affect practices, conditions or actions of individuals and result in human error or an unsafe situation. Condition of the individuals include:

(1) Cognitive Factors. Cognitive factors are factors in a mishap if cognitive or attention management conditions affect the perception or performance of individuals and result in human error or an unsafe situation.

(2) Psycho-Behavioral Factors. Psycho-behavioral factors are factors when an individual's personality traits, psychosocial problems, psychological disorders or inappropriate motivation creates an unsafe situation.

(3) Adverse Physiological States. Adverse physiological states are factors when an individual experiences a physiologic event that compromises human performance and this decreases performance resulting in an unsafe situation.

(4) Physical or Mental Limitations. Physical or mental limitations are factors in a mishap when an individual lacks the physical or mental capabilities to cope with a situation, and this insufficiency causes an unsafe situation. This often, but not always, indicates an individual who does not possess the physical or mental capabilities expected in order to perform the required duties safely.

(5) Perceptual Factors. Perceptual factors are factors in a mishap when misperception of an object, threat or situation (visual, auditory, proprioceptive, or vestibular conditions) creates an unsafe situation. If investigators identify SD in a mishap the preceding causal illusion should also be identified. Vice versa, if an illusion is identified as a factor in a mishap then the investigator should identify the resultant type of SD.

c. Personnel Factors. Personnel factors are factors in a mishap if self-imposed stressors or CRM affects practices, conditions or actions of individuals, and result in human error or an unsafe situation. Personnel factors include:

(1) Coordination, Communication and Planning. Coordination, communication and planning are factors in a mishap where interactions among individuals, crews, and teams involved with the preparation and execution of a mission that resulted in human error or an unsafe situation

(2) Self-Imposed Stress. Self-imposed stresses are factors in a mishap if the operator demonstrates disregard for rules and instructions that govern the individual's readiness to perform, or exhibits poor judgment when it comes to readiness and results in human error or an unsafe situation. These are often violations of established rules that are in place to

protect people from themselves and a subsequent unsafe condition. One example of self-imposed stress is drinking alcohol prior to operating a motor vehicle.

8. Supervision. The Human Factors Working Group determined that a mishap event can often be traced back to the supervisory chain of command. As such, there are four major categories of unsafe supervision: inadequate supervision, planned inappropriate operations, failure to correct a known problem, and supervisory violations.

a. Inadequate Supervision. The role of supervisors is to provide their personnel with the opportunity to succeed. To do this, supervisors must provide guidance, training opportunities, leadership, motivation, and the proper role model, regardless of their supervisory level. Unfortunately, this is not always the case. It is easy to imagine a situation where adequate CRM training was not provided to an operator or team member. Conceivably, the operator's coordination skills would be compromised, and if put into a non-routine situation (e.g., emergency), would be at risk for errors that might lead to a mishap. Therefore, this category accounts for those times when supervision proves inappropriate, improper, or may not occur at all. Inadequate supervision is a factor in a mishap when supervision proves inappropriate or improper and fails to identify a hazard, recognize and control risk, provide guidance, training and or oversight and results in human error or an unsafe situation.

b. Planned Inappropriate Operations. Occasionally, the operational tempo or schedule is planned such that individuals are put at unacceptable risk, crew rest is jeopardized, and ultimately performance is adversely affected. Such planned inappropriate operations, though arguably unavoidable during emergency situations, are not acceptable during normal operations. Included in this category are issues of crew pairing and improper manning. For example, it is not surprising to anyone that problems can arise when two individuals with marginal skills are paired together. During a period of downsizing and or increased levels of operational commitment, it is often more difficult to manage crews. However, pairing weak or inexperienced operators together on the most difficult missions may not be prudent. Planned inappropriate operations are factors in a mishap when supervision fails to adequately

assess the hazards associated with an operation and allows for unnecessary risk. It is also a factor when supervision allows non-proficient or inexperienced personnel to attempt missions beyond their capability or when crew or flight makeup is inappropriate for the task or mission.

c. Failure to Correct a Known Problem. Failed to correct a known problem refers to those instances when deficiencies among individuals, equipment, training or other related safety areas are "known" to the supervisor, yet are allowed to continue uncorrected. For example, the failure to consistently correct or discipline inappropriate behavior certainly fosters an unsafe atmosphere and poor command climate. Failure to correct a known problem is a factor in a mishap when supervision fails to correct known deficiencies in documents, processes or procedures, or fails to correct inappropriate or unsafe actions of individuals, and this lack of supervisory action creates an unsafe situation.

d. Supervisory Violations. Supervisory violations, on the other hand, are reserved for those instances when supervisors willfully disregard existing rules and regulations. For instance, permitting an individual to operate an aircraft without current qualifications is a flagrant violation that invariably sets the stage for the tragic sequence of events that predictably follow. Supervisory violations are factors in a mishap when supervision, while managing organizational assets, willfully disregards instructions, guidance, rules, or operating instructions and this lack of supervisory integrity creates an unsafe situation.

9. Organizational Influences. Fallible decisions of upper-level management directly affect supervisory practices, as well as the conditions and actions of operators. These latent conditions generally involve issues related to resource and acquisition management, organizational climate, and organizational processes. Organizational influences are factors in a mishap if the communications, actions, omissions or policies of upper-level management directly or indirectly affect supervisory practices, conditions or actions of the operator(s) and result in system failure, human error or an unsafe situation.

a. Resource and Acquisition Management. This category refers to the management, allocation, and maintenance of organizational resources--human, monetary, and equipment and facilities. The term "human" refers to the management of operators, staff, and maintenance personnel. Issues that directly influence safety include selection (including background checks), training, and staffing or manning. "Monetary" issues refer to the management of nonhuman resources, primarily monetary resources. For example, excessive cost cutting and lack of funding for proper equipment have adverse effects on operator performance and safety. Finally, "equipment or facilities" refers to issues related to equipment design, including the purchasing of unsuitable equipment, inadequate design of workspaces, and failures to correct known design flaws. Management should ensure that human-factors engineering principles are known and utilized and that existing specifications for equipment and workspace design are identified and met. Resource and acquisition management is a factor in a mishap if resource management and or acquisition processes or policies, directly or indirectly, influence system safety and results in poor error management or creates an unsafe situation.

b. Organizational Climate. Organizational climate refers to a broad class of organizational variables that influence worker performance. It can be defined as the situational consistencies in the organization's treatment of individuals. In general, organizational climate is the prevailing atmosphere or environment within the organization. Within the present classification system, climate is broken down into three categories: structure, policies, and culture. The term "structure" refers to the formal component of the organization. The "form and shape" of an organization are reflected in the chain of command, delegation of authority and responsibility, communication channels, and formal accountability for actions. Organizations with maladaptive structures (i.e., those that do not optimally match to their operational environment or are unwilling to change) will be more prone to mishaps. "Policies" refer to a course or method of action that guides present and future decisions. Policies may refer to hiring and firing, promotion, retention, raises, sick leave, drugs and alcohol, overtime, accident investigations, use of safety equipment, etc. When these policies are ill-defined, adversarial, or conflicting, safety may be reduced. Finally, "culture" refers to the unspoken or unofficial rules, values, attitudes, beliefs,

and customs of an organization ("The way things really get done around here."). Other issues related to culture include organizational justice, psychological contracts, organizational citizenship behavior, esprit de corps, and union and management relations. All these issues affect attitudes about safety and the value of a safe working environment. Organizational climate is a factor in a mishap if organizational variables including environment, structure, policies, and culture influence individual actions and results in human error or an unsafe situation.

c. Organizational Processes. This category refers to the formal process by which "things get done" in the organization. It is subdivided into three broad categories: operations, procedures, and oversight. The term "operations" refers to the characteristics or conditions of work that have been established by management. These characteristics include operational tempo, time pressures, production quotas, incentive systems, and schedules. When set up inappropriately, these working conditions can be detrimental to safety. "Procedures" are the official or formal procedures as to how the job is to be done. Examples include performance standards, objectives, documentation, and instructions about procedures. All of these, if inadequate, can negatively impact employee supervision, performance, and safety. Finally, "oversight" refers to monitoring and checking of resources, climate, and processes to ensure a safe and productive work environment. Issues here relate to organizational self-study, risk management, and the establishment and use of safety programs. Organizational processes are factors in a mishap if organizational processes such as operations, procedures, operational risk management and oversight negatively influence individual, supervisory, and or organizational performance and results in unrecognized hazards and or uncontrolled risk and leads to human error or an unsafe situation.

10. Quick User Instruction and In-depth Nanocodes HFACS Quick Users Guide

a. After any event, investigators must gather human factors evidence. One method to do this is to start with the event outcome and create a time line documenting each step that leads up to the event. As the AMB probes backwards, determine whether

a material (a part failed) event occurred or an individual committed or failed to commit an act the resulted in the outcome event.

b. At each step the investigator must document who committed the act then use the taxonomy to further classify the act. Once the investigator has identified the nanocode that reflects the act they must dig deeper.

c. The next step is to evaluate the preconditions that resulted in the unsafe act. A method that may help evaluating preconditions is to review each of the categories and sub categories in this tier of HFACS and rule in or eliminate the various preconditions that lead to the act. Once the investigator has fully devolved into the preconditions and has recorded all preconditions for the act, the focus must move on to supervisory and subsequent organizational issues that contributed to the precondition.

d. It is recommended that for each nanocode chosen, the investigator write a short narrative discussing the nanocode

e. Conduct an evaluation of each item in the time line. This should give the investigator a thorough human factors picture of all the events that led up to the mishap.

f. The most up-to-date version of nanocodes is in appendix D which is also posted on the NAVSAFECEN Web site. Periodic updates will be made to nanocodes and posted on the Web site.

APPENDIX D
DoD HFACS NANOCODES

1. Acts. Acts are those factors that are most closely tied to the mishap, and can be described as active failures or actions committed by the operator that results in human error or unsafe situation.

a. Errors (AExxx). Errors are factors in a mishap when mental or physical activities of the operator fail to achieve their intended outcome as a result of skill based, perceptual, or judgment and decision making errors leading to an unsafe situation. Errors are unintended.

(1) Skill Based Errors (AE1xx). Skill based errors that occur during an individual's performance of routine, highly practiced tasks that are considered "ingrained" skills.

(a) AE101 Unintended Operation of Equipment. Unintended operation of equipment is a factor when individual's movements inadvertently activate or deactivate equipment, controls or switches when there is no intent to operate the control or device. This action may be noticed or unnoticed by the individual.

(b) AE102 Checklist Not Followed Correctly. Checklist not followed correctly is a factor when the individual, either through an act of commission or omission, makes a checklist error or fails to run an appropriate checklist and this failure results in an unsafe situation.

(c) AE103 Procedure Not Followed Correctly. Procedure not followed correctly is a factor when a procedure is accomplished in the wrong sequence or using the wrong technique or when the wrong control or switch is used. This also captures errors in navigation, calculation or operation of automated systems.

(d) AE104 Over-controlled or Under-controlled Aircraft or Vehicle. Over-controlled or under controlled aircraft or vehicle is a factor when an individual responds inappropriately to conditions by either over-controlling or

under-controlling the aircraft, vehicle or system. The error may be a result of preconditions or a temporary failure of coordination.

(e) AE105 Breakdown in Visual Scan. Breakdown in visual scan is a factor when the individual fails to effectively execute learned and practiced internal or external visual scan patterns leading to an unsafe situation.

(f) AE106 Inadequate Anti-G Straining Maneuver. Inadequate anti-G straining maneuver is a factor when the individual's anti-G straining maneuver is improper, inadequate, poorly timed or non-existent and this leads to adverse neurocirculatory effects.

(2) Judgment and Decision-Making Errors (AE2xx). Judgment and decision making errors occur when an individual proceeds as intended, yet the plan proves inadequate or inappropriate for the situation (i.e., "an honest mistake").

(a) AE201 Inadequate Real-time Risk Assessment (e.g., failure of Time Critical ORM). Inadequate real-time risk assessment is a factor when the individual fails to adequately evaluate the risks associated with a particular course of action and this faulty evaluation leads to an inappropriate decision and subsequent unsafe situation. This failure occurs in real-time when formal risk-assessment procedures are not possible.

(b) AE202 Failure to Prioritize Tasks Adequately. Failure to prioritize tasks adequately is a factor when based on accepted prioritization techniques; the individual does not organize the tasks needed to manage the immediate situation.

(c) AE203 Rushed a Necessary Action. Rushed a necessary action is a factor when the individual performs a necessary action as dictated by the situation, but performs these actions too quickly and the rush to take action leads to an unsafe situation.

(d) AE204 Delayed a Necessary Action. Delayed a necessary action is a factor when the individual selects a course of action but elects to delay execution of the actions and the delay leads to an unsafe situation.

(e) AE205 Ignored Caution or Warning. Ignored caution or warning is a factor when a caution or warning is perceived and understood by the individual but is ignored by the individual leading to an unsafe situation.

(f) AE206 Wrong Choice of Action During an Operation (e.g., wrong response to an emergency). Wrong choice of action during an operation is a factor when the individual, through faulty logic, selects the wrong course of action in a time-constrained environment.

(3) Perception Errors (AE3xx). Perception errors are unique skill-based and decision-based errors that occur as a result of an individual's inappropriate response to his or her degraded or "unusual" sensory inputs (such as sight, hearing, or balance illusions). There is only one perception error which is AE301 titled "Incorrect Response to a Misperception" (e.g., visual illusion or SD). Incorrect response to a misperception is a factor when an individual acts or fails to act based on an illusion, misperception or disorientation state and this act or failure to act creates an unsafe situation.

b. Violations (AVxxx). Violations are factors in a mishap when the operator intentionally breaks rules or instructions. Violations are deliberate.

(1) AV001 Work-around Violation (e.g., breaking the rules is perceived as the best solution). Work-around violation is a factor when the consequences and risk of violating published procedures was recognized, consciously assessed and honestly determined by the individual, crew or team to be the best course of action. Routine "work-arounds" and unofficial procedures that are accepted by the community as necessary for operations are also captured under this code.

(2) AV002 Widespread or Routine Violation (e.g., habitual deviation from the rules that is tolerated by management). Widespread or routine violation is a factor when a procedure or policy violation is systemic in a unit or setting and not based on a risk assessment for a specific situation. It needlessly commits the individual, team, or crew to an unsafe course of action. These violations may have leadership acceptance and may not routinely result in disciplinary or administrative action. Habitual violations of a single

individual or small group of individuals within a unit can constitute a routine or widespread violation if the violation was not routinely disciplined or was condoned by supervisors. These violations may also be referred to as "Routine Violations."

(3) AV003 Extreme Violation (e.g., a violation not condoned by management). Extreme violation is a factor when an individual, crew or team intentionally violates procedures or policies without cause or need. These violations are unusual or isolated to specific individuals rather than larger groups. There is no evidence of these violations being condoned by leadership. These violations may also be referred to as "exceptional violations."

2. Preconditions. Preconditions are factors in a mishap if active or latent preconditions such as conditions of the operators, environmental or personnel factors affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

a. Environmental Factors (PExxx). Environmental factors are factors in a mishap if physical or technological factors affect practices, conditions and actions of individual and result in human error or an unsafe situation.

(1) Physical Environment (PElxx). Physical environment factors are present when the environment such as weather, climate, brownout dust or sand storm) or whiteout (snow storm) affect the actions of the individual.

(a) PE101 Ice or Fog on Window Restricts Vision. Ice or fog on window restricts vision is a factor when it is determined by the investigator that icing or fogging of the windshield windscreen or canopy restricted the vision of the individual to a point where normal duties were affected.

(b) PE102 Weather Conditions Restrict Vision. Weather conditions restrict vision is a factor when weather, haze, or darkness restricted the vision of the individual to a point where normal duties were affected.

(c) PE103 Vibrations Affect Vision or Balance. Vibrations affect vision or balance is a factor when the

intensity or duration of the vibration is sufficient to cause impairment of vision or adversely affect the perception of orientation.

(d) PE104 Dust or Smoke in Workspace Restricts Vision. Dust or smoke in workspace restricts vision is a factor when dust, smoke, etc., inside the cockpit, vehicle or workstation restricted the vision of the individual to a point where normal duties were affected.

(e) PE105 Windblast in Workspace Restricts Vision. Windblast in workspace restricts vision is a factor when the individual's ability to perform required duties is degraded during or after exposure to a windblast situation.

(f) PE106 Cold Stress. Cold stress is a factor when the individual is exposed to cold resulting in compromised function.

(g) PE107 Heat Stress. Heat stress is a factor when the individual is exposed to heat resulting in compromised function.

(h) PE108 Extreme Forces Limit an Individual's Movement. Extreme forces limit an individual's movement is a factor when acceleration forces of longer than one second cause injury, or prevent or interfere with the performance of normal duties. Do not use this code to capture GLOC.

(i) PE109 Lights of Other Vehicle or Aircraft Interfere with Performance. Lights of other vehicle or aircraft interfere with performance is a factor when the absence, pattern, intensity or location of the lighting of other aircraft or vehicle prevents or interferes with safe task accomplishment.

(j) PE110 Noise Interference. Noise interference is a factor when any sound not directly related to information needed for task accomplishment interferes with the individual's ability to perform that task.

(k) PE111 Whiteout (e.g., snow storm) or Brownout (e.g., sandstorm). Whiteout or brownout are factors when dust, snow, water, ash or other particulates in the environment are

disturbed by the aircraft, vehicle or person and cause a restriction of vision to a point where normal duties are affected.

(2) Technological Environment (PE2xx). Technological environment factors are present in a mishap when automation or the design of the workplace (e.g., cockpit, inside vehicle or control station) affects the actions of an individual.

(a) PE201 Seat and Restraint System Problems. Seat and restraint system problems are factors when the design of the seat or restraint system, the ejection system, seat comfort or poor impact protection qualities of the seat create an unsafe situation.

(b) PE202 Instrumentation and Warning Systems Problems. Instrumentation and warning systems problems are factors when instrument factors such as design, reliability, lighting, location, symbology or size are inadequate and create an unsafe situation. This includes NVDs, HUD, off-bore-site and helmet-mounted display systems and inadequacies in auditory or tactile situational awareness or warning systems such as aural voice warnings or stick shakers.

(c) PE203 Visibility Restrictions (not weather related). Visibility restrictions are factors when the lighting system, windshield, windscreen, canopy design, or other obstructions prevent necessary visibility and create an unsafe situation. This includes glare or reflections on the canopy, windscreen and windshield. Visibility restrictions due to weather or environmental conditions are captured under PE101 or PE102.

(d) PE204 Controls and Switches are Inadequate. Controls and switches are inadequate is a factor when the location, shape, size, design, reliability, lighting or other aspect of a control or switch is inadequate and this leads to an unsafe situation.

(e) PE205 Automated System Creates an Unsafe Situation. Automated system creates an unsafe situation is a factor when the design, function, reliability, guidance for use, symbology, logic or other aspect of automated systems creates an unsafe situation.

(f) PE206 Workspace Incompatible with Operation. Workspace incompatible with operation is a factor when the workspace is incompatible with the mission requirements and mission safety for the individual.

(g) PE207 Personal Equipment Interference. Personal equipment interference is a factor when the individual's personal equipment interferes with normal duties or safety.

(h) PE208 Communications Equipment Inadequate. Communications equipment inadequate is a factor when communications equipment is inadequate or unavailable to support mission demands (i.e., aircraft or vehicle with no intercom). This includes electronically or physically blocked transmissions. Communications can be voice, data or multi-sensory.

b. Personnel Factors (PPxxx). Personnel factors are factors in a mishap if self-imposed stressors or CRM affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

(1) Self-Imposed Stress (PP2xx). Self-imposed stress is present when an operator demonstrates disregard for rules and instructions that govern the individual's readiness to perform.

(a) PP201 Physical Fitness Level (inappropriate for mission demands). Physical fitness level is a factor when the relative physical state of the individual, in terms of a regular rigorous exercise program or a physically active lifestyle, is not adequate to support mission demands.

(b) PP202 Alcohol. Alcohol is a factor when the acute or residual effects of alcohol impaired performance or created an unsafe situation.

(c) PP203 Drugs, Over-the-Counter Medication and Supplements (not prescribed). Drugs, over-the-counter medication and supplements are factors when the individual takes any drug, other than prescribed, that interferes with performance. This includes nicotine or caffeine in sufficient quantities to cause impairment of normal function. This also includes any chemical compound taken for purposes of prevention

of disease, treatment of disease, weight management, mood alteration, birth control or sleep management, etc. The effects may be direct or residual. Alcohol is captured under PP202.

(d) PP204 Nutrition and Diet. Nutrition and diet are factors when the individual's nutritional state or poor dietary practices are inadequate to fuel the brain and body functions resulting in degraded performance

(e) PP205 Inadequate Rest (self-imposed). Inadequate rest (self-imposed) is a factor when the opportunity for rest was provided but the individual failed to take the opportunity to rest.

(f) PP206 Operating with Known Disqualifying Medical Condition. Operating with known disqualifying medical condition is a factor when the operator intentionally operates or flies with a known disqualifying medical condition and it results in an unsafe situation.

(2) Coordination, Communication and Planning Factors(PP1xx). Coordination, communication and planning Factors refer to interactions among individuals, crews, and teams involved with the preparation and execution of a mission that resulted in human error or an unsafe situation.

(a) PP101 Failure of Crew or Team Leadership. Failure of crew or team leadership is a factor when the crew or team leadership techniques failed to facilitate a proper crew climate, to include establishing and maintaining an accurate and shared understanding among all crew or team member of the evolving mission and plan.

(b) PP102 Failure to Cross-check or Back-up. Failure to cross-check or back-up is a factor when crew or team members failed to monitor, assist or back-up each other's actions and decisions.

(c) PP103 Inadequate Task Delegation. Inadequate task delegation is a factor when the crew or team members failed to actively manage the distribution of mission tasks to prevent the overloading of any crewmember.

(d) PP104 Rank or Position Intimidation. Rank or position intimidation is a factor when the differences in rank of the team, crew or flight caused the mission performance capabilities to be degraded. Also conditions where formal or informal authority gradient is too steep or too flat across a crew, team or flight and this condition degrades collective or individual performance.

(e) PP105 Lack of Assertiveness. Lack of assertiveness is a factor when individuals failed to state critical information or solutions with appropriate persistence.

(f) PP106 Critical Information Not Communicated. Critical information not communicated is a factor when known critical information was not provided to appropriate individuals in an accurate or timely manner.

(g) PP107 Standard or Proper Terminology Not Used. Standard or proper terminology not used is a factor when clear and concise terms, phrases, hand signals, etc., per service standards and training were not used.

(h) PP108 Failure to Ensure Communicated Intentions or Actions Were Understood and Followed. Failure to ensure communicated intentions or actions were understood and followed is a factor when communications did not include supportive feedback or acknowledgement to ensure that personnel correctly understand announcements or directives.

(i) PP109 Mission Planning Inadequate. Mission planning inadequate is a factor when an individual, crew or team failed to complete all preparatory tasks associated with planning the mission, resulting in an unsafe situation. Planning tasks include information collection and analysis, coordinating activities within the crew or team and with appropriate external agencies, contingency planning, and risk assessment.

(j) PP110 Mission Briefing Inadequate. Mission briefing inadequate is a factor when information and instructions provided to individuals, crews, or teams were insufficient, or participants failed to discuss contingencies and strategies to cope with contingencies.

(k) PP111 Failure to Re-assess Risk and Adjust to Changing Circumstances. Failure to re-assess risk and adjust to changing circumstances is a factor when crew or team members fail to adequately reassess changes in their dynamic environment during mission execution and change their mission plan accordingly to ensure adequate management of risk.

(l) PP112 Information is Misinterpreted or Disregarded. Information is misinterpreted or disregarded is a factor when correctly communicated information is misunderstood, misinterpreted, or disregarded.

c. Condition of Individuals (PCxxx). Condition of individuals are factors in a mishap if cognitive, psycho-behavioral, adverse physical state, or physical or mental limitations affect practices, conditions or actions of individuals and result in human error or an unsafe situation.

(1) Awareness (Cognitive) Factors (PClxx). Awareness factors are attention management or awareness failures that affect the perception or performance of individuals.

(a) PC101 Not Paying Attention. Not paying attention is a factor when the individual has a state of reduced conscious attention due to a sense of security, self-confidence, boredom or a perceived absence of threat from the environment which degrades crew performance. (This may often be a result of highly repetitive tasks. It may be a result of a lack of a state of alertness or readiness to process immediately available information.)

(b) PC102 Fixation ("channelized attention"). Fixation is a factor when the individual is focusing all conscious attention on a limited number of environmental cues to the exclusion of others of a subjectively equal, higher or more immediate priority, leading to an unsafe situation. This may be described as a tight focus of attention that leads to the exclusion of comprehensive situational information.

(c) PC103 Task Over-saturation (e.g., too much information to process). Task over-saturation is a factor when the quantity of information an individual must process exceeds their cognitive or mental resources in the amount of time available to process the information.

(d) PC104 Confusion. Confusion is a factor when the individual is unable to maintain a cohesive and orderly awareness of events and required actions and experiences a state characterized by bewilderment, lack of clear thinking, or (sometimes) perceptual disorientation.

(e) PC105 Negative Transfer (e.g., using old procedures for a new system). Negative transfer is a factor when the individual reverts to a highly learned behavior used in a previous system or situation and that response is inappropriate or degrades mission performance.

(f) PC106 Distraction. Distraction is a factor when the individual has an interruption of attention or inappropriate redirection of attention by an environmental cue or mental process that degrades performance.

(g) PC107 Geographically Lost. Geographically lost is a factor when the individual is at a latitude and or longitude different from where he believes he is or at a latitude or longitude unknown to the individual and this creates an unsafe situation.

(h) PC108 Interference or Interruption During Task. Interference or interruption during task is a factor when an individual is performing a highly automated or learned task and is distracted by another cue or event that results in the interruption and subsequent failure to complete the original task or results in skipping steps in the original task.

(2) Physical or Mental Limitations (PC4xx). Physical or mental limitations are factors in a mishap when an individual, temporarily or permanently, lacks the physical or mental capabilities to cope with a situation and this insufficiency causes an unsafe situation.

(a) PC401 Learning Rate Limitations. Learning rate limitations are factors when the individual's relative efficiency with which new information is acquired and relatively permanent adjustments made in behavior or thinking, are not consistent with mission demands.

(b) PC402 Memory Limitations. Memory limitations are factors when the individual is unable, or has lapses in the

ability, to recall past experience needed for safe mission completion. (Experience includes any information a person receives through any means, any cognitive functions he or she performed on that information, and any response he or she made as a result of it.)

(c) PC403 Body Size or Movement Limitations. Body size or movement limitations are factors when the size, strength, dexterity, mobility or other biomechanical limitations of an individual creates an unsafe situation. It must be expected that the average individual qualified for that duty position could accomplish the task in question.

(d) PC404 Coordination Deficiency. Coordination deficiency is a factor when the individual lacks the required psychomotor skills, coordination or timing skills necessary to accomplish the task attempted.

(e) PC405 Technical or Procedural Knowledge Not Retained After Training. Technical or procedural knowledge not retained after training is a factor when an individual was adequately exposed to the information needed to perform the mission element but did not absorb it. Lack of knowledge implies no deficiency in the training program, but rather the failure of the individual to absorb or retain the information. (Exposure to information at a point in the past does not imply "knowledge" of it.)

(3) Perceptual Factors (PC5xx). Perceptual factors involve degraded sensory inputs (visual, auditory, or vestibular) create a misperception of an object, threat, or situation.

(a) PC501 Motion Illusion. Motion illusion is a factor when somatosensory stimuli of the ligaments, muscles, or joints cause the individual to have an erroneous perception of orientation, motion or acceleration leading to degraded performance. (If this illusion leads to SD mark and rate PC508, PC509 or PC510.)

(b) PC502 Turning Illusion or Balance. Turning illusion or balance are factors when stimuli acting on the semicircular canals or otolith organs of the vestibular apparatus cause the individual to have an erroneous perception

of orientation, motion or acceleration leading to degraded performance. (If this illusion leads to SD mark and rate PC508, PC509 or PC510.)

(c) PC503 Visual Illusion. Visual illusion is a factor when visual stimuli result in an erroneous perception of orientation, motion or acceleration, leading to degraded performance. (If this illusion leads to SD mark and rate PC508, PC509 or PC510.)

(d) PC504 Misperception of Changing Environment. Misperception of changing environment is a factor when an individual misperceives or misjudges altitude, separation, speed, closure rate, road or sea conditions, aircraft or vehicle location within the performance envelope or other operational conditions and this leads to an unsafe situation.

(e) PC505 Misinterpreted or Misread Instrument. Misinterpreted or misread instrument is a factor when the individual is presented with a correct instrument reading but its significance is not recognized, it is misread or is misinterpreted.

(f) PC506 Inaccurate Expectation. Inaccurate expectation is a factor when the individual expects to perceive a certain reality and those expectations are strong enough to create a false perception of the expectation.

(g) PC507 Misinterpretation of Auditory Cues. Misinterpretation of auditory cues is a factor when the auditory inputs are correctly interpreted but are misleading or disorienting. Also when the inputs are incorrectly interpreted and cause an impairment of normal performance.

(h) PC508 SD Not Recognized. SD not recognized is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. SD unrecognized is a factor when a person's cognitive awareness of one or more of the following varies from reality: attitude, position and velocity, direction of motion or acceleration. Proper control inputs are not made because the need is unknown.

(i) PC509 SD Recognized. SD recognized is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. SD recognized is a factor when recognized perceptual confusion is induced through one or more of the following senses: visual, vestibular, auditory, tactile, proprioception or kinesthetic. Proper control inputs are still possible.

(j) PC510 SD Incapacitating. SD incapacitating is a failure to correctly sense a position, motion or attitude of the aircraft or of oneself within the fixed coordinate system provided by the surface of the earth and the gravitational vertical. SD incapacitating is a factor when an individual is unable to make proper control inputs for safe operation of the aircraft or system due to a conflict (often extreme) between the sensory systems identified in recognized SD.

(k) PC511 Time Distortion. Time distortion is a factor when the individual experiences a compression or expansion of time relative to reality leading to an unsafe situation. (This is often associated with a "fight or flight" response.)

(4) Psycho-Behavioral Factors (PC2xx). Psycho-behavioral factors are factors when an individual's personality traits, psychosocial problems, psychological disorders or inappropriate motivation creates an unsafe situation.

(a) PC201 Pre-Existing Personality Disorder. Pre-existing personality disorder is a factor when a qualified professional determines the individual met Diagnostic and Statistical Manual of Mental Disorders criteria for a personality disorder.

(b) PC202 Pre-Existing Psychological Disorder. Pre-existing psychological disorder is a factor when a qualified professional determines the individual met Diagnostic and Statistical Manual of Mental Disorders criteria for a psychological disorder.

(c) PC203 Pre-Existing Psychosocial Problem. Pre-existing psychosocial problem is a factor when a qualified

professional determines the individual met Diagnostic and Statistical Manual of Mental Disorders criteria for a psychosocial problem.

(d) PC204 Emotional State. Emotional state is a factor when the individual is under the influence of a strong positive or negative emotion and that emotion interferes with duties.

(e) PC205 Personality Style. Personality style is a factor when the individual's personal interaction with others creates an unsafe situation. Examples are authoritarian, over conservative, impulsive, invulnerable, submissive or other personality traits that result in degraded crew performance.

(f) PC206 Overconfidence. Overconfidence is a factor when the individual overvalues or overestimates personal capability, the capability of others or the capability of aircraft or vehicles or equipment and this creates an unsafe situation.

(g) PC207 Pressing (e.g., pushing self or equipment to hard). Pressing is a factor when the individual knowingly commits to a course of action that presses them and, or their equipment beyond reasonable limits.

(h) PC208 Complacency (e.g., absence of worry). Complacency is a factor when the individual's state of reduced conscious attention due to an attitude of overconfidence, under motivation or the sense that others "have the situation under control" leads to an unsafe situation.

(i) PC209 Not Enough Motivation. Not enough motivation is a factor when the individual's motivation to accomplish a task or mission is weak or indecisive.

(j) PC210 Misplaced Motivation. Misplaced motivation is a factor when an individual or unit replaces the primary goal of a mission with a personal goal.

(k) PC211 More Aggressive Than Necessary. More aggressive than necessary is a factor when an individual or crew is excessive in the manner in which they conduct a mission.

(l) PC212 Excessive Motivation to Succeed (e.g., do or die). Excessive motivation to succeed is a factor when the individual is preoccupied with success to the exclusion of other mission factors leading to an unsafe situation.

(m) PC213 Get-Home-Itis or Get-There-Itis. Get-home-itis or get-there-itis is a factor when an individual or crew is motivated to complete a mission or reach a destination for personal reasons, thereby short-cutting necessary procedures or exercising poor judgment, leading to an unsafe situation.

(n) PC214 Inappropriate Response Due to Expectation. Inappropriate response due to expectation is a factor when the individual has a cognitive or mental framework of expectations that predispose them to a certain course of action regardless of other cues.

(o) PC215 Motivational Exhaustion (Burnout). Motivational exhaustion (burnout) is a factor when the individual has the type of exhaustion associated with the wearing effects of high operations and personal tempo where their operational requirements impinge on their ability to satisfy their personal requirements and leads to degraded cognitive or operational capability.

(5) Adverse Physiological States (PC3xx). Adverse physiological states are medical or physiological conditions that can result in unsafe situations.

(a) PC301 Effects of Gravity (G) Forces (e.g., G-LOC). Effects of G forces are factors when the individual experiences G-LOC, grayout (almost loss of consciousness), or other neurocirculatory effects of sustained acceleration forces.

(b) PC302 Effects of Prescribed Drugs. Effects of prescribed drugs are factors when the individual uses a prescribed drug with measurable effect and it interferes with performance.

(c) PC303 Operational Injury or Illness. Operational injury or illness is a factor when an injury is sustained or illness develops from the operational environment or during the mission and this injury or illness results in an unsafe situation. This includes toxic exposure. Details of

injury, illness or toxic exposure should be captured in the medical investigation. Do not use this code to capture injury or illness that does not cause an unsafe situation or contribute to the mishap sequence.

(d) PC304 Sudden Incapacitation or Unconsciousness (not due to G). Sudden incapacitation or unconsciousness is a factor when the individual has an abrupt loss of functional capacity or conscious awareness not due to G.

(e) PC305 Pre-Existing Physical Illness or Injury. Pre-existing physical illness or injury is a factor when a physical illness, injury or deficit that existed at the time the individual boarded the aircraft or began the mission or task causes an unsafe situation. This includes situations where waived physical defects contribute to an unsafe situation and situations where vision deficit or loss of prosthetic devices during the mission causes an unsafe situation. An individual must board the aircraft or begin the mission or task with prior knowledge of illness, injury, or deficit; otherwise mark and rate PC303. Details of injury, illness or deficit should be captured in the medical investigation. Do not use this code to capture injury or illness that does not cause an unsafe situation or contribute to the mishap sequence (i.e., medical evacuation patient whose condition deteriorates during flight).

(f) PC306 Physical Overexertion. Physical overexertion is a factor when the individual's diminished physical capability is due to overuse (time and relative load) and it degrades task performance. (The effects of prolonged physical activity, or the effects of brief but relatively extreme physical activity, either of which taxes a person's physical endurance or strength beyond the individual's normal limits.)

(g) PC307 Fatigue (sleep deprivation). Fatigue is a factor when the individual's diminished physical or mental capability is due to an inadequate recovery, as a result of restricted or shortened sleep or physical or mental activity during prolonged wakefulness. Fatigue may additionally be described as acute, cumulative or chronic.

(h) PC308 Circadian Rhythm De-synchronization (e.g., jet lag or shift work). Circadian rhythm de-synchronization is

a factor when the individual's normal, 24-hour rhythmic biological cycle (circadian rhythm) is disturbed and it degrades task performance. This is caused typically by night work or rapid movement (such as one time zone per hour) across several time zones. Referred to as "shift lag" and "jet lag." (Time in the new time zone will lead to adaptation and recovery; the amount of time depends on the number of time zones crossed and the direction of travel. Recovery from shift lag may never occur.)

(i) PC309 Motion Sickness. Motion sickness is a factor when the symptoms of motion sickness impair normal performance. Motion sickness symptoms include nausea, sweating, flushing, vertigo, headache, stomach awareness, malaise, and vomiting.

(j) PC310 Trapped Gas Disorders. Trapped gas disorders are factors when gasses in the middle ear, sinuses, teeth, or intestinal tract expand or contract on ascent or descent causing an unsafe situation. Also capture alternobaric vertigo under this code. If the alternobaric vertigo induces SD must mark and rate PC508, PC509 or PC510.

(k) PC311 Evolved Gas Disorders (e.g., decompression sickness or bends). Evolved gas disorders are factors when inert-gas evolves in the blood causing an unsafe situation. This includes chokes, central nervous system, bends, parasthesia or other conditions caused by inert-gas evolution.

(l) PC312 Reduced Oxygen (hypoxia). Reduced oxygen is a factor when the individual has insufficient oxygen supply to the body significant enough to cause an impairment of function.

(m) PC313 Hyperventilation (rapid breathing). Hyperventilation is a factor when the effect of ventilating above the physiological demands of the body causes the individual's performance capabilities to be degraded.

(n) PC314 Inadequate Adaptation to Darkness. Inadequate adaptation to darkness is a factor when the normal human limitation of dark-adaptation rate affects safety, for example, when transitioning between aided and unaided night vision.

(o) PC315 Dehydration. Dehydration is a factor when the performance of the operator is degraded due to dehydration as a result of excessive fluid losses due to heat stress or due to insufficient fluid intake.

(p) PC316 Physical Task Over-saturation. Physical task over-saturation is a factor when the number or complexity of manual tasks in a compressed time period exceeds an individual's capacity to perform.

3. Supervision. Supervision is a factor in a mishap if the methods, decisions or policies of the supervisory chain of command directly affect practices, conditions, or actions of individuals and result in human error or an unsafe situation.

a. Inadequate Supervision (SIxxx). Inadequate supervision is a factor in a mishap when department-level or command level supervision proves inappropriate or improper and or fails to identify hazards, control risk, provide guidance, training and or oversight and results in human error or an unsafe situation.

(1) SI001 Command Oversight Inadequate. Command oversight inadequate is a factor when the availability, competency, quality or timeliness of leadership, supervision or oversight does not meet task demands and creates an unsafe situation. Inappropriate supervisory pressures are also captured under this code.

(2) SI002 Failed to Ensure Proper Role-Modeling. Failed to ensure proper role-modeling is a factor when the individual's learning is influenced by the behavior of peers and supervisors and when that learning manifests itself in actions that are either inappropriate to the individual's skill level or violate standard procedures and leads to an unsafe situation.

(3) SI003 Failed to Provide Proper Training. Failed to provide proper training is a factor when one time or recurrent training programs, upgrade programs, transition programs or any other local training is inadequate or unavailable (etc.) and this creates an unsafe situation. (Note: the failure of an individual to absorb the training material in an adequate training program does not indicate a training program problem. Capture these factors under PC401 "Learning Rate Limitations" or PC405 "Technical or Procedural Knowledge." The failure of an

individual to recall learned information under stress or while fatigued despite attending an adequate training program does not indicate a training program problem. Capture these factors under PC402 "Memory Limitations" or other cognitive factors such as PC104 "Confusion," PC106 "Distraction," PC105 "Negative Transfer," etc.)

(4) SI004 Failed to Provide Appropriate Policy or Guidance. Failed to provide appropriate policy or guidance is a factor when policy or guidance, or lack of a policy or guidance, leads to an unsafe situation.

(5) SI005 Personality Conflict with Supervisor. Personality conflict with supervisor is a factor when a supervisor and individual member experience a "personality conflict" that leads to a dangerous error in judgment or action.

(6) SI006 Lack of Supervisory Responses to Critical Information. Lack of supervisory responses to critical information is a factor when information critical to a potential safety issue had been provided to supervisory or management personnel without feedback to the source (failure to close the loop).

b. Failure to Correct a Known Problem (SFxxx). Failure to correct a known problem is a factor when supervision fails to correct known deficiencies in documents, processes or procedures, or fails to correct inappropriate or unsafe actions of individuals, and this lack of supervisory action creates an unsafe situation.

(1) SF001 Failed to Identify and Correct Risky Behavior. Failed to identify and correct risky behavior is a factor when a supervisor fails to identify an operator or aviator who exhibits recognizable risky behaviors or unsafe tendencies or fails to institute remedial actions when an individual is identified with risky behaviors or unsafe tendencies.

(2) SF002 Failed to Correct Unsafe Practices. Failed to correct unsafe practices is a factor when a supervisor fails to correct known hazardous practices, conditions or guidance that allows for hazardous practices within the scope of his or her command.

c. Planned Inappropriate Operations (SPxxx). Planned inappropriate operations is a factor in a mishap when supervision fails to adequately plan or assess the hazards associated with an operation and allows for unnecessary risk.

(1) SP001 Directed Mission Beyond Personnel or Equipment Capabilities. Directed mission beyond personnel or equipment capabilities are factors when supervisor or management directs personnel to undertake a mission beyond their skill level or beyond the capabilities of their equipment.

(2) SP002 Personnel Mismatch. Personnel mismatch is a factor when, in the opinion of the investigator, the makeup of the crew or of the flight should have reasonably raised obvious safety concerns in the minds of crewmembers involved in the mission, or in any other individual directly related to the scheduling of this mission.

(3) SP003 Selected Individual with Lack of Recent Experience. Selected individual with lack of recent experience is a factor when the supervisor selects an individual whose experience for a specific maneuver, event or scenario is not sufficiently current to permit safe mission execution.

(4) SP004 Selected Individual with Limited Overall Experience. Selected individual with limited overall experience is a factor when a supervisor selects an individual who has performed a maneuver, or participated in a specific scenario infrequently or rarely.

(5) SP005 Selected Individual with Lack Proficiency. Selected individual with lack proficiency is a factor when an individual is not proficient in a task, mission or event.

(6) SP006 Performed Inadequate Risk Assessment. Performed inadequate risk assessment is a factor when supervision does not adequately evaluate the risks associated with a mission or when pre-mission risk assessment tools or risk assessment programs are inadequate.

(7) SP007 Authorized Unnecessary Hazard. Authorized unnecessary hazard is a factor when supervision authorizes a mission or mission element that is unnecessarily hazardous

without sufficient cause or need. This includes intentionally scheduling personnel for mission or operation that they are not qualified to perform.

d. Supervisory Violations (SVxxx). Supervisory violations are factors in a mishap when supervision willfully disregards instructions or policies, creating the unsafe situation.

(1) SV001 Failed to Enforce Existing Rules. Failed to enforce existing rules is a factor when unit (organizational) and operating rules have not been enforced by the normally constituted authority.

(2) SV002 Allowing Unwritten Policies to Become Standard. Allowing unwritten policies to become standard is a factor when unwritten or "unofficial" policy perceived and followed by the individual, which has not been formally established by the properly constituted authority, leads to an unsafe situation.

(3) SV003 Directed Individual to Violate Existing Regulation. Directed individual to violate existing regulation is a factor when a supervisor directs a subordinate to violate existing regulations, instructions or technical guidance.

(4) SV004 Authorized Unqualified Individuals for Mission. Currency authorized unqualified individuals for mission a factors when an individual has not met the general training requirements for his or her job and weapon system and is considered "non-current," and supervision or leadership inappropriately allows the individual to perform the mission element for which the individual is non-current.

4. Organizational Influence. Organizational influence is a factor in a mishap if the communications, actions, omissions or policies of upper-level management directly or indirectly affect supervisory practices, conditions or actions of the operator(s) and result in system failure, human error or an unsafe situation.

a. Resource and Acquisition Management (ORxxx). Resource and acquisition management is a factor in mishaps when processes or policies influence system safety, result in poor error management or creates an unsafe situation.

(1) OR001 ATC Resources are Deficient. ATC resources are deficient is a factor when inadequate monitoring of airspace, en route navigation aids or language barriers in air traffic controllers cause an unsafe situation. Note: If the unsafe acts of an individual air traffic controller are determined to be a factor in a mishap, then the controller must be added and investigated as a mishap person.

(2) OR002 Airfield Resources are Deficient. Airfield resources are deficient is a factor when runways, taxiways, ramps, terminal ATC resources or navigational aids, lighting systems, operational support facilities, reserve support unit resources or the environment surrounding the airfield are inadequate or unsafe. If the airfield or environment created a visual illusion that contributed to the mishap sequence must also mark and rate PC503 "Illusion - Visual."

(3) OR003 Operational Support Facilities or Equipment is Deficient. Operational support facilities or equipment are deficient is a factor when support facilities (dining, exercise, quarters, medical care, etc.) or opportunity for recreation or rest are not available or adequate and this creates an unsafe situation. This includes situations where leave is not taken for reasons other than the individual's choice.

(4) OR004 Purchasing or Providing Poorly Designed or Unsuitable Equipment. Purchasing or providing poorly designed or unsuitable equipment is a factor when the processes through which aircraft, vehicle, equipment or logistical support are acquired allows inadequacies or when design deficiencies allow inadequacies in the acquisition and the inadequacies create an unsafe situation.

(5) OR005 Failure to Remove Inadequate or Worn-out Equipment in a Timely Manner. Failure to remove inadequate or worn-out equipment in a timely manner is a factor when the process through which equipment is removed from service is inadequate and this inadequacy creates an unsafe situation.

(6) OR006 Personnel Recruiting and Selection Policies are Inadequate. Personnel recruiting and selection policies are inadequate is a factor when the process through which individuals are screened, brought into the service or placed into specialties is inadequate and creates an unsafe situation.

(7) OR007 Failure to Provide Adequate Manning or Staffing Resources. Personnel resources failure to provide adequate manning or staffing resources is a factor when the process through which manning, staffing or personnel placement or manning resource allocations are inadequate for mission demands and the inadequacy causes an unsafe situation.

(8) OR008 Failure to Provide Adequate Operational Informational Resources. Failure to provide adequate operational informational resources is a factor when weather, intelligence, operational planning material or other information necessary for safe operations planning is not available.

(9) OR009 Failure to Provide Adequate Funding. Failure to provide adequate funding is a factor when an organization or operation does not receive the financial resources to complete its assigned mission and this deficiency creates an unsafe situation.

b. Organizational Climate (OCxxx). Organizational climate is a factor in mishap where the working atmosphere within the organization influences individual actions resulting in human error (e.g., command structure, policies, and working environment).

(1) OC001 Organizational Culture (attitude or actions) Allows for Unsafe Mission Demand or Pressure. Organizational culture (attitude or actions) allows for unsafe mission demand and pressure is a factor when explicit or implicit actions, statements or attitudes of unit leadership set unit or organizational values (culture) that allow an environment where unsafe mission demands or pressures exist.

(2) OC002 Inappropriate Perception of Promotion or Evaluation Procedures Lead to an Unsafe Act. Inappropriate perception of promotion or evaluation procedures lead to an unsafe act is a factor when an individual perceives that their performance on a task will inappropriately impact an evaluation, promotion or opportunity for upgrade and this pressure creates an unsafe situation. Other inappropriate supervisory pressures are captured under SI001 supervision inadequate.

(3) OC003 Organizational Over-Confidence or Under-Confidence In Equipment. Organizational over-confidence or under-confidence in equipment is a factor when over or under confidence in an aircraft, vehicle, device, system or any other equipment creates an unsafe situation.

(4) OC004 Impending Unit Deactivation or Mission and Equipment Change Leads to Unsafe Situation. Impending unit deactivation or mission and equipment change leads to unsafe situation is a factor when the process of changing a mission aircraft vehicle equipment or an impending unit deactivation creates an unsafe situation.

(5) OC005 Organizational Structure is Unclear or Inadequate. Organizational structure is unclear or inadequate is a factor when the chain of command of an individual or structure of an organization is confusing, non-standard or inadequate and this creates an unsafe situation.

c. Organizational Processes (OPxxx). Organizational processes are a factor in a mishap if these processes negatively influence performance and result in an unsafe situation.

(1) OP001 Pace of Ops-tempo or Workload Creates Unsafe Situation. Pace of ops-tempo or workload creates unsafe situation is a factor when the pace of deployments, workload, additional duties, off-duty education, PME, or other workload-inducing condition of an individual or unit creates an unsafe situation.

(2) OP002 Organizational Program or Policy Risks not Adequately Assessed, Leading to an Unsafe Situation. Organizational program or policy risks not adequately assessed, leading to an unsafe situation is a factor when the potential risks of a large program, operation, acquisition or process are not adequately assessed and this inadequacy leads to an unsafe situation.

(3) OP003 Provided Inadequate Procedural Guidance or Publications. Provided inadequate procedural guidance or publications is a factor when written direction, checklists, graphic depictions, tables, charts or other published guidance is inadequate, misleading or inappropriate and this creates an unsafe situation.

(4) OP004 Organizational (formal) Training is Inadequate or Unavailable. Organizational (formal) training is inadequate or unavailable is a factor when one-time or initial training programs, upgrade programs, transition programs or other training that is conducted outside the local unit is inadequate or unavailable (etc.) and this creates an unsafe situation. (Note: the failure of an individual to absorb the training material in an adequate training program does not indicate a training program problem. Capture these factors under PC401 "Learning Rate Limitations" or PC405 "Technical or Procedural Knowledge." The failure of an individual to recall learned information under stress or while fatigued despite attending an adequate training program does not indicate a training program problem. Capture these factors under PC402 "Memory Limitations" or other cognitive factors such as PC104 "Confusion," PC106 "Distraction," PC105 "Negative Transfer" or one of the forms of "Fatigue," etc.)

(5) OP005 Flawed Doctrine and Philosophy Leads to Unnecessary Risks. Flawed doctrine and philosophy leads to unnecessary risks is a factor when the doctrine, philosophy or concept of operations in an organization is flawed or accepts unnecessary risk and this flaw or risk acceptance leads to an unsafe situation or uncontrolled hazard.

(6) OP006 Inadequate Program Management Leads to Unsafe Situation. Inadequate program management leads to unsafe situation is a factor when programs are implemented without sufficient support, oversight or planning and this leads to an unsafe situation.