

# Naval Audit Service



## Audit Report



# Prioritization and Selection Process of Department of the Navy Aviation and Operational Safety Concerns

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**N2013-0001**  
**12 October 2012**

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MEMORANDUM FOR DIRECTOR, OFFICE OF THE CHIEF OF NAVAL  
 OPERATIONS, AIR WARFARE DIVISION  
 PROGRAM MANAGER, PROGRAM MANAGER AIR 265

Subj: **PRIORITIZATION AND SELECTION PROCESS OF DEPARTMENT OF THE NAVY AVIATION AND OPERATIONAL SAFETY CONCERNS (AUDIT REPORT N2013-0001)**

Ref: (a) NAVAUDSVC memo N2011-NIA000-0047.000, dated 8 Sep 11  
 (b) SECNAV Instruction 7510.7F, "Department of the Navy Internal Audit"

1. The report provides results of the subject audit announced in reference (a). Section A of this report provides our finding and recommendations, summarized management responses, and our comments on the responses. Section B provides the status of the recommendations. The full text of management responses is included in the Appendices.
2. The table below notes the status by action command for each recommendation. All of the recommendations are considered open. The findings provide additional details on the responses, and Section B provides the target completion dates for each recommendation.

Command	Finding No.	Recommendation No.	Status
Director, Office of the Chief of Naval Operations, Air Warfare Division	1	1-4	O
Program Manager, Program Manager Air 265	1	5	O

3. Open recommendations are subject to monitoring in accordance with reference (b). Management should provide a written status report on the recommendations within 30 days after target completion dates. Please provide all correspondence to the Assistant Auditor General for Installations and Environment Audits, XXXXXXXXXXXX, by e-mail at XXXXXXXXXXXXXXXXXXXX, with a copy to the Director, Policy and Oversight, XXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX. Please submit correspondence in electronic format (Microsoft Word or Adobe Acrobat file), and ensure that it is on letterhead and includes a scanned signature.

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4. Any requests for this report under the Freedom of Information Act must be approved by the Auditor General of the Navy as required by reference (b). This audit report is also subject to followup in accordance with reference (b).

5. We appreciate the cooperation and courtesies extended to our auditors.



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# Executive Summary

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## Overview

A Secretary of Defense memorandum, dated June 2006, provides guidance to all agencies to fund, as a first priority, those technologies and devices that will save lives and equipment. It adds that all agencies will retrofit existing systems, and consider these devices as a “must fund” priority for all new systems.

In reference to this guidance, in September 2009, the Office of the Chief of Naval Operations (OPNAV) issued Instruction 13210.1A, “Naval Aviation Policy for Aircraft Safety Systems Avionics.” The instruction requires the Department of the Navy (DON) to install, on all aircraft, the following four safety capabilities: Controlled Flight Into Terrain (CFIT) Avoidance, Crash Survivable Recorder (CSR), Airborne Collision Avoidance System (ACAS), and Military Flight Operations Quality Assurance (MFOQA). The instruction also sets forth other requirements in regards to funding and implementing the capabilities, as well as tracking the status of compliance with the capabilities (see Exhibit A for additional background on the safety requirements, and Exhibit B for additional information regarding the audit’s scope and methodology). Despite the requirements set forth in this instruction, the installations of these capabilities have had to compete with other demands to ensure mission readiness.

For our audit, the Naval Audit Service judgmentally selected 27 Type/Model/Series (T/M/S)<sup>1</sup> of aircraft to verify that DON had an effective process in place to fund, implement, and track the four required safety capabilities that are outlined in OPNAV Instruction 13210.1A. The selected T/M/S consisted of 2,806 aircraft and 13 Program Manager Airs (PMAs).<sup>2</sup> We based the audit report on the results identified within this judgmental sample, and did not make any projections to the entire population of DON aircraft. The conditions discussed in this report were present for the period of our review from 21 September 2011 to 28 August 2012.

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<sup>1</sup> The universe, as of 3 October 2011, consisted of 114 Type/Model/Series (T/M/S), including 3,925 aircraft and 17 Program Manager Airs (PMAs).

<sup>2</sup> PMAs manage the cradle to grave procurement, development, support, fielding and disposal of specific T/M/S. PMAs are also commonly referred to as Program Management Activities or Offices.

## Reason for Audit

The objective of our audit was to verify that DON had an effective process in place to fund, implement, and track required avionic safety systems and capabilities on DON aircraft.

The former Deputy Assistant Secretary of the Navy for Safety (DASN (Safety)) identified this audit topic as a top concern for his office. DASN (Safety) noted that top safety issues are normally facilitated through the platform working groups, but appear to have become a lower priority issue than operational and warfighting issues. Specific concerns included DON's compliance with OPNAV Instruction 13210.1A, "Naval Aviation Policy for Aircraft Safety Systems Avionics," dated 3 September 2009, and whether there were sufficient controls and oversight over the requirements set forth in the instruction.

## Noteworthy Accomplishments

During the course of the audit, the Office of the Chief of Naval Operations, Air Warfare Division (OPNAV N98)<sup>3</sup> continually worked towards publishing the first formal Safety Systems Avionics Compliance Matrix,<sup>4</sup> which was dated 30 April 2012. The second formal publication of the matrix was signed out on 31 July 2012, which fell within the quarterly timeframe requirement established within OPNAV Instruction 13210.1A.

Additionally, OPNAV N98 took immediate action to correct inaccuracies within the Safety Compliance Matrix, dated September 2011. During the audit, we identified 11 inaccuracies. Between the April 2012 and July 2012 matrices, 10 of the 11 inaccuracies had been correctly updated.

## Conclusions

We found that DON had an established process for selecting and prioritizing avionic safety systems and capabilities; however, we found opportunities for improvement. Specifically, we found that DON did not always fully fund, implement, and track the four required safety capabilities established in OPNAV Instruction 13210.1A. These conditions occurred because sufficient controls and oversight were not in place to ensure that DON fully funded and implemented the four required safety capabilities, and adequately tracked the compliance status of the required safety capabilities. During our

<sup>3</sup> Subsequent to the start of the audit, OPNAV experienced a reorganization, and the Air Warfare Division was renamed to N98, vice N88.

<sup>4</sup> Hereafter referred to as the Safety Compliance Matrix.

audit, we identified six mishaps (from Fiscal Years 2007-2011) that had a direct reference<sup>5</sup> to one of the four required safety capabilities. The six mishaps resulted in 17 fatalities with an estimated cost of \$315 million.<sup>6</sup> In the auditors' professional opinion, as a result of not fully funding the four required safety capabilities, preventable mishaps and hazards that adversely affect asset availability may continue to occur. Additionally, inaccurate and inconsistent tracking of these required safety capabilities may hinder DON's ability to establish budget priorities and monitor at-risk aircraft.

**Communication with Management.** Throughout the audit, we kept OPNAV Air Warfare Division (N98), Naval Air Systems Command (NAVAIR) Program Manager Air (PMA) 209, and other key customers and stakeholders informed of the conditions noted in this report. Specifically, on 9 March 2012, while we were still on-site at Naval Station Norfolk, we met with the Naval Safety Center's Director of Aviation Safety and informed him of the results of our mishap and hazard analysis. We met to provide courtesy briefs on the results of the audit with: the Director of Aviation and Operational Safety, within the DASN (Safety) office on 21 March 2012; the Director of the United States Marine Corps Safety Division on 16 April 2012; and the Program Manager of PMA 209 on 13 June 2012.

Further, on 22 June 2012, we informed the Section Head of Logistics and Readiness Air Warfare Division, OPNAV N98, of the audit results and recommendations because his office was the main action command. On 28 June 2012, we briefed the DASN (Safety) on all of the audit results, and we presented the same details to NAVAIR's Deputy Assistant Commander for Research and Engineering on 17 July 2012. On 18 July 2012, we followed up with OPNAV N98 and PMA 209 in regards to the final recommendations, and reached out to the Program Manager of PMA 265 to discuss the last recommendation. Lastly, on 9 August 2012, the Assistant Auditor General of Installations and Environment met with the Deputy Director, Air Warfare Division to discuss the audit results and recommendations.

## Federal Managers' Financial Integrity Act

The Federal Managers' Financial Integrity Act of 1982, as codified in Title 31, United States Code, requires each Federal agency head to annually certify the effectiveness of the agency's internal and accounting system controls. Recommendations 1-5 address weaknesses regarding the oversight and internal controls of the processes to fund, implement, and track the four required safety capabilities. In our opinion, the weaknesses

<sup>5</sup> "Direct reference" means that the mishap or hazard report stated (within a casual factor, recommendation, or Commander Comment) that one of the four capabilities may have prevented the accident from occurring, or could be used as a tool to prevent future mishaps from occurring. All auditor subjectivity was removed from the mishap and hazard analysis.

<sup>6</sup> The total estimated cost, provided by Naval Safety Center, consists of the cost of the aircraft destroyed, injury costs, Department of Defense property costs, and any repair costs associated with the six mishaps.

noted in this report may warrant reporting in the Auditor General's annual Federal Managers' Financial Integrity Act memorandum identifying management control weaknesses to the Secretary of the Navy.

## **Corrective Actions**

To improve upon the processes already in place to fund, implement, and track the four required safety capabilities outlined in Office of the Chief of Naval Operations (OPNAV) Instruction 13210.1A, we recommend that Director, Office of the Chief of Naval Operations, Air Warfare Division (OPNAV N98) strengthen controls and oversight to ensure that: the safety capabilities are considered for funding as a first priority for all Department of the Navy (DON) aircraft; the status of compliance with the safety capabilities are sufficiently and accurately monitored and maintained; and the Safety Compliance Matrix is published on a quarterly basis.

The Director, Office of the Chief of Naval Operations, Air Warfare Division responded to and concurred with the recommendations. The planned corrective actions meet the intent of the recommendations, which are considered open pending completion of those actions.

To accurately track compliance with the instruction, we recommend that Program Manager Air 265 strengthen controls and oversight to ensure that documentation in support of the implementation and installation of required safety capabilities is properly maintained.

The Program Manager, Program Manager Air 265 responded to and concurred with the recommendations. The planned corrective actions meet the intent of the recommendations, which are considered open pending completion of those actions.

## Section A:

# Finding, Recommendations, and Corrective Actions

## Finding: Process to Fund, Implement, and Track Required Safety Capabilities

### Synopsis

The Department of the Navy (DON) had an established process for selecting and prioritizing avionic safety systems and capabilities; however, we found opportunities for improvement. For the 27 Type/Model/Series (T/M/S) of aircraft reviewed, we found that DON did not always fully fund, implement, and track the four avionic safety systems and capabilities required by Office of the Chief of Naval Operations (OPNAV) Instruction 13210.1A. Specifically, we found that:

- The four required safety capabilities were not always fully funded as a first priority;
- The status of compliance with the four required safety capabilities was not adequately and accurately monitored and maintained on a platform-by-platform basis;
- The OPNAV Safety Compliance Matrix was not published on a quarterly basis; and
- Noncompliance waivers were not submitted for the audited T/M/S to request exception from the instruction.

These conditions occurred because sufficient controls and oversight were not in place to ensure that DON: (1) fully funded and implemented the four required safety capabilities, and (2) adequately tracked the compliance status of the required safety capabilities. During our audit, we identified six mishaps (from Fiscal Years (FYs) 2007-2011) that had a direct reference to one of the four required safety capabilities. These six mishaps resulted in an estimated cost of \$315 million. In the auditors' professional opinion, if the four required safety capabilities are not fully funded, as a first priority, preventable mishaps and hazards that adversely affect asset availability may continue to occur. Inaccurate and inconsistent tracking of these required safety capabilities may also hinder DON's ability to establish budget priorities and monitor at-risk aircraft.

## Discussion of Details

### Background

In September 2009, OPNAV issued Instruction 13210.1A, “Naval Aviation Policy for Aircraft Safety Systems Avionics.” The instruction requires all DON aircraft to be installed with the following four safety capabilities: Controlled Flight Into Terrain (CFIT) Avoidance, Crash Survivable Recorder (CSR), Airborne Collision Avoidance System (ACAS), and Military Flight Operations Quality Assurance (MFOQA). The instruction also sets forth other requirements regarding funding and implementing the capabilities, as well as tracking the status of compliance with the required capabilities. As referenced in the instruction, compliance is to be tracked with a matrix that can be used for establishing budget priorities.

For more background information, see Exhibit A. For Pertinent Guidance, see Exhibit C.

### Audit Results

DON had an established process for selecting and prioritizing avionic safety systems and capabilities; however, we found opportunities for improvement. Specifically, we found that DON did not always fully fund, implement, and track the four required avionic safety capabilities required by OPNAV Instruction 13210.1A. See Exhibit D for details regarding the prioritization and selection process, including the key players within that process.

In order to scope the audit, we obtained the DON aircraft active inventory as of 3 October 2011 and the current version of the Safety Compliance Matrix as of September 2011. Due to the diversity of the underlying sample elements, and thus the limitations of any statistical projections, we chose to perform a judgmental sample. We judgmentally selected 27 of the Type/Model/Series (T/M/S) identified within the active inventory and/or Safety Compliance Matrix for review. The selected T/M/S consisted of 2,806 aircraft, and fell under 13 Naval Air Systems Command (NAVAIR) Program Manager Airs (PMAs).

To verify whether DON had an effective process in place to fund, implement, and track required safety systems/capabilities on the judgmentally selected aircraft, we interviewed personnel with management and decisional responsibility. We conducted meetings with various representatives from OPNAV, Air Warfare Division (N98); NAVAIR PMAs; Naval Safety Center; Commander, Naval Air Forces (Force Safety); and Commander, Naval Air Forces, Atlantic (Common Avionics) to understand the oversight procedures

and internal controls associated with the safety avionics prioritization and selection process.

To determine the effects of not fully funding the four required safety capabilities, we judgmentally selected and reviewed FY 2007-2011 Mishap and Hazard Reports. In total, we looked at 61 mishap reports and 241 hazard reports. We reviewed the detail report for each mishap and hazard, including all listed causal factors and recommendations, and extracted all reports that had a direct reference (Command or Naval Safety Center stated causal factor and/or recommendation) to one of the four safety capabilities required in OPNAV Instruction 13210.1A. The audit team calculated the cost of aircraft destroyed, and fatalities and/or injuries for all incidents that had a direct reference to one of the four safety capabilities.

To determine the visibility of the four required safety capabilities, we reviewed aviation priority rankings throughout all phases of the prioritization and selection process, including those rankings provided by: platform System Safety Working Groups, Enabler Naval Aviation Requirements Groups (ENARGs), platform Naval Aviation Requirements Groups (NARGs)/Operational Advisory Groups (OAGs), Type Commander Priority Panel, and the Council of Colonels. The priority rankings reviewed ranged from FY 2008 to FY 2011. We also reviewed issue sheets submitted during Program Objective Memorandum (POM) development from FY 2004 to FY 2011.

Additionally, to determine the accuracy of the Safety Compliance Matrix, we obtained documentation to support whether the four capabilities were either: (1) installed within a T/M/S (color-coded green on the matrix); (2) not installed within a T/M/S (color-coded red on the matrix); or (3) in development for a particular T/M/S (color-coded yellow on the matrix). For capabilities color-coded green, we determined whether the capability existed by reviewing detail specifications provided by the aircraft's manufacturer, reviewing Naval Air Training and Operating Procedures Standardization manuals, and/or reviewing technical directives with associated compliance reports obtained from the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation system. For capabilities color-coded red, we requested the corresponding Non-Compliance Waiver. And for capabilities color-coded yellow, we reviewed funding levels and program schedules to ensure that the capability was in the development process. For more information regarding our scope and methodology, see Exhibit B.

## **Funding and Implementation**

For the 27 T/M/S of aircraft reviewed, DON did not always fully fund and implement required avionic safety capabilities as required by OPNAV Instruction 13210.1A. Specifically, we found that the four required safety capabilities may not have always been funded as a first priority. The instruction defines the requirements for the following four safety capabilities, with specific criteria to meet compliance:

1. Controlled Flight Into Terrain (CFIT) Avoidance;
2. Crash Survivable Recorder (CSR);
3. Airborne Collision Avoidance System (ACAS); and
4. Military Flight Operations Quality Assurance (MFOQA).

In reference to these four capabilities, the instruction quotes a Secretary of Defense memorandum that states, “We will fund as a first priority those technologies and devices that will save lives and equipment. We will retrofit existing systems, and consider these devices as a “must fund” priority for all new systems.”

While it was understood that there were certain limitations to implementing the safety capabilities on all T/M/S, it was also understood that the existence of these requirements were established well before OPNAV Instruction 13210.1A, which was published on 3 September 2009. Prior to Instruction 13210.1A, the initial policy for aircraft safety systems was published via OPNAV Instruction 13210.1, dated 24 May 2007. The instruction separated aircraft into three categories (new and remanufactured, legacy transport, and all other), and had specific implementation guidance for each. The safety capabilities within Instruction 13210.1 included all four of the required safety capabilities contained within the updated Instruction 13210.1A.

Further, the “Naval Aviation Policy on Aircraft Safety Systems Avionics,” dated 9 November 1999, stipulated the Chief of Naval Operations (CNO) policy for acquisition and installation of a Ground Proximity Warning System (GPWS), a CFIT capability; a Collision Avoidance System, an ACAS capability; and a Crash Survivable Flight Incident Recorder, or CSR, on all Naval aircraft. Additionally, an Office of the Secretary of Defense (OSD) memorandum, dated 11 October 2005, directed all Department of Defense (DoD) components to implement a multi-faceted MFOQA capability. Subsequently, the Secretary of the Navy issued a similar memorandum (dated 2 February 2006) to the Commandant of the Marine Corps and the CNO supporting the MFOQA process.

However, despite the continual attention focused on the need to equip DON aircraft with safety systems, the majority of the T/M/S reviewed did not have any of the four required safety capabilities installed. As shown in Figure 1, 11 of the 27 T/M/S reviewed had zero of the four required safety capabilities installed. This represents approximately 28 percent (793 of 2,806) of the aircraft that fell within our review. This condition occurred because sufficient controls and oversight were not in place to ensure that DON fully funded and implemented the four required safety capabilities.

**Figure 1: Safety Capabilities Analysis**

Number of Safety Capabilities Installed on a Particular T/M/S	Number of T/M/S that had the Safety Capabilities Installed
0	11
1	6
2	8
3	2
4	0

We should note that some controls and oversight were evident within the common avionics prioritization and issue preparation process. See Exhibit D for a detailed discussion on that process. And, per discussions with OPNAV representatives, they stated that there were a number of programmatic, technological, and scheduling issues which impacted the ability to install capabilities in specific aircraft.

Even so, the four required safety capabilities were mandated requirements coming from the CNO,<sup>7</sup> and we identified instances where the capabilities were not always funded. For example, the Safety System Program for the MV-22 Osprey has acknowledged and identified mid-air collisions as a safety concern, with a Hazard Risk Index<sup>8</sup> of eight (classified as 1.D (Catastrophic, Remote)<sup>9</sup>). According to the Safety System Program, fleet hazard reports have documented at least 10 near-mid-air collisions thus far involving MV-22s. Further, the MV-22's OAG has ranked the need for a mid-air collision avoidance system as the number two priority each year for FYs 2009 to 2011. In addition, a POM issue sheet<sup>10</sup> was submitted as far back as FY 2005; however, funding was not secured at that time. The MV-22 currently does not have an airborne collision avoidance system as required by OPNAV Instruction 13210.1A.

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<sup>7</sup> Some PMAs viewed the four safety capabilities as mandated (top-down) requirements coming from the Chief of Naval Operations. Therefore, they understood them to already be a top priority at the OPNAV-level, whether they ranked them as one or not within their working groups. Additionally, as addressed in a Commander, Naval Air Forces Instruction, Community NARG representatives may be reluctant to sacrifice top platform-unique priority rankings for issues they believe might be represented in an ENARG (Common Avionics) list.

<sup>8</sup> A hazard risk index is a systematic method for assigning a hazard level to a failure event based on the severity and frequency of the event. It is used by management to determine acceptability of risk.

<sup>9</sup> "Catastrophic Remote" is classified as a "Serious" risk by NAVAIR on the System Safety Risk Assessment Matrix. The matrix has four different hazard risk categorizations – Low, Medium, Serious, and High.

<sup>10</sup> A POM issue sheet provides a detailed, comprehensive description of a proposed program, including a time-phased allocation of resources (forces, funding, and manpower) by program, projected six years into the future.

Additionally, the H-60 community has continued to rank ACAS as a top priority on a yearly basis (securing a number one or number two priority ranking for FYs 2009 to 2011); however, the H-60 has maintained its noncompliant status with the mid-air collision safety requirement.

Further, based on our review of mishap and hazard reports, we found that the required safety systems could potentially preserve and enhance combat capability. The House Armed Services Committee during the 2004 hearing for “Department of Defense Aviation Safety Initiatives,” said, “We want to improve aviation safety because aviation accidents erode the department’s warfighting capabilities by degrading readiness and reducing the number of aircraft readily available.”

In the auditors’ professional opinion, as a result of not fully funding the four required safety capabilities as a first priority, preventable mishaps and hazards that adversely affect asset availability may continue to occur. Specifically, 6 of the 61 Naval Safety Center mishap reports we reviewed had a direct reference to one of the four required safety capabilities. These mishaps were associated with 17 fatalities, 11 injuries, and 8 aircraft destroyed. The total cost of these mishaps was an estimated \$315 million. See Figure 2 for the details of each mishap. Highlighted within the chart is the priority rank placed on the associated capability, for a specific T/M/S, from year to year.<sup>11</sup> At the time these mishaps occurred, the T/M/S listed within the analysis did not have the stated capability installed on the aircraft.

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<sup>11</sup> The ranks included on the chart were based on the available supporting documentation provided during our audit. No priorities were identified in the chart for either the Type Commander or Council of Colonels, since none of the safety capabilities were ever provided or considered a top priority within the mishap and hazard analyses.

**Figure 2: Mishap Analysis**

	T/M/S	Capability <sup>1</sup>	Rank FY09	Rank FY10	Rank FY11	Fatalities	Injuries	A/C Destroyed	Total Cost of Mishap	Status <sup>2</sup>
1	MH-60S	CSR	ENARG #5	SSWG #2 ENARG #5	SSWG #4 NARG #7 ENARG #5	4	0	1	\$23,276,000	65 of 197 Compliant
2	MH-60S	CFIT	NARG #1 ENARG #5	SSWG #1 NARG #1 ENARG #5	SSWG #1 ENARG #5		9	1	\$19,707,922	150 of 197 Compliant
3	F/A-18E & F/A-18F	ACAS	SSWG (MAR) #5 SSWG (NOV) #26 ENARG #4 & #5	SSWG (MAR) #12 SSWG (JUL) #2 ENARG #2 & #5	SSWG #7 ENARG #2 & #5			2	\$159,408,230	0 of 430 Compliant
4	F/A-18E & F/A-18E	ACAS						0	\$846,022	0 of 195 Compliant
5	AH-1W & UH-1N	ACAS	OAG #2 ENARG #4 & #5	OAG #4 ENARG #2 & #5	SSWG #8 OAG #4 ENARG #2 & #5	4	2	2	\$35,390,756	0 of 186 Compliant
6	AH-1W & Coast Guard A/C	ACAS						9		2
						<b>17</b>	<b>11</b>	<b>8</b>	<b>\$314,978,930</b>	
<b>Notes:</b>										
<sup>1</sup> At the time that the mishaps occurred, the capability was not implemented on the specific T/M/S. Please see the "Status" column for an update on the capabilities installed after the mishaps occurred.										
<sup>2</sup> Status of compliance for the MH-60S is current as of March 2012. The remaining T/M/S' were identified to be non-compliant in November 2011.										
In reading the Naval Safety Center reports, an installed CSR could not have prevented this mishap and its associated cost, but may have been used as a tool to help prevent future mishaps/hazards from occurring.										
In reading the Naval Safety Center reports, an installed CFIT or ACAS system may have prevented these mishaps, and their associated costs, from occurring.										

Also, 22 of the 241 Naval Safety Center hazard reports we reviewed had a direct reference to one of the 4 required safety capabilities. While no deaths occurred, and no costs were incurred, these hazards<sup>12</sup> may lead to mishaps in the future if they are not properly addressed. See Figure 3 for the details of each hazard. Highlighted within the chart is the priority rank placed on the associated capability for a specific T/M/S from year to year.

<sup>12</sup> Per OPNAV Instruction 3750.6, "A hazard is a potential cause of damage or injury that is under human control. The goal of the Naval Aviation Safety Program is to identify and eliminate hazards before they result in mishaps."

**Figure 3: Hazard Analysis**

T/M/S	Capability	# of Hazards	Rank FY09	Rank FY10	Rank FY11	Current Status <sup>1</sup>
T-45C	ACAS	9	Platform #4 CNATRA NARG #5 ENARG #4 & #5	CNATRA NARG #4 & #11 CNATRA Advanced NARG #5 ENARG #2 & #5	Platform #2 CNATRA NARG #5 & #9 ENARG #2 & #5	0 of 166 Compliant
TH-57	ACAS	3	CNATRA NARG #5 ENARG #4 & #5	CNATRA NARG #11 ENARG #2 & #5	CNATRA NARG #5 & #9 ENARG #2 & #5	0 of 82 Compliant
T-34C	ACAS	2				230 of 230 Compliant (At the time of the hazard, NACWS was installed - hazard report stated that the system was outdated and unreliable)
P-3C	ACAS	2	ENARG #4 & #5	ENARG #2 & #5	ENARG #2 & #5	0 of 141 Compliant
MH-60S	ACAS	1	NARG #1 ENARG #4 & #5	SSWG #4 NARG #1 ENARG #2 & #5	SSWG #2 ENARG #2 & #5	0 of 197 Compliant
MV-22B	ACAS	3	OAG #2 ENARG #4 & #5	OAG #2 & #3 ENARG #2 & #5	OAG #2 ENARG #2 & #5	0 of 132 Compliant
MV-22B	CSR	2	ENARG #5	ENARG #5	ENARG #5	132 of 132 Compliant (At the time of the hazard, a CSR with a 7 minute recording capability was installed - OPNAVINST requires 30 minutes)
<b>Total Hazards</b>		<b>22</b>				
<b>Notes:</b>						
<sup>1</sup> Status of compliance for T34-C and MV-22B (CSR) is current as of April 2012. The remaining T/M/S were identified to be non-compliant in November 2011.						
In reading the Naval Safety Center reports, an installed ACAS system may have prevented these near misses from occurring.						
In reading the Naval Safety Center reports, an installed CSR could not have prevented this hazard, but may have been used as a tool to help prevent future hazards/mishaps from occurring.						

Additionally, attention is warranted regarding 16 hazard reports in which the commander's comments or the report narrative indicated that one of the four capabilities either prevented a catastrophic mishap (ACAS capability), or was used as a tool that may help to prevent future mishaps from occurring (MFOQA capability). These hazards are being highlighted to show that, as stated within the Naval Safety Center reports, the safety capabilities are valuable tools and have proven to save lives and equipment. Figure 4 depicts the specific aircraft involved in each hazard, and the associated capability that was used.

**Figure 4: Hazard Analysis with Capability Installed**

	<b>T/M/S Involved</b>	<b>Capability Used</b>
1	T-6A & T-34C	ACAS
2	T-34C & T-34C	ACAS
3	C-40A & KC-10	ACAS
4	C-9B & Civilian	ACAS
5	C-9B & Civilian	ACAS
6	C-2A & EA-6B (2)	ACAS
7	C-2A & FA-18	ACAS
8	T-34C & Civilian	ACAS
9	C-9B & Civilian	ACAS
10	C-40A & FA-18	ACAS
11	FA-18E	MFOQA
12	T-34C & T-6B	ACAS
13	T-6B & T-34C	ACAS
14	T-34C & T-6B	ACAS
15	C-40A & Civilian	ACAS
16	T-6B & F-15	ACAS

It was understood that there were certain limitations (i.e., technology) to implementing the safety capabilities on all T/M/S, and there were other priorities vying for the same funding. However, in the auditors’ opinion, without making funding a first priority and implementing these capabilities, DON is not fully realizing all of the benefits or potential return on its investments. As the Secretary of the Navy stated in his 2009 Safety Vision, “Safety must be designed into our weapon systems, platforms and processes upfront, during acquisition – not considered after the fact. In corporations and military organizations alike, investments in safety have shown great payback. We must aggressively fund safety research and implement proven safety technology.”

### **Tracking**

For the 27 T/M/S of aircraft reviewed, DON personnel did not always effectively track required avionic safety capabilities as required by OPNAV Instruction 13210.1A. Specifically, we found that:

- The status of compliance with the four required safety capabilities was not sufficiently monitored and maintained on a platform-by-platform basis;
- The Safety Compliance Matrix was not published on a quarterly basis; and

- Noncompliance waivers were not properly submitted to request exceptions from the instruction's requirements.

## **Monitoring and Maintaining Status of Compliance**

OPNAV personnel did not sufficiently and accurately monitor and maintain the status of compliance with the four required safety capabilities on a platform-by-platform basis, as required by OPNAV Instruction 13210.1A. This occurred because DON personnel did not establish sufficient controls over, and provide sufficient oversight throughout, the tracking process. Specifically, there were two areas that could be improved upon to strengthen controls and oversight, and ensure that the status of compliance with the capabilities is adequately monitored and maintained:

1. Collection and Verification of the Safety Compliance Data; and
2. Color-Coding of the Safety Compliance Matrix

### **Collection and Verification of the Safety Compliance Data**

At the time of the audit, there was no established collection and verification process for the safety compliance data, which was used as input for the Safety Compliance Matrix. According to OPNAV personnel, they received safety compliance data for all T/M/S from PMA 209<sup>13</sup> and verified it to ensure its accuracy. However, no written policy or standardized procedures/guidelines were in place that implemented these responsibilities, or held anyone responsible for a lack of action.

Regarding collection of safety compliance data, we found that of the 13 PMAs and the 12 associated Requirements Officers<sup>14</sup> with whom we met, only four of the PMAs and Requirements Officers acknowledged that they provided input for the matrix. Regarding verification of the safety compliance data, we found that only three Requirements Officers acknowledged that they were responsible for confirming the accuracy of the matrix upon its completion.<sup>15</sup> In addition, two PMAs and two Requirements Officers stated that they were unaware of the Safety Compliance Matrix. Due to the number of PMAs and Requirements Officers who were either unaware of the matrix or were not involved in the creation or verification of the Safety Compliance Matrix, we concluded that there was no established, or standardized, collection and verification process for the safety compliance data.

This conclusion was further supported by the number of inaccuracies identified within the Safety Compliance Matrix, dated September 2011. Nine of the 27 T/M/S of aircraft

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<sup>13</sup> In regards to this audit, PMA 209 provides Naval aviation with common, supportable, and innovative safety systems, as well as data collection and analysis capabilities through avionics instruments and systems.

<sup>14</sup> PMA 262, associated with the RQ-4A (unmanned vehicle), did not have a Requirements Officer to interview.

<sup>15</sup> One of the Requirements Officers stated that he confirmed the accuracy of the data, but a discrepancy was still found in the Safety Compliance Matrix.

reviewed had an inaccuracy (totaling 11 inaccuracies) within at least one of the four safety capabilities as shown in Figure 5. For example, the F-35 did not have the ACAS capability installed on any aircraft because there was no tactical solution/system yet available; however, it was still marked green, or “Compliant,” in the September 2011 Safety Compliance Matrix. Therefore, as annotated on the chart, we recommended that the matrix be updated to show the F-35’s noncompliance with the ACAS capability. Another instance included a T/M/S being marked red, or “Non-Compliant,” for a particular safety capability, when the capability was actually installed. Additionally, there was a T/M/S marked as green, or “Compliant,” for a particular safety capability, when the capability was actually only funded, and not yet installed. Therefore, we recommended that the matrix be updated to green or yellow, as appropriate.

All of the inaccuracies highlighted within Figure 5 were presented to both OPNAV N98 and PMA 209 during the audit fieldwork. OPNAV has already taken action and has corrected 10 of the 11 inaccuracies on the July 2012 Safety Compliance Matrix.

**Figure 5: Safety Compliance Matrix Analysis**

				Safety Capability Efforts			
# of T/M/S	T/M/S	PMA	# of Aircraft	CFIT	CSR	ACAS	MFOQA
1	C-12C	207	4	▲ to red * (1)	▲ to red * (2)	▲ to red * (3)	
2	T-6B	273	103	▲ to red * (4)			
3	T-34C	273	230			▲ to green (5)	
4	T-45C	273	166		▲ to yellow * (6)		
5	VH-3D	274	11			▲ to green * (7)	
6	VH-60N	274	8			▲ to green * (8)	
7	MV-22B	275	132	▲ to red * (9)			
8	AH-1W	276	136	▲ to red * (10)			
9	F-35					▲ to red * (11)	
▲ represents change							
* represents acknowledgment of changes made by OPNAV N98 in July 2012 matrix							
# represents the 11 inaccuracies identified within the team's analysis							

## Color-Coding of the Safety Compliance Matrix

At the time of the audit, there was no clear definition of the color-coding system used in the Safety Compliance Matrix. On the Safety Compliance Matrix, dated September 2011, green was defined as “Compliant,” yellow was defined as “In Development,” and red was defined as “Non-Compliant.” During various meetings with OPNAV personnel, we asked for a further explanation of the Safety Compliance Matrix color-coding, specifically regarding how they defined aircraft as being “Compliant.” Early in the audit, OPNAV personnel stated that green, or “Compliant,” meant one of three things – the safety system was: (1) installed; (2) in progress to be installed; or (3) funded and planned to be installed based on the aircrafts’ maintenance schedule/timeframe. In a subsequent meeting, OPNAV personnel explained that green meant that the safety system was fully developed, installed, and functioning on at least one aircraft, and was in the process of being installed on the remaining aircraft. We presented the latter definition to the PMAs we contacted, as they did not have a clear understanding of the color-coding.

Further, in evaluating the safety capabilities color-coded green, or “Compliant,” on the Safety Compliance Matrix, we identified multiple instances where the safety capability installed on a particular T/M/S deviated from the criteria established in the instruction. We also identified one instance where the safety capability was not installed on all aircraft within a T/M/S. Specifically, 10 of 27 T/M/S were marked as “Compliant”; however, the safety capability installed deviated from OPNAV Instruction 13210.1A. For example, OPNAV Instruction 13210.1A states that, in order to be considered compliant with the CSR requirement, the system shall be required to record aircraft parametric and audio data.<sup>16</sup> However, we found that some T/M/S did not have the audio recording, and thus, per the instruction, would not be considered compliant. In addition, 1 of 27 T/M/S was marked as “Compliant” for two safety capabilities; however, the capabilities were not installed on all aircraft within the T/M/S. All other T/M/S reviewed that were marked “Compliant” for a safety capability had the capability installed on all aircraft. These differing representations of the term “Compliant” may hinder the ability to adequately and accurately monitor and maintain the status of compliance with the four required safety capabilities.

Also, for four T/M/S, we were unable to verify whether or not two of the safety capabilities were installed on all aircraft due to insufficient supporting documentation. According to the responsible PMA, certain aircraft had the capabilities installed during production; however, the PMA stated that they have not maintained any type of documentation that would directly support these statements. The documentation that was provided could not be used to verify whether or not the T/M/S within our review had the

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<sup>16</sup> After the publication of OPNAV Instruction 13210.1A, OPNAV N98 and NAVAIR concluded there was a security risk in recording unencrypted cockpit audio data from tactical aircraft. Therefore, OPNAV N98 has waived this requirement until such time as the technological challenges of encrypting data can be overcome. According to OPNAV N98, a more nuanced description of the CSR requirements will be included in the next release of the Instruction.

capability installed. Therefore, we were unable to confirm the “Compliant” status of these capabilities, as indicated on the Safety Compliance Matrix.

To note, other PMAs were able to provide support for the capabilities in the form of contractual documentation, such as “Detail Specifications,” directly from the aircraft manufacturer. The Detail Specifications we received were broken down by an aircraft’s unique Bureau Number (BUNO) and noted that on delivery it would be equipped with a specific safety system. According to the Secretary of the Navy Manual M-5210.1, “Department of the Navy Records Management Program,” Detail Specifications are considered permanent<sup>17</sup> records, or records with enduring value. In the words of one PMA, the Detail Specifications are key documents that describe the final product configuration of what is being delivered to the Government and war fighters. Therefore, in the auditors’ professional opinion, maintaining documentation which supports the implementation of required safety capabilities should be established as a best business practice.

Lastly, as required by OPNAV Instruction 13210.1A, the Safety Compliance Matrix “will also document any aircraft out of compliance and possessing a current and viable waiver...and will be used during the POM process for establishing budget priorities.” However, the color-coding scheme on the September 2011 matrix and the lack of symbols/annotations did not allow for a differentiation between those aircraft that were noncompliant but possessed an approved waiver, and those aircraft that were just noncompliant. The above reasons provide support that there was no clear and consistent definition of the color-coding system used in the Safety Compliance Matrix during the time of the audit. As a result, in the auditors’ professional opinion, the Safety Compliance Matrix may be limited in its use as a budgeting tool and current metric, since the color-coding can easily be misinterpreted.

As previously stated, the above two areas (collection and verification of the safety compliance data and the color-coding of the matrix) are areas that can be improved on to strengthen controls and oversight. Addressing these two issues will help ensure that the status of compliance with the capabilities are adequately monitored and maintained.

Over the course of the audit, OPNAV N98 has added more detail to the definitions associated with the color codes contained in the Safety Compliance Matrix and has also added additional colors to further depict the current status of compliance with the four required safety capabilities.

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<sup>17</sup> According to Secretary of the Navy M-5210.1, permanent records have been appraised as having enduring values – historical, research, legal, scientific, cultural, or other values. Permanent records are those that will protect DON’s interests and that document its primary missions, functions, responsibilities, and significant experiences and accomplishments.

## **Publishing the Safety Compliance Matrix**

OPNAV personnel did not “maintain and publish the compliance matrix at least quarterly...” as required per OPNAV Instruction 13210.1A. This occurred because DON did not establish sufficient controls over, and provide sufficient oversight throughout, the tracking process.

During the course of the audit, OPNAV provided us with the first formal publication of the Safety Compliance Matrix, dated 30 April 2012, via a message from Director, Air Warfare (N98). Two matrices, dated as of September 2011 and January 2012, were provided prior to this; however, both were considered only “current versions” of the Safety Compliance Matrix and were never published. As shown above, OPNAV was not formally publishing the matrix on a quarterly basis from the onset of the instruction, which was dated 3 September 2009. Over 2 and a half years had passed prior to the initial matrix being published.

According to OPNAV personnel, they are continually updating and making revisions to the matrix. The latest and second formal publication of the Safety Compliance Matrix was received from OPNAV on 31 July 2012, which met the quarterly timeframe requirement within OPNAV Instruction 132101.1A.

## **Submitting Noncompliance Waivers**

OPNAV personnel did not ensure that the noncompliance waivers were properly submitted and approved, in accordance with OPNAV Instruction 13210.1A. This occurred because DON did not establish sufficient controls over, and provide sufficient oversight throughout, the tracking process. The instruction states, “Requests for exception to the policy shall be submitted for waiver approval on a case-by-case basis.” Further, it requires that all non-compliance waivers contain the following:

1. T/M/S affected;
2. Capability requiring waiver;
3. Justification for the request;
4. Assessment of risk involved; and
5. Actions taken and planned, including a schedule, for bringing the T/M/S into compliance.

In addition, the sample waiver that was included as an enclosure within the OPNAV instruction requires that a point of contact for the platform PMA requesting the waiver, also be included (see Exhibit E for the sample waiver request).

However, OPNAV stated that there were no waivers submitted or approved from the inception of the instruction, 3 September 2009, through the end of FY 2011. For FY 2012, OPNAV issued a blanket waiver that covered both Navy and Marine Corps aircraft. Upon review of the blanket waiver, we found that it did not fully meet any of the requirements set forth in the OPNAV instruction, and did not include all T/M/S that were noncompliant. Specifically, the blanket waiver omitted three of the T/M/S that fell within our review.

Lastly, OPNAV Instruction 13210.1A states, “Issuance of an approved waiver provides relief only from the specific capability and is an assumption/acceptance of the inherent risk of not equipping the applicable aircraft with the safety system or capability in question.” The instruction further states that OPNAV will review the waivers annually to determine progress with compliance plans. Without appropriate waivers submitted by platform PMAs and OPNAV Requirements Officers, it is not clearly evident what risk, if any, is involved. An assessment of safety risk, via the use of noncompliance waivers, may lead decision makers to conclude that no action is warranted or that the implementation of measures to mitigate a problem will achieve an acceptable level of safety risk.

As a result of the inaccurate and inconsistent tracking (i.e. inaccuracies/discrepancies within matrix, including misleading color-coding, and insufficient noncompliance waivers) of the four required safety capabilities, DON’s ability to establish budget priorities and monitor at-risk aircraft may be hindered.

## Recommendations and Corrective Actions

Our recommendations, summary of the management responses, and our comments on the response are presented below. The complete text of the responses is in the Appendices.

We recommend that Director, Office of the Chief of Naval Operations, Air Warfare Division:

**Recommendation 1.**<sup>18</sup> Strengthen controls and oversight to ensure those avionics safety system capabilities outlined in the Office of the Chief of Naval Operations Instruction 13210.1A are considered for funding as a first priority for all Department of the Navy aircraft.

**Director, Office of the Chief of Naval Operations, Air Warfare Division  
response to Recommendation 1.** Concur. Air Warfare Division states that safety

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<sup>18</sup> Recommendation 1 was re-worded for the Final Audit Report. The recommendation originally stated: Strengthen controls and oversight to ensure those safety capabilities outlined in the Office of the Chief of Naval Operations Instruction 13210.1A are funded as a first priority (per Secretary of Defense memorandum as of 22 June 2006) for all Department of the Navy aircraft, unless a current and viable waiver is completed in accordance with the instruction.

capabilities compete as “a first priority”; however, in a time of austere financial resources, classification as “a first priority” does not guarantee that it will be funded in the final budget.

However, Air Warfare Division will continue to make improvements in the traceability and documentation of issues presented during the Program Objective Memorandum builds. Air Warfare Division will better describe the process of reviewing Operational Advisory Group and Naval Aviation Requirements Group results for fleet capability needs, and will provide a more detailed explanation of how those results are presented to the Program Offices and Requirements Officers for consideration of Program Objective Memorandum issue sheets. This enhanced guidance will be inserted into the revision being generated for the Office of the Chief of Naval Operations Instruction 13210.1 series scheduled for release during the second quarter of Fiscal Year 2013. The target completion date is 31 January 2013.

**Naval Audit Service comment on Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 1.** As stated throughout the report, the Naval Audit Service agrees that there are certain limitations to implementing the safety capabilities on all aircraft, and recognizes that there are other priorities vying for the same funding. However, controls and oversight can still be strengthened to ensure that these safety capabilities are being considered for funding as a first priority. The management response and planned corrective actions meet the intent of the recommendation and this recommendation is open pending completion of agreed upon actions.

**Recommendation 2.** Coordinate with Program Manager, Air 209 to ensure proper controls and oversight are in place to sufficiently and accurately monitor and maintain the status of compliance with the four required capabilities on a platform-by-platform basis. The procedures should include the following:

- a. Define who shall be responsible for providing input to and verifying the accuracy of the Safety Compliance Matrix, and who shall receive the Safety Compliance Matrix to use as a current metric/future tool. At a minimum, include all applicable Program Managers and Requirements Officers for the Type/Model/Series included within the Safety Compliance Matrix;
- b. Define, as part of the Safety Compliance Matrix, a detailed explanation of the color-coding. At a minimum, add tick marks/symbols or additional colors, to show partial compliance, accepted deviation from criteria, or that a Type/Model/Series has an approved waiver, in accordance with the Office of the Chief of Naval Operations Instruction 13210.1A; and

- c. Update all discrepancies identified on the Safety Compliance Matrix, as of September 2011, in the next published matrix.

**Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 2.** Concur. For 2.a, Air Warfare Division will provide oversight of a tracking tool through Program Manager, Air 209. The tracking tool will identify the Deputy Program Manager of each platform program office who will receive and review each Safety Compliance Matrix. The target completion date is 31 March 2013. For 2.b, Air Warfare Division will include an additional page within the Safety Compliance Matrix, which will clearly define the color codes previously considered unclear. The Safety Compliance Matrix will be released with the Annual Waiver Package, with a target completion date of 31 January 2013. For 2.c, Air Warfare Division has corrected the one remaining discrepancy on the draft Safety Compliance Matrix, and will release it as stated above.

**Naval Audit Service comment on Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 2.** The management response and planned corrective actions meet the intent of the recommendation and this recommendation is considered open pending completion of agreed upon actions. Since Air Warfare Division provided two target completion dates within their response, the later date will be used for tracking purposes. Therefore, the target completion date is 31 March 2013 for all efforts.

**Recommendation 3.** Strengthen controls and oversight to ensure that an accurate Safety Compliance Matrix, including all Department of the Navy Type/Model/Series, is published on a quarterly basis.

**Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 3.** Concur. Air Warfare Division has completed a review and corrected inaccuracies in the matrix. To ensure accuracy of the matrix, Air Warfare Division will insert enhanced guidance (see Management Response to Recommendation 2.a above) into the revision being generated for the Office of the Chief of Naval Operations Instruction 13210.1 series scheduled for release during the second quarter of Fiscal Year 2013. The target completion date is 31 January 2013. Additionally, Air Warfare Division will use the official Navy Taskers System, effective 27 September 2012, to track and document the Safety Compliance Matrix on a quarterly basis.

**Naval Audit Service comment on Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 3.** The management response and planned corrective actions meet the intent of the

recommendation and the recommendation is considered open pending completion of agreed upon actions. Since Air Warfare Division provided two target completion dates within their response, the later date will be used for tracking purposes. Therefore, the target completion date is 31 January 2013 for all efforts.

**Recommendation 4.** Coordinate with Naval Air Systems Command Program Managers and appropriate Office of the Chief of Naval Operations Requirements Officers to ensure proper controls and oversight are in place to complete, submit, and approve a waiver, per the sample provided in Enclosure (1) of Office of the Chief of Naval Operations Instruction 13210.1A, if exception to one of the four required safety capabilities is required.

**Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 4.** Concur. Air Warfare Division will ensure controls and oversight are in place by conducting a quarterly review with platform Requirements Officers prior to publishing the Safety Compliance Matrix. At this time, the Requirements Officers will be provided the opportunity to submit a waiver and conduct a formal review of the updates provided to the matrix. This enhanced guidance will be inserted into the revision being generated for the Office of the Chief of Naval Operations Instruction 13210.1 series scheduled for release during the second quarter of Fiscal Year 2013. The target completion date is 31 January 2013.

**Naval Audit Service comment on Director, Office of the Chief of Naval Operations, Air Warfare Division response to Recommendation 4.** The management response and planned corrective actions meet the intent of the recommendation and the recommendation is considered open pending completion of agreed upon actions.

We recommend that Program Manager, Program Manager Air 265:

**Recommendation 5.** Strengthen controls and oversight to ensure documentation in support of the implementation/installation of required safety capabilities is properly maintained.

**Program Manager, Program Manager Air 265 response to Recommendation 5.** Concur. On production aircraft, Program Manager Air 265 will verify the installation and functionality of the safety systems through the Defense Contract Management Agency during the Acceptance Test Procedure. For retrofit aircraft, Program Manager Air 265 will verify the installation and functionality of the safety systems through the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation system. Upon verification,

Program Manager Air 265 will review the Safety Compliance Matrix for accuracy and provide updates to Program Manager Air 209 as required. These procedures will be included within Program Manager Air 265's Business Plan. The target completion date is 15 October 2012.

**Naval Audit Service comment on Program Manager, Program Manager Air 265 response to Recommendation 5.** The management response and planned corrective actions meet the intent of the recommendation and the recommendation is open pending completion of agreed upon actions.

## Other Observations

During our review of the Naval Safety Center's Fiscal Years 2007 through 2011 mishap and hazard reports, we analyzed only those that had a direct reference to one of the four required safety capabilities. A "direct reference" meant that the mishap or hazard report explicitly stated within a casual factor, recommendation, or Commander Comment that one of the four capabilities may have prevented the accident from occurring, or could be used as a tool to prevent future mishaps from occurring. Specifically, 6 of the 61 mishap reports and 22 of the 241 hazard reports that we reviewed had a direct reference to one of the four required safety capabilities.

However, during in-depth discussions with representatives from the Naval Safety Center, we identified numerous other mishaps and hazards that appeared to be associated with one of the four capabilities, although no direct reference to the capability was made within the report. Because the intent of only using those reports with a direct reference was to remove all auditor subjectivity from the analysis, we did not include those mishaps and hazards that appeared to be associated within the analysis.

In agreement with Office of the Deputy Assistant Secretary of the Navy (DASN), Safety, if, within the current mishap and hazard reporting process, there was an additional requirement to report the involved aircraft's compliance/noncompliance with Office of the Chief of Naval Operations Instruction 13210.1A, it may increase the awareness of the instruction and the four required safety capabilities. While the value of including this information may not initially be apparent, it may eventually bring to the forefront the true effect of not funding these capabilities as a first priority. Further, in the auditors' professional opinion, in a time of constrained budgets, the statistics that could be generated from this additional requirement may provide the supporting data necessary to justify funding requests.

While we reviewed the mishap and hazard reports provided by the Naval Safety Center, we did not audit the process in which mishap and hazard reports were generated. Therefore, we did not make any formal recommendations to address this issue. However, the Office of the DASN, Safety stated that they support the idea of updating the mishap and hazard reporting procedures.

**Section B:****Status of Recommendations**

Recommendations							
Finding <sup>19</sup>	Rec. No.	Page No.	Subject	Status <sup>20</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>21</sup>
1	1	19	Strengthen controls and oversight to ensure those avionics safety system capabilities outlined in the Office of the Chief of Naval Operations Instruction 13210.1A are considered for funding as a first priority for all Department of the Navy aircraft.	O	Director, Office of the Chief of Naval Operations, Air Warfare Division	1/31/13	

<sup>19</sup> / + = Indicates repeat finding.

<sup>20</sup> / O = Recommendation is open with agreed-to corrective actions; C = Recommendation is closed with all action completed; U = Recommendation is undecided with resolution efforts in progress.

<sup>21</sup> If applicable.

Recommendations							
Finding <sup>19</sup>	Rec. No.	Page No.	Subject	Status <sup>20</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>21</sup>
1	2	20	<p>Coordinate with Program Manager, Air 209 to ensure proper controls and oversight are in place to sufficiently and accurately monitor and maintain the status of compliance with the four required capabilities on a platform-by-platform basis. The procedures should include the following:</p> <ul style="list-style-type: none"> <li>a. Define who shall be responsible for providing input to and verifying the accuracy of the Safety Compliance Matrix, and who shall receive the Safety Compliance Matrix to use as a current metric/future tool. At a minimum, include all applicable Program Managers and Requirements Officers for the Type/Model/Series included within the Safety Compliance Matrix;</li> <li>b. Define, as part of the Safety Compliance Matrix, a detailed explanation of the color-coding. At a minimum, add tick marks/symbols or additional colors, to show partial compliance, accepted deviation from criteria, or that a Type/Model/Series has an approved waiver, in accordance with the Office of the Chief of Naval Operations Instruction 13210.1A; and</li> <li>c. Update all discrepancies identified on the Safety Compliance Matrix, as of September 2011, in the next published matrix.</li> </ul>	O	Director, Office of the Chief of Naval Operations, Air Warfare Division	3/31/13	
1	3	21	Strengthen controls and oversight to ensure that an accurate Safety Compliance Matrix, including all Department of the Navy Type/Model/Series, is published on a quarterly basis.	O	Director, Office of the Chief of Naval Operations, Air Warfare Division	1/31/13	

Recommendations							
Finding <sup>19</sup>	Rec. No.	Page No.	Subject	Status <sup>20</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>21</sup>
1	4	22	Coordinate with Naval Air Systems Command Program Managers and appropriate Office of the Chief of Naval Operations Requirements Officers to ensure proper controls and oversight are in place to complete, submit, and approve a waiver, per the sample provided in Enclosure (1) of Office of the Chief of Naval Operations Instruction 13210.1A, if exception to one of the four required safety capabilities is required.	O	Director, Office of the Chief of Naval Operations, Air Warfare Division	1/31/13	
1	5	22	Strengthen controls and oversight to ensure documentation in support of the implementation/installation of required safety capabilities is properly maintained.	O	Program Manager, Program Manager Air 265	10/15/12	

## Exhibit A:

# Background

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According to the Department of Defense (DoD), 3,072 people died in military aviation accidents between 1980 and 2003. What arguably accelerated the implementation of safety systems/programs in the United States was the 1996 accident involving then-Commerce Secretary Ron Brown.

In April 1996, an Air Force plane carrying Secretary Brown crashed into a mountainside in Croatia, killing all 35 passengers onboard. During the post-crash investigation, it was determined that the aircraft did not contain a cockpit voice and flight data recorder, referred to in the aviation industry as a “black box.” Following this incident, both Congress and DoD enacted policies to require certain safety avionics on all passenger aircraft. A few months later, in December 1996, the Chief of Naval Air Forces-chaired Air Board sponsored the Human Factors Quality Management Board (HFQMB) to conduct an analysis of aircraft avionics safety systems. The study addressed flight incident recorders, flight data recorders, global positioning system navigation equipment, ground proximity warning systems, collision avoidance systems, and integrated material diagnostic systems. The Air Board concurred with the HFQMB findings that incorporation of these systems was necessary to achieve the Naval aviation mishap reduction goals established by the Secretary of Defense.

These safety needs were further solidified on 9 November 1999. In the “Naval Aviation Policy on Aircraft Safety Systems Avionics,” the Chief of Naval Operations (CNO) stipulated the acquisition and installation of the following for all Naval aircraft: a Ground Proximity Warning System, a Controlled Flight Into Terrain capability, a Collision Avoidance System, an Airborne Collision Avoidance System capability, and a Crash Survivable Flight Incident Recorder or a Crash Survivable Recorder. While this policy was in place, the Secretary of Defense was still prompted, in May 2003, to challenge the military services to improve accident rates, because they had recently increased, and because of the strong correlation between readiness and safety. He said world-class organizations do not tolerate preventable accidents. Further, the Military Flight Operations Quality Assurance (MFOQA) capability came to the forefront in an Office of the Secretary of Defense memorandum, dated 11 October 2005. The memorandum directed all DoD components to implement a multi-faceted MFOQA capability. Subsequently, the Secretary of the Navy issued a similar memorandum, dated 2 February 2006, to the Commandant of the Marine Corps and the CNO, supporting the MFOQA process.

Leading up to the current safety requirements, the Secretary of the Navy stressed in his 2009 Safety Vision that “safety must be designed into our weapon systems, platforms and processes upfront, during acquisition – not considered after the fact. In corporations and military organizations alike, investments in safety have shown great payback. We must aggressively fund safety research and implement proven safety technology.” Following these statements, Office of the Chief of Naval Operations (OPNAV) Instruction 13210.1A,<sup>22</sup> “Naval Aviation Policy for Aircraft Safety Systems Avionics,” was issued in September 2009. The instruction requires that all DON aircraft be fitted with the following four safety capabilities, three of which had already been required per the CNO policy, dated 9 November 1999:

1. **Controlled Flight Into Terrain Avoidance.** These avoidance systems use on-board sensors, digital terrain databases, and/or external signals to determine dangerous proximity to or closure toward terrain and provide cues and warnings to the aircrew;
2. **Crash Survivable Recorder.** This recorder is designed to record and protect aircraft information in-flight to aid the determination of mishap causal factors;
3. **Airborne Collision Avoidance System.** This system provides time-critical aural and visual warnings that cue appropriate pilot response to conflicting air traffic; and
4. **Military Flight Operations Quality Assurance.** This provides a knowledge management process that analyzes flight data to identify human error and impending material failure before they lead to mishaps.

Despite the continual attention focused on the need to equip DON aircraft with safety systems after the 1996 crash involving the death of then-Secretary Brown, the installation of these devices have had to compete with other demands to ensure mission readiness. Some DoD officials, including the former Deputy Assistant Secretary of the Navy for Safety, have expressed concerns that aviation safety does not receive adequate visibility. Specifically, this audit was requested by the Office of the Deputy Assistant Secretary of the Navy (Safety) over concerns that safety capabilities are being prioritized lower than operational and warfighting capabilities. Our audit’s attention was focused on DON’s compliance with OPNAV Instruction 13210.1A, and whether there were sufficient controls and oversight over the requirements set forth in the instruction.

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<sup>22</sup> Prior to Chief of Naval Operations (OPNAV) Instruction 13210.1A, the initial policy for aircraft safety systems was published via OPNAV Instruction 13210.1, dated 24 May 2007. The instruction separated aircraft into three categories (new and remanufactured, legacy transport, and all other), and had specific implementation guidance for each. The safety capabilities included within OPNAV Instruction 13210.1 were: Crash Survivable Flight Incident Recorder, Global Positioning System, Ground Proximity Warning System, Collision Avoidance System, Integrated Material Diagnostics System, and Military Flight Operations Quality Assurance.

**OPNAV Instruction 13210.1A**

The scope of the audit is focused on the requirements established in OPNAV Instruction 13210.1A (see Exhibit B for further details). The instruction was signed by OPNAV, Air Warfare Division (N98), who balances war fighting requirements with available financial resources to provide an investment strategy intended to minimize Naval and Marine Corps aviation war fighting risks. OPNAV N98 is primarily responsible for building, integrating, and defending the annual Program Objective Memorandum (POM) for all Naval aviation programs. According to OPNAV N98, the Office of Program Manager Air (PMA) 209 plays a major role in developing and deploying common safety systems, such as the four capabilities included within OPNAV Instruction 13210.1A. Within PMA 209, the mission of the Safety and Flight Operations Division is to focus on solutions that provide Naval aviation with common, supportable, and innovative safety systems, as well as data collection and analysis capabilities through avionics instruments and systems. Such capabilities are accomplished through the development, acquisition, and fielding of affordable technologies that maximize current fleet readiness and satisfy Navy and Marine Corps warfighter requirements.

## Exhibit B:

# Scope and Methodology

We conducted the audit of “Prioritization and Selection Process of Department of the Navy Aviation and Operational Safety Concerns” between 8 September 2011 and 28 August 2012. The scope of this audit consisted of the Department of the Navy’s (DON’s) processes and internal controls in place to fund, implement, and track required aviation safety capabilities, as defined in Office of the Chief of Naval Operations (OPNAV) Instruction 13210.1A. To further address our audit objective, we also reviewed the DON aircraft active inventory as of 3 October 2011, and the DON Safety Compliance Matrix as of September 2011.

OPNAV, Air Warfare Division (N98) used the Aircraft Inventory Readiness and Reporting System to pull the status of the active inventory. As defined on the Naval Air Systems Command (NAVAIR) Web site, “[The Aircraft Inventory Readiness and Reporting System] provides the aviation community with up-to-date and consistent aircraft inventory, readiness data, and flight/utilization data for each aircraft in the naval inventory.” Additionally, OPNAV N98 provided the team with the DON Safety Compliance Matrix.

We reviewed the DON aircraft active inventory in order to determine where the current Type/Model/Series (T/M/S) of aircrafts were located, and the quantity at each installation. As of 3 October 2011, there were 3,925 aircraft located at 113 locations. We filtered the provided data, and created a pivot table, which showed that the active inventory included 98 different T/M/S. However, according to OPNAV N98 personnel, the active inventory can change weekly, even daily.

Therefore, to ensure that all types of aircraft were included within the audit universe, we also incorporated the T/M/S referenced within the DON Safety Compliance Matrix, dated September 2011. Upon consolidating the two documents, we found that there were 114 different T/M/S identified. During this initial scoping phase of the audit we also identified the Program Manager Airs (PMAs), associated with each of the T/M/S. We determined the PMAs through various efforts, including information received from OPNAV, as well as information obtained via the NAVAIR Web site. In total, there were 17 PMAs. We used these numbers as a basis for our judgmental sample.

We used the following rationale to determine the judgmental sample. We selected:

- 1) All of the T/M/S that were requested by the customer (Office of the Deputy Assistant Secretary of the Navy for Safety) during the initial research meeting;

- 2) All T/M/S that had an aircraft inventory equal to or greater than three percent of the total DON aircraft inventory; and
- 3) Additional T/M/S that had all four required safety capabilities color-coded red (indicating noncompliance), to increase coverage of non-compliant aircraft.

In total, we selected 27 T/M/S for review. The selected T/M/S consisted of 2,806 aircraft and 13 PMAs. As a result, we based the audit report on the results identified within this judgmental sample, and did not make any projections to the entire population of DON aircraft. Table 1 below depicts our final judgmental sample.

**Table 1: Safety Compliance Matrix**

# of T/M/S	T/M/S	USN/USMC	PMA	# of Aircraft	Safety Capability Efforts			
					CFIT	CSR	ACAS	MFOQA
1	C-12C	A	207	4	Green	Green	Green	Red
2	C-40A	N	207	11	Green	Green	Green	Red
3	C-9B	N/M	207	14	Green	Green	Green	Red
4	AV-8B	M	257	123	Green	Red	Red	Red
5	FA-18C	N/M	265	352	Green	Green	Red	Yellow
6	FA-18D	N/M	265	130	Green	Green	Red	Yellow
7	FA-18E	N/M	265	195	Green	Green	Red	Yellow
8	FA-18F	N/M	265	235	Green	Green	Red	Yellow
9	T-6B	N	273	103	Green	Green	Green	Red
10	VH-3D	M	274	11	Yellow	Green	Red	Red
11	VH-60N	M	274	8	Yellow	Green	Red	Red
12	MV-22B	M	275	132	Green	Green	Red	Red
13	P-3C	N	290	141	Red	Red	Red	Red
14	HH-60H	N	299	35	Red	Red	Red	Red
15	F-35 (JSF)	N/M			Yellow	Green	Green	Red
16	CH-46E	M	226	120	Green	Red	Red	Red
17	CH-53E	M	261	152	Green	Red	Red	Red
18	T-34C	N	273	230	Red	Red	Red	Red
19	T-45C	N	273	166	Yellow	Green	Red	Red
20	AH-1W	M	276	136	Yellow	Red	Red	Red
21	MH-60S	N	299	197	Green	Green	Red	Red
22	EA-6B	N/M	234	74	Red	Red	Red	Red
23	RQ-4A	N	262	2	Red	Red	Red	Red
24	T-39D	N	273	1	Red	Red	Red	Red
25	TH-57C	N	273	82	Red	Red	Red	Red
26	UH-1N	M	276	50	Red	Red	Red	Red
27	SH-60B	N	299	102	Red	Red	Red	Red

**Table 1: Safety Compliance Matrix (Continued)**

<b># T/M/S Color Coding based on the three judgmental sample factors</b>	
	represents T/M/S suggested by acting DASN, Safety
	represents 3% of total DON inventory
	represents additional T/M/S selected to increase coverage of non-compliant (red) aircraft
<b>Safety Capability Efforts Color Coding</b>	
	Compliant
	In Development
	Non-compliant
<b>Acronym Key</b>	
T/M/S	Type/Model/Series
USN	United States Navy (N)
USMC	United States Marine Corps (M)
A	United States Army
PMA	Program Manager Air
CFIT	Controlled Flight Into Terrain
CSR	Crash Survivable Recorder
ACAS	Airborne Collision Avoidance System
MFOQA	Military Flight Operations Quality Assurance

We conducted meetings with representatives from OPNAV N98; NAVAIR PMAs; Commander, Naval Air Forces (Force Safety); and Commander, Naval Air Forces, Atlantic (Common Avionics) to understand the oversight procedures and internal controls associated with the safety avionics prioritization and selection process. Specifically, how they tracked, funded, and implemented the four required safety capabilities on DON aircraft.

We conducted a site visit to Naval Air Station Patuxent River, MD, and interviewed the PMA's resident engineers, logisticians, class desk representatives, and common systems personnel. We determined how they communicate their safety needs/issues throughout the different phases of the prioritization process. Further, we interviewed Requirements Officers to determine how they communicate mandated (top-down) requirements to the PMAs, and to determine their overall role in the prioritization and selection process of DON safety avionics. For both PMAs and Requirements Officers, we determined their awareness of the requirements set forth in OPNAV Instruction 13210.1A, and their level of involvement with tracking the status of compliance with the four required safety capabilities.

To determine the visibility of the four required safety capabilities, we reviewed aviation priority rankings throughout all phases of the prioritization and selection process, to include rankings provided by: platform System Safety Working Groups; Enabler Naval Aviation Requirements Groups (NARGs); platform NARGs/Operational Advisory Groups; the Type Commander Priority Panel; and the Council of Colonels. The priority

rankings reviewed ranged from Fiscal Years (FYs) 2008 – 2011. We also reviewed issue sheets submitted during the Program Objective Memorandum development for FYs 2004-2011. We further conducted informational meetings with OPNAV N98 personnel to determine how these documents were used in the decision making process for budget purposes.

Additionally, to verify the accuracy of the Safety Compliance Matrix, we obtained documentation to support whether the four capabilities were either: (1) installed within a T/M/S (color-coded green on the matrix); (2) not installed within a T/M/S (color-coded red on the matrix); or (3) in development for a particular T/M/S (color-coded yellow on the matrix). For capabilities color-coded green, we verified the existence of the capability by viewing detail specifications provided by the aircraft's manufacturer, viewing Naval Air Training and Operating Procedures Standardization manuals, and/or reviewing technical directives. Further, we gathered technical directive compliance reports from the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation system to quantify the number aircraft within a T/M/S that were compliant. To verify the reliability of that system, we tested the technical directive compliance reports against specific aircraft logbooks and lists showing the inclusion of the safety capability. The Naval Audit Service statistician pulled a simple random statistical sample of 29 aircraft from the total universe of 1,499, which represented all the unique combinations of aircrafts and technical directives. The technical directive compliance reports for those 29 aircraft were compared against the aircraft logbooks/lists to ensure that the information within both agreed. As a result of our testing, we found that the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation system appears to be generally reliable.

For capabilities color-coded red, we requested the corresponding Non-Compliance Waiver. For capabilities color-coded yellow, we reviewed funding levels and program schedules to ensure that the capability was in the development process.

We reviewed judgmentally selected mishap and hazard reports compiled by the Naval Safety Center for FYs 2007 – 2011. The universe consisted of 2,173 mishap reports and 10,455 hazard reports within the 5-year timeframe. We then reduced the universe to only include those reports associated with the 27 T/M/S selected in the original sample. This limited the scope to 1,511 mishap reports and 6,315 hazard reports. Next, we selected mishap and hazard reports to review based on a brief description of the event and the potential relevance to one of the four safety capabilities.

In total, we judgmentally selected 61 mishap reports and 241 hazard reports to review during a site visit to the Naval Safety Center. Using the hazard and mishap reports, we determined the effects of not fully funding one of the four required safety capabilities. Specifically, for each hazard and mishap, we reviewed the detail report, including all causal factors and recommendations. We extracted all reports that had a direct

correlation (Command or Naval Safety Center stated causal factor and/or recommendation) to one of the four required capabilities. We also totaled the number of aircraft destroyed, fatalities/injuries, and cost associated with all of the mishaps to show the true impact.

We evaluated internal controls and reviewed compliance with applicable Federal, Department of Defense, and DON guidance/criteria related to Naval aviation safety, focusing on criteria specifically related to Controlled Flight Into Terrain, Crash Survivable Recorders, Airborne Collision Avoidance Systems, and Military Flight Operational Quality Assurance.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Additionally, we reviewed Naval Audit Service, Department of Defense Inspector General, and Government Accountability Office audit reports, and found there were no reports published in the past 5 years covering the prioritization and selection process of the above required safety capabilities. Therefore, no followup was required.

## Exhibit C:

# Pertinent Guidance

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**Chief of Naval Operations Naval Aviation Policy on Aircraft Safety Systems Avionics, dated 9 November 1999**, specifically states that all new and remanufactured tactical and transport aircraft shall be delivered equipped with a crash survivable flight incident recorder, an integrated global positioning system, a ground proximity warning system, a collision avoidance system, and an integrated material diagnostic system.

**Office of the Secretary of Defense (OSD) Memorandum, “Military Flight Operations Quality Assurance (MFOQA) Implementation,” dated 11 October 2005**, directs all Department of Defense (DoD) components to include an MFOQA capability as a standard requirement in all future aircraft acquisition, including simulators and unmanned aerial vehicle procurement. For existing aircraft and their respective simulators, unless cost-benefit analysis demonstrates a need for exclusion, DoD components are required to program for MFOQA capability.

**Secretary of the Navy Memorandum, “Military Flight Operations Quality Assurance (MFOQA) Implementation Process for Department of the Navy Aircraft,” dated 2 February 2006**, states that MFOQA has the potential to dramatically improve operational readiness while helping preserve scarce material and human resources from loss due to mishaps. It adds that the Secretary of the Navy fully supports the MFOQA process and requests that additional guidance be issued to ensure that this policy is fully implemented.

**OSD Memorandum, “Reducing Preventable Accidents,” dated 22 June 2006**, provides guidance to all agencies to fund, as a first priority, those technologies and devices that will save lives and equipment. It adds that all agencies will retrofit existing systems, and consider these devices as a “must fund” priority for all new systems.

**OSD Memorandum, “Zero Preventable Accidents,” dated 30 May 2007**, states that aviation accidents are one of the top three most pressing mishap areas. The Secretary of the Defense established a goal of “zero preventable accidents,” stating that, “we can no longer tolerate the injuries, cost, and capability losses from preventable accidents.”

**Chief of Naval Operations Instruction 13210.1A, “Naval Aviation Policy for Aircraft Safety Systems Avionics,” dated 3 September 2009**, requires:

- All Navy and Marine Corps aircraft install the following four safety capabilities, with specific criteria to meet compliance:
  1. Controlled Flight Into Terrain Avoidance;

2. Crash Survivable Recorder;
  3. Airborne Collision Avoidance System; and
  4. Military Flight Operations Quality Assurance.
- OPNAV to monitor and maintain the status of compliance on a platform-by-platform basis in the form of a compliance matrix. Additionally, it states that the matrix will document any aircraft out of compliance and possessing a current and viable waiver, and will be published at least quarterly; and
  - Noncompliance waivers be submitted if an exception to the instruction is requested.

**Commander, Naval Air Forces Instruction 3025.1C, “Navy Aviation Requirements Group (NARG),” dated 20 December 2011, establishes:**

- Policy and procedures to systemically capture and consolidate community requirements for overall successful mission accomplishment, including newly evolving capabilities, weapon system modernization, and effective sustainment; and
- The deliverables of the NARG process and the roles and responsibilities of those involved, including: Commander, Naval Air Forces, Type Commander, and Executive Steering Committee representatives.

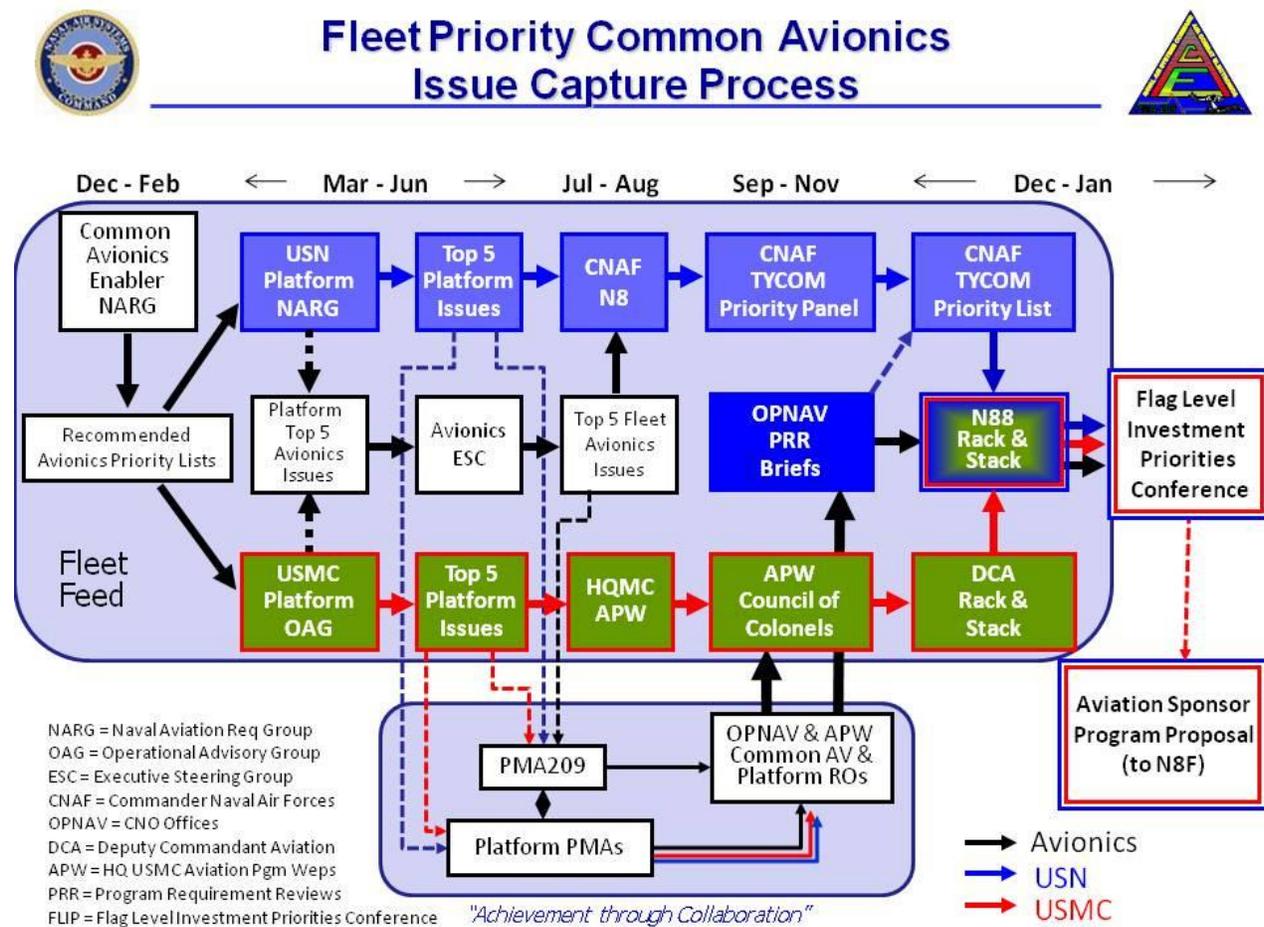
**Exhibit D:**

# Prioritization and Selection Process

The Department of the Navy (DON) has policies and procedures in place that delineate standardized guidelines for Navy Aviation Requirements Groups (NARGs)/Operational Advisory Groups' (OAGs) regarding the execution and generation of consolidated requirements priority lists.

To determine the visibility of the four required safety capabilities, we reviewed aviation priority rankings throughout all phases of the prioritization and selection process (see Figure 1), to include: platform System Safety Working Groups (SSWGs), Enabler NARGs, Community NARGs/OAGs, the Type Commander Priority Panel (TPP), and the Council of Colonels (CoC).

**Figure 1: Prioritization and Selection Process**



The following are the key players we identified in the prioritization and selection process of DON aviation and operational safety concerns:

**System Safety Working Groups (SSWGs):**

Per discussions with Naval Air Systems Command (NAVAIR) personnel, the SSWGs consist of all users for a specific aircraft community (i.e. FA-18's, H-60's). The goal of the SSWGs is to identify and evaluate new potential hazards so they can be eliminated or controlled, recommend corrective action priorities based on safety risk, and review action taken and assignment of new actions required for hazard resolution. The SSWGs' Top 10 Concern List is then presented at the NARG/OAG meetings for consideration into a larger priority list.

**Naval Aviation Requirements Groups (NARGs):**

The NARGs are designed to leverage operator and user expertise across all platforms and functional capability communities in order to identify priority requirements that maximize war fighting and sustainment benefits. The NARGs establish direct fleet interface between aircraft communities, Program Manager Airs (PMAs), the Type Commanders, and Office of the Chief of Naval Operations (OPNAV) Resource Sponsors. The NARGs' priority lists are submitted to Commander, Naval Air Forces and are compiled to create inputs that will affect the building of budget profiles.

There are two categories of NARGs: Community NARGs and Enabler NARGs. The Community NARGs are centered on specific aviation Type/Model/Series (T/M/S) platforms or groups of platforms. The Enabler NARGs are centered on commodity systems grouped by similar functionality or utility. Enabler NARGs issues have broad application across multiple platforms or user sets, and should coordinate their efforts with Community NARGs to leverage their efforts and better identify the shortfalls within each aircraft T/M/S. Specific to this audit, there is a Common Avionics Enabler NARG, which includes PMA 209 as part of the Executive Steering Committee. Both the Enabler and Community NARGs generate priority lists.

**Operational Advisory Groups (OAGs):**

The OAGs are the Marine Corps' equivalent of the Navy's NARGs. The OAGs are one of the primary forums for direct Marine Corps Operating Forces' interface with Requirements Officers, Program Managers, Resource Sponsors, and technical advisors. They help identify and prioritize issues of key significance to Marine Corps aviation. The scope and focus of the OAGs include: major aircraft and weapons system upgrades, hardware and software requirements, training and readiness, safety and standardization, personnel and logistical concerns, modeling and simulation devices, targets and ranges,

new missions, and doctrine and tactics. The OAGs meet annually to produce a “Top 10” priority list of requirements for each T/M/S platform.

**Type Commander Priority Panel (TPP):**

The TPP consolidates NARGs’ priority lists into a single prioritized list that covers all pertinent Navy aviation community requirements. The prioritized list may not mirror the Community and Enabler NARGs’ priority lists since platform leadership may also take into account other inputs (i.e. SSWGs, current issues, etc.). Representatives from Commander, Naval Air Forces, U.S. Pacific Fleet/Commander, Naval Air Forces, U.S. Atlantic Fleet, Chief of Naval Air Training, Naval Strike and Air Warfare Center, Naval Mine and Anti-Submarine Warfare Command, and other pertinent Warfare Centers of Excellence are invited to participate. The TPP output forms the basis of the TYCOM Priority List for the Commander, Naval Air Forces. The TYCOM Priority List is the prioritized list of budget issues submitted to OPNAV to ensure the highest fleet aviation priorities are being addressed.

**Council of Colonels (CoC):**

Through communication with Headquarters Marine Corps personnel, the following details were provided concerning CoC. CoC is a group of senior leaders (about 8-12 members) within the Aviation Department Headquarters Marine Corps. They are tasked with meeting and working towards Courses of Action and/or recommendations to be forwarded to the Deputy Commandant for Aviation and the Assistant Deputy Commandant for Aviation. The CoC is comprised of department heads and their deputies from branches such as, Requirements, Logistics, Expeditionary, Manpower, among others.

According to Headquarters Marine Corps, one of the most critical subjects CoC is required to provide input for is the annual Program Objective Memorandum,<sup>23</sup> or budget cycle. The issues brought forward by the respective Requirements Officers cover a broad range, including safety, targeting, sustainment, communication, and obsolescence. CoC prioritizes these issues per the over-arching guidance of the Deputy and Assistant Deputy Commandants for Aviation. The Deputy Commandant for Aviation receives guidance from the Commandant and Assistant Commandant of the Marine Corps regarding all acquisition programs and pursuits. Once all issues have been properly vetted, CoC produces a priority list to the Deputy Commandant for Aviation as a recommendation. This recommendation generally has multiple Courses of Action for the Deputy Commandant for Aviation to consider with advantages, disadvantages, returns on

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<sup>23</sup> The annual Program Objective Memorandum is an event that occurs every September, and addresses potential acquisition programs, the requirements driving those acquisition programs, and the funding strategy associated with them. Any issue that supports aviation is vetted for funding as an acquisition program.

investment, and risks identified. The Deputy Commandant for Aviation then approves one of these courses of action, and in turn identifies the priority of funding.

**Exhibit E:**

# Sample Waiver Request

OPNAVINST 13210.1A

**Sample Waiver Request**

NAVAIR/PEO Ltr Hd

13200  
Ser  
Date

From: Program Executive Officer, XXX Programs (PMA2XX)  
To: Director, Air Warfare (OPNAV (N88))

Subj: AVIONICS SAFETY CAPABILITY WAIVER REQUEST FOR XX  
HELICOPTER or AIRCRAFT

Ref: (a) OPNAVINST 13210.1A, NAVAL AVIATION POLICY FOR  
AIRCRAFT SAFETY SYSTEM AVIONICS

1. In accordance with reference (a), the following information is provided:

a. Type/Model/Series (T/M/S):

b. Capability Requiring Waiver: Controlled Flight Into Terrain, Crash Survivable Recorder, Collision Avoidance System, and/or Military Flight Operations Quality Assurance. List the specific criteria for each capability for which the waiver is being requested.

c. Justification for the Request: Is the capability not technically mature to integrate into this T/M/S? Are alternate options being considered?

d. Assessment of the Risk: Describe the risk level. Use COMNAVSAFECEN data to validate the risk level, with potential impacts to other aircraft systems/mission impacts highlighted.

e. Actions Taken and Plan to Achieve Safety Compliance: What has been accomplished to date? What is the platform's "get-well" plan? Does the plan address technology, integration, and funding issues?

f. Date by which waiver is needed? Why?

2. Document the point of contact for the platform PMA requesting the waiver here. The PMA209 counterpart with which this waiver has been coordinated should also be documented. List name, code, phone, and email address for each.

Enclosure (1)

**Exhibit F:**

# Activities Visited and/or Contacted

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Deputy Assistant Secretary of the Navy for Safety, Arlington, VA

Chief of Naval Operations Air Warfare Division, N98, Arlington, VA

Headquarters Marine Corps Department of Aviation, APW-73, Arlington, VA

Naval Air Systems Command, Patuxent River, MD

Program Manager Air 207

Program Manager Air 209

Program Manager Air 226

Program Manager Air 234

Program Manager Air 257

Program Manager Air 261\*

Program Manager Air 262

Program Manager Air 265

Program Manager Air 273

Program Manager Air 274\*

Program Manager Air 275

Program Manager Air 276

Program Manager Air 290

Program Manager Air 299

Joint Strike Fighter (F-35) Program

Naval Safety Center, Norfolk, VA

Commander, Naval Air Force, U.S Pacific Fleet, San Diego, CA\*

Commander, Naval Air Force, U.S Atlantic Fleet, Norfolk, VA\*

\*Activity contacted, but not visited

**Appendix 1:**

# Management Response Letter from Director, Office of the Chief of Naval Operations, Air Warfare Division



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

IN REPLY REFER TO  
13210  
Ser N98/12U145102  
1 Oct 12

From: Director, Air Warfare (N98)  
To: Assistant Auditor General for Installations and  
Environment Audits, Naval Audit Service (NAVAUDSVC)  
Subj: RESPONSE TO NAVAUDSVC DRAFT AUDIT REPORT "PRIORITIZATION  
AND SELECTION PROCESS OF DON AVIATION AND OPERATIONAL  
SAFETY CONCERNS" (N2011-NIA000-0047)  
Ref: (a) NAVAUDSVC Draft Audit Report "Prioritization and  
Selection Process of Department of the Navy Aviation  
and Operational Safety Concerns (N2011-NIA000-0047)

1. Director, Air Warfare, places a high priority on funding of operational safety capabilities and competes safety capabilities as "a first priority." The Navy has many "first priorities," however, and in a time of austere financial resources classification as "a first priority" is not a guarantee a capability will be funded in the final budget.
2. Director, Air Warfare, is pleased the audit found that the Department of the Navy has an established process for selecting and prioritizing avionics safety systems; we agree there are opportunities for improvement specifically in traceability and auditability of documentation.
3. Director, Air Warfare, released OPNAVINST 13210.1A to provide leadership in advancing safety capabilities. While we concur traceability and auditability of the processes used to gauge compliance with the instruction can be improved, this is not an indication of the priority placed on funding safety capabilities.
4. Director, Air Warfare has reviewed reference (a) and concurs with the findings and recommendations contained therein that relate to the Office of the Chief of Naval Operations, Air Warfare Division.
5. Regarding the OPNAVINST 13210.1A Quarterly Compliance Matrix (QCM) and reported compliance status, several platforms in the QCM show compliance for the Crash Survivable Recorder (CSR), however, the CSR does not record audio data as required by the instruction. Cockpit audio recordings contain classified

Subj: RESPONSE TO NAVAUDSVC DRAFT AUDIT REPORT "PRIORITIZATION AND SELECTION PROCESS OF DON AVIATION AND OPERATIONAL SAFETY CONCERNS" (N2011-NIA000-0047)

information and could reveal classified tactics to an unauthorized user, requiring encryption capabilities which are not yet available. To prevent compromise of classified information, Air Warfare Division has relieved the platforms of the requirement to record audio data. Platforms with a CSR capable of recording parametric data are considered compliant with the CSR requirement. This will be addressed in the next release of OPNAVINST 13210.1 series. In the interim, notes will be added to the pertinent blocks of the QCM providing amplifying information for each T/M/S and capability combination.

6. Responses to the specific recommendations addressed to Director, Air Warfare:

a. Recommendation 1. Strengthen controls and oversight to ensure those avionics safety system capabilities outlined in the Office of the Chief of Naval Operations Instruction 13210.1A are considered for funding as a "first priority" for all Department of the Navy aircraft.

Management Response. Concur with Recommendation 1. Improvements will continue to be made in the traceability and documentation of issues presented during the Program Objective Memorandum (POM) builds. Enhanced guidance will be inserted into the revision being generated for the OPNAVINST 13210.1 series scheduled for release during second quarter fiscal year 2013 (31 January 2013). This will better describe the process of reviewing Operational Advisory Group and Naval Aviation Requirements Group results for fleet capability needs. More detailed explanations in the document will explain how those results are presented to the Program Offices and Requirements Officers for consideration of POM issue sheets briefed at OPNAV POM briefings, HQMC Council of Colonels, and TYCOM Priority Panel for funding consideration.

b. Recommendation 2. Coordinate with Program Manager Air 209 to ensure proper controls and oversight are in place to sufficiently and accurately monitor and maintain the status of compliance with the four required capabilities on a platform-by-platform basis. The procedures should include the following:

(1) Define who shall be responsible for providing input to and verifying the accuracy of the Safety Compliance Matrix and who shall receive the Safety Compliance Matrix to use as a current metric/future tool. At a minimum, include all applicable Program Manager AIRs and Requirements Officers for

Subj: RESPONSE TO NAVAUDSVC DRAFT AUDIT REPORT "PRIORITIZATION AND SELECTION PROCESS OF DON AVIATION AND OPERATIONAL SAFETY CONCERNS" (N2011-NIA000-0047)

the Type/Model/Series included within the Safety Compliance Matrix;

(2) Define as part of the Safety Compliance Matrix a detailed explanation of the color-coding. At a minimum, add tick marks/symbols or additional colors to show partial compliance, accepted deviation from criteria or that a Type/Model/Series has an approved waiver in accordance with reference (a); and

(3) Update all discrepancies identified on the Safety Compliance Matrix as of September 2011 in the next published matrix.

Management Response. Concur with Recommendation 2. N980L will have oversight of a tracking tool through PMA 209 to identify the Deputy Program Manager of each platform program office who receives and reviews each QCM, with a target submittal date of 31 March 2013. An additional page has been included in the QCM scheduled for release on 31 January 2013 with the Annual Waiver Package, which clearly defines the color codes which were previously considered unclear. The discrepancy for the T-34C has been corrected on the draft QCM scheduled for release as stated above. This will complete correction of all deficiencies in the QCM noted by the audit.

c. Recommendation 3. Strengthen controls and oversight to ensure that an accurate Safety Compliance Matrix including all Department of the Navy Type/Model/Series is published on a quarterly basis.

Management Response. Concur with Recommendation 3. Air Warfare Division has completed a review and corrected inaccuracies in the QCM. Enhanced guidance to ensure accuracy of the matrix (see Management Response to Recommendation 2.1 above) will be inserted into the revision being generated for the OPNAVINST 13210.1 series scheduled for release during second quarter fiscal year 2013 (31 January 2013). Continued oversight with the release of each QCM will be incorporated by N980L, effective immediately. The QCM will be tracked and documented via the official Navy Taskers System effective 27 September 2012; this task will be available to all Navy Tasker System users.

d. Recommendation 4. Coordinate with Naval Air Systems Command Program Manager AIRs and appropriate OPNAV Requirements Officers to ensure proper controls and oversight are in place to

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complete, submit and approve a waiver per the sample provided in Enclosure(1) of the Office of the Chief of Naval Operations Instruction 13210.1A, if exception to one of the four required safety capabilities is required.

Management Response. Concur with Recommendation 4. Air Warfare Division will ensure controls and oversight are in place. OPNAV N980L will conduct quarterly a review with platform Requirements Officers (ROs) prior to publishing the QCM. These reviews will afford the ROs an opportunity to submit a waiver if needed. It also will serve as the ROs' formal review of the updates provided to the matrix by each platform Requirements Officer documented directly on the QCM. Enhanced guidance will be inserted into the revision being generated for the OPNAVINST 13210.1 series scheduled for release during second quarter fiscal year 2013 (31 January 2013).

7. Director, Air Warfare technical point of contact is

[REDACTED]

[REDACTED]

[REDACTED]

By direction

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**Appendix 2:**

# Management Response Letter from Program Manager, Program Manager Air 265



DEPARTMENT OF THE NAVY  
NAVAL AIR SYSTEMS COMMAND  
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7510 REPLY REFER TO  
Ser AIR-00G4/093  
**SEP 21 2012**

From: Commander, Naval Air Systems Command  
To: Naval Audit Service, Assistant Auditor General for Installations and Environment Audits

Subj: NAVAL AUDIT SERVICE DRAFT REPORT ON PRIORITIZATION AND  
SELECTION PROCESS OF DEPARTMENT OF THE NAVY AVIATION AND  
OPERATIONAL SAFETY CONCERNS (N2011-NIA000-0047)

Ref: (a) NAVAUDSVC Memo N2011-NIA000-0047 of 28 Aug 2012

Encl: (1) Naval Air Systems Command Response to Subject Draft Report

1. Reference (a) forwarded the subject draft report for review and comments. Accordingly, enclosure (1) contains our response.

2. Please refer administrative questions to [redacted] at [redacted] or [redacted] at [redacted]. Technical questions may be referred to [redacted], [redacted], at [redacted].

[redacted]  
[redacted]  
FOI Inspector General

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PEO(T)/PMA-265  
AIR-1.0/PMA-209

NAVAL AIR SYSTEMS COMMAND RESPONSE TO NAVAUDSVC DRAFT AUDIT  
REPORT ON "PRIORITIZATION AND SELECTION PROCESS OF DEPARTMENT OF  
THE NAVY AVIATION AND OPERATIONAL SAFETY CONCERNS"  
N2011-NIA000-0047, DATED 28 AUGUST 2012

**Finding 1:** Process to Fund, Implement, and Track Required Safety Capabilities

The Department of the Navy (DON) has an established process for selecting and prioritizing avionic safety systems and capabilities; however, we found opportunities for improvement. For the 27 Type/Model/Series (T/M/S) of aircraft reviewed, we found that DON did not always effectively fund, implement, and track the four avionic safety systems and capabilities required by Office of the Chief of Naval Operations (OPNAV) Instruction 13210.1A. Specifically, we found that:

- The four required safety capabilities were not always funded as a first priority;
- The status of compliance with the four required safety capabilities was not adequately and accurately monitored and maintained on a platform-by platform basis;
- The OPNAV Safety Compliance Matrix was not published on a quarterly basis; and
- Noncompliance waivers were not submitted for the audited T/M/S to request exception from the instruction.

These conditions occurred because sufficient controls and oversight were not in place to ensure that DON: (1) fully funded and implemented the four required safety capabilities, and (2) adequately tracked the compliance status of the required safety capabilities. During our audit, we identified six mishaps (from Fiscal Years (FYs) 2007-2011) that had a direct reference to one of the four required safety capabilities. These six mishaps resulted in an estimated cost of \$315 million. In the auditors' professional opinion, if the four required safety capabilities are not funded as a first priority, preventable mishaps and hazards that adversely affect asset availability may continue to occur. Inaccurate and inconsistent tracking of these required safety capabilities may also hinder DON's ability to establish budget priorities and monitor at-risk aircraft.

**NAVAIR Response:** Concur. Assistant Commander for Acquisition, AIR-1.0, Program Manager AIR (PMA), PMA-209 and PMA-265 reviewed the subject report and concur with the findings and recommendations.

**Recommendation 1:** Director, Office of the Chief of Naval Operations, Air Warfare Division strengthen controls and oversight to ensure those safety capabilities outlined in the Office of the Chief of Naval Operations Instruction 13210.1A are funded as a first priority (per Secretary of Defense memorandum as of 22 June 2006) for all Department of the Navy aircraft, unless a current and viable waiver is completed in accordance with the instruction.

**NAVAIR Response:** Concur. PMA-209 will assist OPNAV N980L as required to focus on Platform Safety requirements being submitted during the Program Objective Memorandum cycle

Enclosure (1)

of each Fiscal Year. PMA-209 will further assist OPNAV N980L in the accurate monitoring, tracking and compliance of the four required safety capabilities.

**Recommendation 2:** Director, Office of the Chief of Naval Operations, Air Warfare Division coordinate with Program Manager Air 209 to ensure proper controls and oversight are in place to sufficiently and accurately monitor and maintain the status of compliance with the four required capabilities on a platform-by-platform basis. The procedures should include the following:

- a. Define who shall be responsible for providing input to and verifying the accuracy of the Safety Compliance Matrix, and who shall receive the Safety Compliance Matrix to use as a current metric/future tool. At a minimum, include all applicable Program Manager Airls and Requirements Officers for the Type/Model/Series included within the Safety Compliance Matrix;
- b. Define, as part of the Safety Compliance Matrix, a detailed explanation of the color-coding. At a minimum, add tick marks/symbols or additional colors, to show partial compliance, accepted deviation from criteria, or that Type/Model/Series has an approved waiver, in accordance with the Office of the Chief of Naval Operations Instruction 13210.1A; and
- c. Update all discrepancies indentified on the Safety Compliance Matrix, as of September 2011, in the next published matrix.

**NAVAIR Response:** Concur. PMA-209 will assist OPNAV N980L in defining who shall be responsible for providing input to and verifying the accuracy of the Safety Compliance Matrix and who shall receive the Safety Compliance Matrix to use as a current metric/future tool. PMA-209 will institute an audit trail for tracking concurrence/non-concurrence status from the Platform Deputy Program Managers responsible for receiving, reviewing and responding to accuracies in the quarterly Safety Compliance Matrix. PMA-209 will further assist OPNAV N980L in completing all existing discrepancies by OPNAV's projected target date.

**Recommendation 3:** Director, Office of the Chief of Naval Operations, Air Warfare Division strengthen controls and oversight to ensure that an accurate Safety Compliance Matrix, including all Department of the Navy Type/Model/Series, is published on a quarterly basis.

**NAVAIR Response:** Concur. PMA-209 will assist OPNAV as required in strengthening controls and oversight to ensure that an accurate Safety Compliance Matrix, including all Department of the Navy Type/Model/Series, is published on a quarterly basis.

**Recommendation 4:** Director, Office of the Chief of Naval Operations, Air Warfare Division coordinate with Naval Air Systems Command Program Manager Airls and appropriate Office of the Chief of Naval Operations Requirements Officers to ensure proper controls and oversight are in place to complete, submit, and approve a waiver, per the sample provided in enclosure (1) of

Office of the Chief of Naval Operations Instruction 13210.1A, if exception to one of the four required safety capabilities is required.

**NAVAIR Response:** Concur. PMA-209 will assist OPNAV as required by providing the Platform Program concurrence, non-concurrence updates to the quarterly Safety Compliance Matrix to support the Requirements Officers quarterly review.

**Recommendation 5:** Program Manager, PMA-265 strengthen controls and oversight to ensure documentation in support of the implementation/installation of required safety capabilities is properly maintained.

**Program Manager, PMA-265 Response:** Concur. PMA-265 will institute the following:

1) In the F/A-18E/F and EA-18G, the required Crash Survivable Recorder (CSR) is provided by the Deployable Flight Incident Recorder Set (DFIRS). The required Controlled Flight Into Terrain (CFIT) function is provided by the Terrain Avoidance and Warning System (TAWS) and Ground Proximity Warning System (GPWS). Verification of the installation and functionality of these hardware/software systems are verified by Defense Contract Management Agency (DCMA) pilots during the Acceptance Test Procedure (ATP) of each new aircraft delivered to the Navy. This data is recorded and resides with DCMA St. Louis. Any additional safety systems that become incorporated into production aircraft in the future, such as the Airborne Collision Avoidance System (ACAS), will be handled in a similar manner.

2) For retrofit of existing aircraft with newly required safety systems, PMA-265 will utilize the DECKPLATE Data System to serve as the repository of all official documentation verifying compliance with OPNAV Instruction 13210.1. The DECKPLATE database stores official documentation of Technical Directives (TDs) that have been sent to the fleet. These TDs officially direct fleet squadrons on how to install newly required equipment and software on aircraft, and which particular aircraft, by Bureau Number (BUNO) must receive the modification. When the required install is complete, official documentation of compliance with the directive is generated by the squadron, and archived in DECKPLATE.

3) PMA-265 will review the OPNAV quarterly Compliance Matrix for accuracy and provide concurrence/non-concurrence with updates to PMA-209 to be provided back to OPNAV.

4) Military Flight Operations Quality Assurance (MFOQA) capability is still in development. PMA-209 has an implementation plan for action. Currently, MFOQA is scheduled to reach Initial Operational Capability (IOC) in the F/A-18 in Summer, 2014.

5) The ACAS has not been developed at this time. PMA-209 begins an ACAS developmental program beginning in FY 2014. At the future date of implementation, an Engineering Change Proposal (ECP) will be written, reflecting the effected aircraft by range of BUNO. Once the TD is written and implemented on the affected aircraft or Weapons Replaceable Assembly (WRA) to effect the change, documentation would be archived in DECKPLATE (see response to Recommendation #2 above), which is the authoritative Naval Aviation Active Data Warehouse.

6) The ATP process and DECKPLATE database are currently operational and are in effect immediately. The PMA-265 Business Plan will be amended to reflect these processes by 1 October 2012. Documentation of the Business Plan will be provided to the Naval Audit Service by 15 October 2012. Estimated completion date is 15 October 2012.

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