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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

AFI91-225_AFGM2019-01

15 March 2019

MEMORANDUM FOR DISTRIBUTION C
MAJCOMs/FOAs/DRUs

SUBJECT: Guidance Memorandum to AFI 91-225, *Aviation Safety Programs*

By Order of the Air Force Chief of Safety, this guidance memorandum immediately implements changes to AFI 91-225. Compliance with this memorandum is mandatory. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails, in accordance with AFI 33-360, *Publications and Forms Management*.

Following the issuance of DoDI 6055.19, *Aviation Hazard Identification and Risk Assessment Programs*, and in advance of a rewrite of AFI 91-225, *Aviation Safety Programs*, the attachments to this memorandum provide changes that are effective immediately. This memorandum removes references to AFD 90-13 and MFOQA program waivers, moves direction on completing aircraft fleet cost-benefit analyses from AFD 90-13 to AFI 91-225, and provides an updated reporting web address for the Aviation Safety Action Program (ASAP).

This memorandum becomes void after one-year has elapsed from the date of this memorandum, or upon publication of a rewrite of the affected publication, whichever is earlier. Contact Ms. Kay Armstrong, HQ AFSEC/SEFE, at DSN 263-2607 with any questions.

JOHN T. RAUCH
Major General, USAF
Chief, Air Force Safety

2 Attachments:

1. Guidance changes
2. Revised Attachment 3

Attachment 1

Guidance Changes

The below changes to AFI 91-225, dated 26 Jan 2015, are effective immediately.

1. All references to Aviation Safety Action Program are changed to Airmen Safety Action Program. Continue to use the acronym ASAP.
2. The following paragraphs are changed:
 - a. Introductory paragraph. Change “This publication implements AFD 90-13, *Military Flight Operations Quality Assurance*, and the Office of the Secretary of Defense (OSD) *Military Flight Operations Quality Assurance (MFOQA) Process Implementation Memo*” to “This publication implements DoDI 6055.19, *Aviation Hazard Identification and Risk Assessment Programs*”. This change in overarching guidance carries throughout the publication.
 - b. Index. Change “Attachment 3 – WAIVER TEMPLATE” to “MFOQA PROGRAM EXCLUSION MEMO TEMPLATE”.
 - c. 1.2.1.2. Change “Attachment 3” to “Attachment 2” as the location for the MFOQA cost-benefit analysis template.
 - d. 1.3.5.1. Change the second sentence to read, “Lead MAJCOMs advocate for resources to improve data collection capabilities as required for MFOQA implementation, or if implementation is not fiscally feasible document exclusion through the MFOQA Cost-Benefit Analysis (CBA) (Attachment 2) and memo (Attachment 3).”
 - e. 1.4. Delete paragraph.
 - f. 2.3.2.3. Change to read, “Support the MAJCOM MFOQA Cost-Benefit Analysis (CBA) and the program exclusion memo staffing process. Review exclusion memos for accuracy, compliance, and sufficient documentation.”
 - g. 2.3.3.2. Change to read, “Perform CBAs in accordance with the methodology outlined in Attachment 2 to determine expected cost effectiveness of MFOQA process implementation. Provide flight data to the MFOQA analysis system for aircraft where a cost benefit is expected, or document in a memo justification for program exclusion (Attachment 3). Lead MAJCOM program exclusion memos will extend to all MAJCOMs utilizing the affected MDS.”
 - h. 2.3.3.3. Change to read, “Staff MFOQA program exclusion memos through AF/SE to AF/A3 for review, utilizing the template in Attachment 3.”
 - i. 2.3.3.6. Change to read, “Develop employment concepts to integrate MFOQA into their unique MAJCOM operational and training environments.”
 - j. 3.3.2. Change to read, “ASAP reports are submitted via the Airman Safety Application at <https://asap.safety.af.mil>, which provides a single electronic touchpoint for submitting voluntary ASAP reports and mandatory safety events. Required fields include aircraft type, wing, and narrative of event. Additional data fields may be completed at the discretion of the submitter.”
 - k. Add new 3.3.3, and renumber subsequent paragraphs. “Aviation-related ASAP reports are triaged by MAJCOM safety staff or MAJCOM ASAP teams. The basic triage process is to review, de-identify, and enter the submission into the Air Force Safety Analysis System for resolution of the hazard or lesson learned.”
 - l. Change 3.3.3. to 3.3.4. Change first sentence to read, “The ASAP report Scoreboard can be reviewed at <https://afsas.safety.af.mil> ...”
 - m. Attachment 1. Add “DoDI 6055.19, *Aviation Hazard Identification and Risk Management Programs*, 11 Apr 2017” to the list of references, and delete “AFPD 90-13, *Military Flight Operations Quality Assurance*, 28 Mar 2008”.

n. Attachment 2, paragraph 1.2. Change to read, “DoDI 6055.19, Aviation Hazard Identification and Risk Assessment Programs, directs the establishment of the MFOQA process in a Department of Defense (DoD) aircraft, and the U.S. Air Force defines the requirement in AFI 91-225, Aviation Safety Programs. The OSD direction also allows an exclusion from the MFOQA process implementation requirement for those platforms where a cost-benefit analysis determines the program is not cost effective.” Change final sentence of the subsequent paragraph to read, “The aircraft Lead MAJCOM shall document MFOQA program exclusion decisions in a memo, and submit to AF/SE and AF/A3 for review.”

Attachment 2

Replace "Attachment 3 WAIVER" with the below.

+++++

Attachment 3
MFOQA Program Exclusion Memo
TEMPLATE

Note: The following memo template is provided for stand-alone use by the MAJCOM, and thus does not follow the numbering formats used in the remainder of the AFI.

MEMORANDUM FOR: AF/SE
AF/A3
In Turn

FROM: <Lead MAJCOM>

SUBJECT: Document Exclusion of <subject aircraft> From Military Flight Operations Quality Assurance Program Participation

AFI 91-225 requires the incorporation of MFOQA process requirements and analysis capability on all legacy and new weapon system procurements unless a cost benefit analysis indicates implementation is not fiscally feasible. MFOQA is the analysis and trending of aircraft system and flight performance data to enhance combat readiness through improvements in operations, maintenance, training and safety functions.

<Lead MAJCOM> utilized the following MFOQA Cost/Benefit Analysis and determined MFOQA process implementation is not technically or fiscally feasible on the <subject aircraft>.

COST/BENEFIT ANALYSIS

Methodology - The MFOQA Cost/Benefit Analysis defines five evaluation criteria. Value ranges for each criterion are outlined in the Criterion Value Table below (left column), with points assigned to each value range. If the point total for all criteria is 12 or below, the cost likely outweighs the benefit. If the point total is between 13 and 19 the benefit may outweigh the cost and further research is needed. If the total is over 19 a benefit can be derived from the implementation of the MFOQA process.

Criteria:

Aircraft Cost – Utilizing the established Air Force cost inflation methodology, the <aircraft> value in <previous calendar year> is approximately <dollar amount>.

Service Life – As determined by the <aircraft> program office, the <aircraft> has approximately <years> of its service life remaining.

Mishap Rate – Utilizing the statistics available in the Flight Statistics section of the AF Safety Center webpage, the fatality rate per 100,000 flight hours for the <aircraft> over the last ten years is <rate>.

Fatality Rate – Utilizing the statistics available in the Flight Statistics section of the AF Safety Center webpage, the Class A Mishap rate per 100,000 flight hours for the <aircraft> over the last ten years is <rate>.

Integration Cost/Effort – Working with MAJCOM requirements personnel, the <aircraft > program office, and referencing the Aircraft Information Management Plan, <outline potential modifications and costs which would enable the MFOQA process.>

Table A3.1. Criterion Value Table.

Criterion Value	Aircraft Cost (M\$)	Service Life (years)	Fatality Rate	Mishap Rate	Integration Cost (M\$)
1	0 - 25	1 - 5	0 - 0.25	0-.50	36 - Above
2	25 - 50	6-10	0.26 - 0.50	.51 - 1.00	32 - 36
3	50 - 75	11-15	0.51 - 0.75	1.01 - 1.50	28 - 32
4	75 - 100	16-20	0.76 - 1.00	1.51 - 2.00	24 - 28
5	100 - 125	21-25	1.01 - 1.25	2.01 - 2.50	20 - 24
6	125 - 150	26-30	1.26 - 1.50	2.51 - 3.00	16 - 20
7	150 - 175	31-35	1.51 - 1.75	3.01 - 3.50	12 - 16
8	175 - 200	36-40	1.76 - 2.00	3.51 - 4.00	8 - 12
9	225 - 250	41-45	2.01 - 2.25	4.01 - 4.50	4 - 8
10	250 - Above	45 - above	2.26 - Above	4.51 - Above	0 - 4

Valuation – Utilizing the valuation criteria, the <aircraft> scored <points>, and the implementation of the MFOQA process will likely not provide a cost benefit. <State additional factors for consideration if the criteria total fell between 13 and 20.>

CONCLUSION:

Exclude <aircraft fleet> from the MFOQA implementation requirements of DoDI 6055.19 and AFI 91-225.

NAME
Lead MAJCOM/CV

CC:
AF/PEO AC

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 91-225



26 JANUARY 2015
Certified Current on, 30 April 2015
Safety

AVIATION SAFETY PROGRAMS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: HQ AFSEC/SEF

Certified by: AF/SE
(Maj Gen Kurt F. Neubauer)

Supersedes: AFI 90-1301, 1 Apr 2008

Pages: 28

This publication implements AFPD 90-13, *Military Flight Operations Quality Assurance*, and the Office of the Secretary of Defense (OSD) *Military Flight Operations Quality Assurance (MFOQA) Process Implementation Policy* memo, and supports DoD Instruction (DoDI) 6055.1, *DoD Safety and Occupational Health (SOH) Program*, and AFPD 91-2, *Safety Programs*. This instruction applies to active duty units, Air National Guard (ANG), and Air Force Reserve Command (AFRC) units. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule in the Air Force Records Information Management System (AFRIMS). Requests for waiver to the requirement to implement Military Flight Operations Quality Assurance (MFOQA) processes shall be generated and staffed as described in paragraph 1.4. of this instruction.

SUMMARY OF CHANGES

This document must be completely reviewed, as it is a re-write of AFI 90-1301, *Implementing Military Flight Operations Quality Assurance*, and includes guidance for multiple proactive aviation safety programs.

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Chapter 1

PURPOSE, PRINCIPLES, AND RESPONSIBILITIES

1.1. Purpose.

1.1.1. This Instruction assigns responsibilities and provides instructions for AF Aviation Safety Programs (ASP). ASPs are data-driven and proactive programs such as Military Flight Operations Quality Assurance (MFOQA), Aviation Safety Action Programs (ASAP), and Line Operations Safety Audit (LOSA).

1.1.1.1. ASPs enhance aviation safety, operations, training, and maintenance through improved utilization of recorded aircraft system data, flight performance data, and self-reported data. The integrated use of data collected through ASPs facilitates hazard identification and risk mitigation to prevent mishaps.

1.1.1.2. Analysis of recorded data identifies and quantifies both normal and hazardous flight environments and, where applicable, enables monitoring of control measure effectiveness. Analysis of self-reported data and observed inflight behaviors identifies threats, errors, and hazards that could engender mishap sequences, and assists in the identification of mitigation measures.

1.1.1.3. ASP processes provide identity protected, aggregate data to identify trends, human factors issues, mishap precursors, and the effectiveness of corrective actions. Safety, operations, training and maintenance communities utilize the analysis results and corrective actions to improve flight operations and mission readiness.

1.1.2. ASPs support the development and implementation of aviation Safety Management Systems (SMS) as directed in AFD 91-2, *Safety Programs*. Programs such as MFOQA, ASAP, and LOSA enable the SMS pillar of 'Safety Risk Management' by providing tools to analyze and assess aviation safety hazards, develop and implement measures to control or mitigate the risk, and monitor mitigation efficacy.

1.1.3. ASPs protect AF personnel from accidental death or injury through the utilization of safety technologies. Aviation safety data monitoring and analysis facilitates the risk management process as described in DoDI 6055.1 by identifying hazards specific to flight operations. This allows commanders to use the analysis results to assess the risk, adjust policy and training to mitigate the risk, identify material requirements, or accept the risk as necessary for mission accomplishment.

1.1.4. Airman participation in and use of the data derived from ASPs builds a knowledge base for identification and mitigation of aviation hazards, with a resulting increase in safety and reduction in mishaps. This affects positive change in the Air Force by engendering a culture where personnel are willing to identify hazards and errors, not cover them up.

1.1.5. See [Chapter 2](#) for MFOQA, [Chapter 3](#) for ASAP, and [Chapter 4](#) for LOSA program descriptions.

1.1.6. Throughout this document, the terms Lead MAJCOM and Using MAJCOM are used to identify advocacy for and use of aircraft weapon systems, as described in AFD 10-9, *Lead Command Designation and Responsibilities For Weapon Systems*.

1.2. Aviation Safety Program Principles.

1.2.1. MAJCOMs shall pursue increased aviation mission readiness, improved combat capability, and a reduction in aviation mishap rates through the implementation of data-driven proactive aviation safety programs for hazard identification and risk assessment. At a minimum the MAJCOMs shall employ MFOQA and ASAP programs.

1.2.1.1. Lead MAJCOMs shall include a data collection and distribution process that supports MFOQA capability as a standard requirement in all future aircraft acquisition, including remotely piloted aircraft (RPA). RPAs not required to meet airworthiness certification are exempt.

1.2.1.2. For existing aircraft (including RPAs requiring air worthiness certification), Lead MAJCOMs shall program for data collection and distribution processes that support MFOQA analyses unless a cost-benefit analysis demonstrates a need for exclusion (See [Attachment 3](#)). Ensure aircraft information sources meet the requirements of AFH 63-1402, *Aircraft Information Programs*.

1.2.1.3. MAJCOMs shall employ ASAP initiatives as a means for identifying and trending threats, errors, and hazards present in aviation operations that may otherwise remain unknown.

1.2.1.4. MAJCOMs should consider utilizing LOSA flight observations and analyses as another means of identifying and mitigating aviation hazards and negative trends through the collection and analysis of external threats and internal errors, and responses to these threats and errors.

1.2.2. The MAJCOMs shall establish procedures for handling the data collected for and releasing the analysis results generated by ASPs, based on the following:

1.2.2.1. Data collected for or analyses generated from ASPs shall not be used for monitoring personnel performance to initiate crew qualification downgrade (e.g., Q2 or Q3) or decertification, or to take adverse personnel action, including non-judicial (e.g., Letter of Counseling, Article 15, etc.), or judicial action, except as described in paragraph 1.2.2.2. below. Additional training programs or requirements are not themselves considered punitive or adverse.

1.2.2.2. If data collected for or analyses generated from ASPs indicates that the activity or event appears to involve an intentional disregard for safety, or that an intentional false statement has been made, the analysis or report no longer falls in the proactive aviation safety arena and the protections of paragraph 1.2.2.1. are not applicable. In these cases, commanders may utilize MFOQA analyses and ASAP reports as necessary to investigate the event and are not precluded by the limitations of paragraph 1.2.2.1.

1.2.2.3. Flight data files used for MFOQA analyses are factual information and are not covered by the privileged safety information procedures of AFI 91-204, *Safety Investigations and Reports*.

1.2.2.3.1. 10 USC 2254a allows the exemption of information contained in flight data files and subsequent MFOQA analyses from release through Freedom of Information Act (FOIA) requests upon written determination from the Secretary of Defense that the information is sensitive information concerning military aircraft, units or aircrew,

and the public interest consideration in the disclosure of the information does not outweigh preventing disclosure of the information. The Secretary of Defense delegated this authority to the Director of Administration and Management; FOIA exemption requests are made on a case by case basis. Contact AFSEC/JA for a copy of the designation memo and procedures for requesting exemption.

1.2.2.3.2. MFOQA analysis reports requested by an AF Safety Investigation Board for specific data (i.e., over-Gs by tail number or unstable approaches at a particular location) may give insight to the board's deliberative process and may be covered by the privileged safety information procedures of AFI 91-204. AFSEC/JA will make these determinations on a case by case basis.

1.2.2.4. ASAP Reporting.

1.2.2.4.1. ASAP reports are not covered by the privileged safety information procedures of AFI 91-204. DoD may be required to release ASAP reports pursuant to a court order.

1.2.2.4.2. In accordance with AFI 91-202, *The US Air Force Mishap Prevention Program*, and in order to protect the integrity of the ASAP hazard identification system, AF personnel will not be subject to coercion, discrimination or reprisal for participation.

1.2.2.5. The LOSA process involves the collection of unidentified observations and the development of a consolidated report of trends and conclusions regarding day-to-day operations. This report may identify hazards or trends warranting further investigation. When a Class E High Accident Potential (HAP) investigation is convened to address potential hazards or trends identified through LOSA reports, the resultant findings and recommendations are considered privileged safety information and will be handled IAW AFI 91-204. LOSA observation forms and annotated data are not safety privileged information.

1.2.2.6. Commanders may initiate proactive safety investigations of hazardous events that did not include damage or injury. In these cases MFOQA analyses accomplished specifically for an investigation that will be categorized as a Class E and used in the deliberative process may be covered by the privileged safety information procedures of AFI 91-204. AFSEC/JA will make these determinations on a case by case basis.

1.3. Responsibilities.

1.3.1. This section establishes overarching responsibilities and authorities. Additional responsibilities associated with the employment of specific ASPs are found in their associated attachments to this document.

1.3.1.1. The Air Force Chief of Safety (AF/SE) shall:

1.3.1.2. Issue safety program policy and oversee ASP process development throughout the Air Force.

1.3.1.3. Support ASP collaboration with other DoD components on Joint programs and in Joint operating environments.

1.3.2. The Air Force Deputy Chief of Staff, Air, Space and Information Operations, Plans and Requirements (USAF A3/5), will:

1.3.2.1. Ensure Lead MAJCOMs establish requirements and fund materiel sustainment of aircraft flight data collection capabilities, and Lead and Using MAJCOMs enable access to the flight data for MFOQA analysis process development and implementation.

1.3.2.2. Ensure MAJCOMs incorporate ASP hazard analysis results in risk management processes, and in aircrew training and operational procedures such as those found in the individual Mission Design Series (MDS) Vol III.

1.3.3. Air Force Materiel Command (AFMC) will:

1.3.3.1. Act as a focal point and liaison for aircraft data acquisition compliance with AFI 63-101/20-101, *Integrated Life Cycle Management*, and AFH 63-1402 parameter requirements.

1.3.3.2. Ensure MFOQA process capabilities are incorporated into applicable legacy aircraft modifications and all new aircraft procurements unless waived by the Deputy Secretary of Defense.

1.3.4. Headquarters Air Force Safety Center (HQ AFSEC) will provide management and oversight of ASP program objectives and analysis capabilities. HQ AFSEC will:

1.3.4.1. Provide MAJCOMs with required policy and educational resources to support ASP efforts.

1.3.4.2. Fund MFOQA and ASAP reporting and analysis software management and sustainment, and digital flight data analysis manpower requirements. Software capabilities include the receiving, storing, processing, analyzing, and protecting of the data collected for and analysis generated by MFOQA and ASAP processes and reports.

1.3.4.3. Conduct centralized, AF-wide ASP analyses across multiple platforms and aviation functional areas, while facilitating compatibility and cross-communication between MAJCOMs, sister services, foreign militaries, and civil aviation communities.

1.3.4.4. Document and disseminate ASP benefits, such as improved training efficiency, maintenance savings, and risk reduction.

1.3.5. MAJCOMs will develop strategies to employ ASP in their unique operational and training environments. MAJCOMs will:

1.3.5.1. Support MFOQA analysis by ensuring AFH 63-1402 data collection and MFOQA process requirements are integrated into platforms under their responsibility (as assigned by AFPD 10-9). Lead MAJCOMs advocate for resources to improve data collection capabilities as required for MFOQA implementation, and submit MFOQA waivers as described in AFPD 90-13, *Military Flight Operations Quality Assurance*, and [Attachment 3](#).

1.3.5.2. Document in a supplement, CONOPs, or separate instruction MAJCOM-specific structures and processes that support the ASP concept for operations, training, maintenance and safety customers.

1.3.5.3. Document an organizational structure and implement processes that evaluate platform or command-wide trends, develop corrective measures to control adverse trends, and evaluate control measure effectiveness over time, utilizing the expertise of operations, training, maintenance, and safety personnel.

1.3.5.4. Establish protocols for gatekeeper or analyst contact with aircrew, report submitters, and maintenance personnel to gain additional insight into contributing factors to an event or hazard, or to report MFOQA-related maintenance write-ups.

1.3.5.5. Incorporate ASP products in risk management processes, and in aircrew tactics, training and procedures such as those found in MDS Vol III.

1.4. Waivers.

1.4.1. The Lead MAJCOM, as identified in AFPD 10-9, shall submit a request for waiver of the MFOQA employment requirement if a MFOQA Cost-Benefit Analysis (**Attachment 2**) demonstrates employment is not fiscally feasible. Waiver requests shall be developed utilizing the cost-benefit analysis and instructions in **Attachment 2**, and submitted as described in **Attachment 3**.

Chapter 2

MILITARY FLIGHT OPERATIONS QUALITY ASSURANCE (MFOQA)

2.1. Purpose.

2.1.1. MFOQA is the analysis and trending of aircraft system and flight performance data to enhance combat readiness through improvements in operations, maintenance, training, and safety functions.

2.1.2. MFOQA analysis requirements apply to all AF aircraft, manned and unmanned (exceptions noted in [paragraph 1.2.1](#)), including those of the ANG and AFRC. MAJCOMs without assigned aircraft are not required to implement MFOQA analysis processes, but when applicable shall support resolution of hazards identified through MFOQA.

2.1.3. MFOQA provides tools for commanders to: establish a baseline for actual operations; identify, mitigate, and monitor operational risks while detecting precursors to aviation mishaps; and identify operational inefficiencies. MFOQA gives capabilities to multiple levels and functional areas to improve and enhance mission-effectiveness through awareness of trends, continuous knowledge of aircraft systems performance, and insight into the effectiveness of procedures, policy, and aircrew training on actual mission accomplishment.

2.1.4. The MFOQA process is implemented through the regular analysis of recorded aircraft flight data. MFOQA process implementation will aid in the reduction of aviation mishap rates and in the conservation of resources.

2.2. MFOQA Implementation Overview.

2.2.1. MFOQA analysis results are dependent on a routine mechanism for collecting day-to-day comprehensive aircraft data for aggregated trending analysis. MFOQA provides leadership with timely, actionable analyses to increase awareness of operational flight risks. In addition, the MFOQA data collection process may enable operator training feedback and improve maintenance troubleshooting.

2.2.2. The AF MFOQA data analysis capability is managed by AFSEC and offers a web-based system to collect, store, and analyze digital flight data files. Depending on the data retrieval process established by the MDS program office and the Lead MAJCOM, the MFOQA software will either receive data files uploaded directly to the web server, or will automatically retrieve files from established AF data repositories.

2.2.3. The data collection and analysis mechanics will vary between MAJCOMs, organizations, and individual fleets due to technological and mission differences. The following overarching characteristics should be incorporated into all MFOQA employment concepts:

2.2.3.1. Record aircraft data. Aircraft Program Managers (PM) and Lead MAJCOM requirements personnel collaborate on the implementation of a flight data collection process, following the direction of AFI 63-101/20-101, AFI 63-133, *Aircraft Information Program*, and AFH 63-1402. Information collected for MFOQA may be utilized by other data-centric programs, such as Aircraft Structural Integrity Program (ASIP), Engine Structural Integrity Program (ENSIP), and mishap investigation.

2.2.3.2. Download the aircraft flight data. The data should be downloaded on a schedule that ensures timely data analysis and results in minimal loss of flight operations data due to recorder capacity limitations. Make the flight data files available to the MFOQA analysis process.

2.2.3.3. Process and analyze data.

2.2.3.3.1. Analysis results depend on the quality of the flight data available and the desired depth of analysis.

2.2.3.3.2. A trained MFOQA analyst will be provided by AFSEC to manage the MFOQA analysis process for one or more fleets. The analyst will conduct initial data validation, provide regular reports for Lead and Using MAJCOM hazard identification and mitigations processes, and provide MFOQA trend analysis.

2.2.3.3.3. MAJCOMs will develop clear protocols for gatekeepers to use when contacting aircrews for data validation purposes. Protocols for Lead MAJCOM gatekeeper contact with National Guard Bureau (NGB) aircrew will be established by NGB/CF or a designee as appropriate.

2.2.3.4. Distribute analysis results. Provide routine analysis results to MAJCOM representatives from operations, training, maintenance, safety, and engineering functions for review of MDS trends. MAJCOMs establish processes for further distribution of analyses.

2.2.3.5. Assess risk, identify mitigation measures, and monitor effectiveness.

2.2.3.5.1. Identify hazards using MFOQA and other data processes. Assess the risk associated with the hazards, identify mitigation measures, and monitor effectiveness.

2.2.3.5.2. Mitigation measures include any means necessary, ranging from modification of procedures, aircraft limitations, tactics, or training syllabi, to simple aircrew, maintainer, or commander awareness efforts.

2.2.3.5.3. Utilize further MFOQA analysis to monitor effectiveness and determine if further modifications or additional measures are necessary.

2.3. Responsibilities.

2.3.1. Program Managers (PM) responsible for aircraft development will perform the roles and responsibilities identified in AFI 63-101/20-101 and AFH 63-1402, supported by the Integrated Process Team (IPT) process, to collect flight data generated by the aircraft in order to enable the MFOQA data analysis process.

2.3.1.1. Support the Lead MAJCOM in their effort to provide MFOQA capabilities and processes.

2.3.1.1.1. For aircraft in development, ensure MFOQA data collection requirements, as specified in and funded through capabilities documents authorized by the Lead MAJCOM, are met through compliance with AFI 63-101/20-101, AFI 63-133, and AFH 63-1402 so that the aircraft enter Full-Rate Production meeting MFOQA requirements.

2.3.1.1.2. For aircraft undergoing modification, evaluate the potential to incorporate missing data collection and distribution requirements that support the MFOQA data analysis process.

2.3.1.1.3. Support Lead MAJCOM development of the MFOQA Cost Benefit Analysis (see [Attachment 2](#)) by providing updated engineering service life estimates, fly-away cost data, and estimated cost (if any) to provide flight data files to the MFOQA analysis process.

2.3.1.2. Use the IPT process to integrate MFOQA data collection and analysis with similar processes for the other system monitoring equipment, such as ASIP, as part of the overall PM effort to assure the Operational Safety, Suitability, and Effectiveness (OSS&E) of the aircraft.

2.3.1.3. Provide assistance in assessing risks and determining mitigation measures when MFOQA data analyses identify new hazards. The PM identifies materiel changes to hardware or software, or needed changes to technical data, that reduce the probability or severity of potential mishaps.

2.3.2. AFSEC will:

2.3.2.1. Provide management and oversight of MFOQA program objectives and analysis capabilities. Provide guidance and support to MAJCOMs as they develop, implement and sustain their MFOQA programs.

2.3.2.2. Resource MFOQA analysis software and manpower requirements.

2.3.2.2.1. Procure, develop, deploy and sustain a standardized MFOQA analysis system.

2.3.2.2.2. Train, deploy, manage and fund manpower to support MFOQA analysis requirements at the Lead MAJCOMs, based on the types and number of aircraft involved, and the capabilities of the analysis system.

2.3.2.3. Support the MAJCOM MFOQA Cost-Benefit Analysis (CBA) and waiver request staffing process. Review waiver requests for accuracy, compliance, and sufficient documentation.

2.3.2.4. Provide guidance to PMs and Lead MAJCOM requirements personnel on MFOQA data requirements, including required/desired parameters, data collection, data download, data distribution, data analysis and analysis results distribution.

2.3.2.5. Conduct centralized, AF-wide MFOQA analyses across multiple platforms, and facilitate MFOQA compatibility and cross-communication between MAJCOMs, Joint Service, foreign military, and civil aviation communities.

2.3.3. Lead MAJCOMs will:

2.3.3.1. For aircraft in development, ensure MFOQA data collection requirements, in accordance with AFI 63-101/20-101, AFI 63-133, and AFH 63-1402 are specified in and funded through capabilities documents submitted to Program Offices so that the aircraft enter Full-Rate Production meeting MFOQA requirements. For aircraft undergoing modification, evaluate and act upon opportunities to incorporate missing data collection and distribution requirements that support the MFOQA data analysis process.

- 2.3.3.2. Perform CBAs on all aircraft in accordance with the methodology outlined in **Attachment 2** to determine feasibility of MFOQA process implementation. Provide flight data to the MFOQA analysis system for all feasible aircraft, or request a waiver for those platforms deemed non-MFOQA capable. Lead MAJCOM waiver requests /approvals will extend to all MAJCOMs utilizing the affected MDS.
- 2.3.3.3. Staff requests for waiver to the MFOQA requirement through AF/SE to the Deputy Secretary of Defense for approval, utilizing the CBA and waiver templates in **Attachment 2** and **Attachment 3**.
- 2.3.3.4. Collaborate with AFSEC to determine flight data analysis manpower requirements, based on MAJCOM-level, centralized analysis for each MDS. Provide local sponsorship, workspace, and logistical support for HQ AFSEC-provided MFOQA analyst(s) and ASAP/MFOQA program managers (when applicable).
- 2.3.3.5. Collaborate with PMs to establish data download, distribution, and storage procedures that enable MFOQA data analysis processes for each MDS under their responsibility, coordinating download frequency with User MAJCOMs. Routinely download recorded data on a schedule that provides timely data analysis and results in minimal loss of flight operations data due to recorder capacity limitations.
- 2.3.3.6. Develop employment concepts to integrate MFOQA vision and objectives as stated in AFD 90-13, in their unique MAJCOM operational and training environments.
- 2.3.3.7. Utilize aggregated flight data analysis for each MDS under their responsibility to identify risks common to various levels of the organization, as well as the MAJCOM in general.
- 2.3.3.8. Establish protocols within the Lead MAJCOM and between the Lead and Using MAJCOMs to disseminate analysis results.
- 2.3.3.9. Establish protocols within the Lead MAJCOM and between the Lead and Using MAJCOMs for gatekeeper contact with aircrew and aircraft analyst contact with MAJCOM maintenance personnel.
- 2.3.3.9.1. Gatekeepers contact crewmembers solely to gain additional insight into an event or hazard, in order to understand the facts of the event in question and to facilitate the hazard resolution process.
- 2.3.3.9.2. MAJCOM A4 will identify a process to facilitate the reporting and resolution of MFOQA-identified issues, such as to investigate ‘one-off’ type events, to validate and resolve data anomalies, or to report aircraft exceedances to ensure timely aircraft inspections are accomplished.
- 2.3.3.10. Support, facilitate, and implement MFOQA-related training and the dissemination of MFOQA educational materials.
- 2.3.3.11. Document and disseminate MFOQA benefits, such as improved training efficiency, maintenance savings, and risk reduction.
- 2.3.3.12. Conduct regular reviews of the MFOQA process to identify and implement program process improvements, soliciting input from Using MAJCOMs.
- 2.3.4. Lead MAJCOMs except the Air Reserve Components (ARC) will:

2.3.4.1. Document the organizational structure and processes supporting MFOQA Implementation described in section 2.2., such as:

2.3.4.1.1. Use of an analysis review team to identify and assess aviation hazards and platform-wide trends, develop corrective measures to control adverse trends, make risk decisions, and evaluate control measure effectiveness over time. The team should include representatives from operations, training, maintenance, requirements, and safety.

2.3.4.1.2. Identify organizations within Lead and Using MAJCOMs that will benefit from MFOQA analysis results, considering user needs and desires. Develop a feedback process and tailor analytical products to ensure user needs continue to be met as the program is implemented and matures.

2.3.4.1.3. Collaborate with Using MAJCOMs to address hazards and trends specific to the Using MAJCOM area of responsibility.

2.3.5. Using MAJCOMs will:

2.3.5.1. Collaborate with the Lead MAJCOM to disseminate analysis results, and to address hazards and trends specific to the Using MAJCOM area of responsibility.

2.3.5.2. Collaborate with Lead MAJCOMs to identify organizations that will benefit from MFOQA analysis results, considering user needs and desires. Develop a feedback process and tailor analytical products to ensure user needs continue to be met as the program is implemented and matures.

Chapter 3

AVIATION SAFETY ACTION PROGRAM (ASAP)

3.1. General.

3.1.1. ASAP is an identity protected, self-reporting system designed to encourage the voluntary reporting of issues that increase risk to flight operations.

3.2. Purpose.

3.2.1. ASAP augments existing safety reporting programs by capturing self-reported issues and events not normally disclosed by traditional hazard reporting and mishap prevention programs. These reports identify and highlight hazards, threats, and errors that may otherwise remain unknown.

3.2.2. ASAP involves leaders and airmen in the aviation mishap reduction process by capturing self-reported issues and events, analyzing the resulting information for trends, educating personnel, and developing and implementing risk reduction or mitigation strategies. By enhancing situational awareness, improving risk management, and reducing risk, ASAP reporting can effectively protect people, conserve aircraft, maximize efficiency, and improve readiness.

3.3. ASAP Implementation Overview.

3.3.1. ASAP is designed for Airmen to report information and concepts critical to resolving mishap precursors, and the sharing of this information across AF aviation communities. The information is used to reduce mishaps through operational, logistic, maintenance, training and procedural enhancements. Do not submit as ASAP reports violations of the UCMJ or criminal statute.

3.3.2. ASAP reports are submitted at <http://www.safety-masap.com>. Reports are submitted by mission type and aircraft; required fields include aircraft type, wing, and narrative of event. Additional data fields may be filled at the discretion of the submitter.

3.3.3. ASAP report scoreboards are reviewed at the same site, again by mission type and aircraft, and include the narrative, recommended actions if submitted, and MAJCOM resolution. If the submitter included names of personnel, the MAJCOM ASAP administrator will redact the names before the report is posted to the scoreboard.

3.3.4. The MAJCOM ASAP Working Group (WG) / Event Review Committee (ERC) will research any operational, logistics, maintenance, training, or safety issues associated with the events detailed in the ASAP submission, utilizing additional sources of information such as MFOQA analyses, training or evaluation trends, policy and guidance review, etc.

3.3.5. If names are included in the ASAP submission narrative, those names will be redacted by the MAJCOM ASAP administrator prior to making the report available for action. If the ASAP WG / ERC determines additional information would benefit the hazard resolution process, names in the narrative or submitted with the report may be made available to the ASAP gatekeeper. **Paragraph 1.2.2.1** and **paragraph 1.2.2.2** apply to all personnel associated with the report, whether named in the report or not.

3.3.6. ASAP report content is assumed to be true in the spirit of mishap prevention. If the MAJCOM WG/ERC determines the report contains intentional false statements, or that the reported activity or event indicates an intentional disregard for safety, the report will be handled as described in [paragraph 1.2.2.1](#) and [1.2.2.2](#)

3.4. Responsibilities.

3.4.1. AFSEC will:

3.4.1.1. Provide management and oversight of ASAP program objectives and reporting capabilities. Provide guidance and support to MAJCOMs as they develop, implement and sustain their ASAP programs.

3.4.1.2. Coordinate ASAP policy among Services to facilitate sharing of best practices and lessons learned.

3.4.1.3. Resource ASAP reporting and analysis software that allows the submitter to enter all applicable details of the threat, error, or hazard in an identity-protected manner.

3.4.1.4. Conduct centralized, AF-wide ASAP analyses across multiple platforms, and facilitate ASAP compatibility and cross-communication between MAJCOMs, Joint Service, foreign military, and civil aviation communities.

3.4.2. MAJCOM Staff will:

3.4.2.1. Educate units on ASAP program execution and how to utilize ASAP reporting capabilities.

3.4.2.2. Establish new or employ existing organizational structures to act as an ASAP Working Group (WG) / Event Review Committee (ERC), including personnel from operations, safety, training, maintenance, and others as determined by the MAJCOM.

3.4.2.3. Identify hazards using ASAP and other data streams for each MDS community, as well as within the MAJCOM/NAF.

3.4.2.4. Assess the risks associated with identified hazards and errors, develop and implement risk mitigation strategies to resolve the risk, and monitor effectiveness.

3.4.2.5. Leverage technology via a variety of media to communicate ASAP report resolution, hazard mitigation, and lessons learned.

3.4.2.6. Identify “gatekeepers” to act as trusted agents when additional information is needed to resolve a report.

3.4.3. ASAP Working Group (WG) /Event Review Committee (ERC) will:

3.4.3.1. Establish a process to accept, validate, process, and track all reports, including the redaction of personally identifying information.

3.4.3.2. Determine if the report should be reviewed by another agency. For example, if an ASAP report is determined to be a Hazardous Air Traffic Report (HATR), then the report should be seen by the appropriate safety office. In these instances, attempt to contact the submitter to file the appropriate report. Track the reports until action is complete, and include in trending analysis.

3.4.3.3. Exclude from the analysis and trending process those reports that are determined to contain intentional false statements or an intentional disregard for safety.

3.4.3.4. Assign a “gatekeeper”, if necessary, to collect additional report details when additional insight into the event may be beneficial to the hazard resolution process.

3.4.3.5. Conduct thorough root cause analysis by tapping the cross-functional expertise of the ASAP Working Group/ERC. Determine factors that contributed to the outcome and explain “why” the event occurred. Note correctable events in the sequence to use as a starting point to develop corrective action/risk mitigation.

3.4.3.6. Determine the deficiency/deficiencies that need(s) correction, if any. Recommend strategies and courses of action to mitigate or eliminate risk.

3.4.3.7. Strengthen culture among leaders and aviation personnel by resolving ASAP reports in a manner that addresses the underlying cause of the event or error, without laying blame on an individual or organization.

3.4.3.8. Leverage technology via a variety of media to communicate ASAP report resolution.

3.4.4. Commanders will emphasize the importance of identifying hazardous situations and ASAP’s ability to identify safety related issues and provide solutions for the benefit of the aviation community, as a method of preventing future mishaps and strengthening a culture of safe, effective mission accomplishment.

3.4.5. Individuals submitting an ASAP Report.

3.4.5.1. Any person (e.g., pilot, aircrew, maintainer, etc.) aware that a hazardous situation was encountered or an error occurred is encouraged to submit an ASAP report; however, this does not substitute for the submission of required safety reports.

3.4.5.2. ASAP report examples include: any unsafe action, event or condition encountered during any portion of a flight or activity, from mission planning to ground operations to mission execution to crew rest; observed hazards that may not have directly affected the particular operation but may affect other operations or activities; hazards caused by defective materials, problems with Standard Operating Procedures, aircraft systems / design concerns, etc; personal errors or errors by other crewmembers which could have led to a mishap / incident; errors committed by other individuals or organizations that adversely affected or could have affected the mission, including procedural errors; problems with hazardous situations not reported by other methods such as safety reports and Hazardous Air Traffic Reports (HATRs); or any other event considered worthy of reporting in the name of safety.

Chapter 4

LINE OPERATIONS SAFETY AUDIT (LOSA)

4.1. General.

4.1.1. The Line Operations Safety Audit (LOSA) is an observation program developed to gather safety-related data on environmental conditions, operational complexity, and human factors issues during every day flying operations. MAJCOMs may choose to conduct LOSAs within their Command in order to confidentially collect data on situational factors and personnel behavior encountered in day-to-day flight operations.

4.2. Purpose.

4.2.1. LOSA is based on Threat and Error Management as described in AFI 11-290, *Cockpit/Crew Resource Management Program*, which conceptualizes operational activity as a series of ongoing threats and errors that personnel must manage to maintain adequate safety margins.

4.2.2. LOSA contributes to proactive safety by identifying the threats personnel face, the common errors personnel experience, and the best practices employed by personnel to trap, mitigate, and manage those threats and errors. The LOSA process provides a thorough and methodical assessment of strengths and weaknesses across the aviation community. With this information, MAJCOMs make improvements to training, Technical Orders, Air Force Instructions (AFI), and processes to make the environment safer and more efficient.

4.2.3. LOSAs are not checkrides or evaluations; instead, silent observers document operational threats and errors, and how they are mitigated or managed. The LOSA provides a snapshot of operational performance across the community which is then used to make proactive safety changes to prevent future accidents or incidents and improve efficiency.

4.2.4. LOSAs work in concert with MFOQA and ASAP programs to fully develop a proactive safety culture without fear of retribution. Aircrew participation and trust in the process is essential for success.

4.3. Scope.

4.3.1. Because a LOSA is an operations audit, it encompasses all operations areas which impact the aircrew, from mission acceptance through completion. Many factors before takeoff and after landing affect a crew and their mission, and can be as detrimental to safety as those in the cockpit during flight. Observations can be conducted on pilots, various MDSs and other crew positions as determined by the MAJCOM, plus potentially maintenance, Airfield Operations, and various key personnel.

4.4. LOSA Implementation Overview.

4.4.1. LOSAs may be conducted by a commercial vendor, or may be developed and conducted in-house utilizing Federal Aviation Administration (FAA) Advisory Circular 120-90, *Line Operations Safety Audits*, as a guide.

4.4.2. Major steps in developing and implementing a LOSA:

- 4.4.2.1. Create an observation form that captures multiple aspects of normal operations, including the operating environment and expected performance.
- 4.4.2.2. Select and train the LOSA observer force for standardization and confidence in the integrity of the data collection process. LOSA observers should be current and qualified in the position they are observing.
- 4.4.2.3. Observers gather threat and error data on a determined number of daily sorties or activities.
- 4.4.2.4. Subject Matter Experts review and verify each observation to validate threat and error annotations prior to analysis.
- 4.4.2.5. Develop the analysis report, detailing the prevalence and management of different threats and errors. Errors that occur more frequently than others, Standard Operating Procedures that are routinely ignored or modified, and actions that pose greater difficulty for adherence help identify targets for improvement.
- 4.4.2.6. The MAJCOM may form a Class E Safety Investigation team to transform the LOSA analysis into actionable Findings and Recommendations.
- 4.4.2.7. Brief the LOSA analysis and / or Finding and Recommendations to leadership for acceptance and implementation.
- 4.4.2.8. Communicate significant LOSA results, findings, and planned system changes to the operators.

KURT F. NEUBAUER
Major General, USAF
Chief of Safety

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DoDI 5400.7-R_AFMAN 33-302, *Freedom of Information Act Program*, 21 Oct 2010

DoDI 6055.1, *DoD Safety and Occupational Health (SOH) Program*, 19 Aug 1998

DoDI 6055.07, *Mishap Notification, Investigation, Reporting and Record Keeping*, 6 Jun 2011

AFPD 10-9, *Lead Command Designation and Responsibilities For Weapon Systems*, 8 Mar 2007

AFPD 90-13, *Military Flight Operations Quality Assurance*, 28 Mar, 2008

AFPD 91-2, *Safety Programs*, 24 Jul 2012

AFI 11-290, *Cockpit/Crew Resource Management Program*, 15 Oct 2012

AFI 63-101/20-101, *Integrated Life Cycle Management*, 7 Mar 2013

AFI 65-503, *US Air Force Cost and Planning Factors*, 4 Feb 1994

AFI 91-204, *Safety Investigations and Reports*, 24 Sep 2008

AFH 63-1402, *Aircraft Information Program*, 19 Mar 2001

AFMAN 33-363, *Management of Records*, 29 Aug 2013

OSD *Military Flight Operations Quality Assurance (MFOQA) Process Implementation Policy Memo*, 11 Oct 2005

MIL STD 1530C (USAF), *Aircraft Structural Integrity Program*, 1 Nov 2005

FAA Advisory Circular 120-90, *Line Operations Safety Audits*, 27 Apr 2006

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Acronyms and Abbreviations

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Direction

AFMC—Air Force Materiel Command

AFRC—Air Force Reserve Command

AFSEC—Air Force Safety Center

AIP—Aircraft Information Program

ANG—Air National Guard

ARC—Air Reserve Components

ASAP—Aviation Safety Action Program

ASIP—Aircraft Structural Integrity Program

ASP—Aviation Safety Programs

CBA—Cost Benefit Analysis

ENSIP—Engine Structural Integrity Program

ERC—Event Review Committee

FAA—Federal Aviation Administration

HATR—Hazardous Air Traffic Report

IPT—Integrated Process Team

LCMC—Life Cycle Management Center

LOSA—Line Operations Safety Audit

MAJCOM—Major Command

MDS—Mission Design Series

MFOQA—Military Flight Operations Quality Assurance

MIL STD—Military Standard

NGB—National Guard Bureau

OPR—Office of Primary Responsibility

OSD—Office of the Secretary of Defense

OSS&E—Operational Safety, Suitability, and Effectiveness

PM—Program Manager

RDT&E—Research, Development, Test, and Evaluation

RPA—Remotely Piloted Aircraft

SAF/AFCAA/FMCAB—Air Force Cost Analysis Agency, Accounting and Financial Operations Directorate

WG—Working Group

Terms

Aviation Safety Action Program (ASAP)—An identity protected, self-reporting system designed to encourage the voluntary reporting of issues that increase risk to flight operations; these reports identify and highlight hazards, threats, and errors that may otherwise remain unknown. ASAP is designed to operate in a non-punitive environment for the open reporting of information. Reported data is used to reduce mishaps through operational, logistic, maintenance, training and procedural enhancements. By providing early identification of needed safety improvements, ASAP offers significant potential for mishap avoidance.

ASAP Information—Any analysis obtained through written reports of unsafe acts and conditions, consisting primarily of qualitative assessments and anecdotal explanations, as perceived and submitted by personnel associated with flight operations.

Gatekeeper—Occasionally ASP information, whether the data used for MFOQA analysis or the details provided in an ASAP report, will be insufficient to thoroughly understand the contributing factors to an event or hazard. In these instances contact with the crew or report submitter may provide additional insight and be beneficial to the hazard resolution process. MAJCOMs select as gatekeepers individuals authorized access to unit and aircrew identifying information (if available) in order to gather the detail necessary in order to adequately assess and mitigate a hazard or error.

Identity Protected—Measures taken to prevent the correlation of a particular MFOQA-identified event or ASAP report with a particular individual. Flight information used in MFOQA analysis does not contain personnel information and cannot identify an individual or crew. However, MAJCOMs may correlate the information contained in a digital flight data file with aircrew flight records if it wishes to initiate a safety investigation of an event identified through MFOQA analyses. Additionally, no personal information is required for ASAP report submission, and information that could identify a particular sortie or personal information voluntarily provided by a submitter is redacted before the ASAP report is made available for hazard analysis.

Intentional Disregard for Safety—When a crew makes a conscious decision to take actions or handle the aircraft in a manner not consistent with directives or flight manual guidance for purposes other than preservation of the aircraft or personnel.

Line Operations Safety Audit (LOSA)—Use of highly trained observers to collect data about flight crew behavior and situational factors on “normal” flights. By monitoring the flight from the cockpit, the observer can learn much about flight crew behavior and crews’ strategies for managing threats, errors and undesirable states. Analysis of the aggregated flight data identifies threats to aviation safety and the development of mitigation measures.

Military Flight Operations Quality Assurance (MFOQA)—The proactive analysis and trending of aircraft system and flight performance data to both establish a baseline for normal operations and to detect precursors to aviation mishaps, thereby allowing the identification and monitoring of mitigation strategies. MFOQA allows commanders to quantify risk inherent in flight operations and to manage the risk at a level appropriate for mission accomplishment.

MFOQA Information—Any analysis, regardless of format or form, created from recorded flight data for the specific purpose of supporting the MFOQA program.

Privileged Safety Information—Information that is reflective of a deliberative process in a safety investigation or given to a safety investigator pursuant to a promise of confidentiality, which the safety privilege protects from being released outside safety channels or from being used for any purpose except mishap prevention. It includes products such as draft and final findings, evaluations, opinions, preliminary discussions, conclusions, mishap causes, recommendations, analyses, and other material that would reveal the deliberations of safety investigators, including reviews and endorsements. It also includes information given to a safety investigator pursuant to a promise of confidentiality and any information derived from that information or direct or indirect references to that information.

Risk Management—The DoD’s principle structured risk reduction process to assist leaders in identifying and controlling safety and health hazards and making informed decisions. Risk management includes hazard identification and assessment, the development of controls, and

leadership at the appropriate level of authority making an informed decision to either control the hazard or accept the risk, as described in DoDI 6055.1.

Safety—The programs, risk management activities, and organizational and cultural values dedicated to preventing injuries and accidental loss of human and material resources, and to protecting the environment from the damaging effects of DoD mishaps.

Attachment 2

MFOQA COST BENEFIT ANALYSIS

Note: The following Cost Benefit Analysis template is provided for stand-alone use by the MAJCOM and program offices, and thus does not follow the numbering formats used in the remainder of the AFI.

+++++

Military Flight Operations Quality Assurance (MFOQA)

COST/BENEFIT ANALYSIS

I have reviewed the Cost/Benefit Analysis for MFOQA process implementation on the <aircraft>.

NAME

DATE

NAME

DATE

NAME

DATE

NAME

DATE

Recommended signatories: Lead MAJCOM A3, A5 and/or A8, Lead MAJCOM SE, and AFSEC

1. GENERAL INFORMATION

1.1. Overview.

Military Flight Operations Quality Assurance (MFOQA) is the analysis and trending of aircraft performance and system data to identify adverse operational trends and system anomalies that may lead to an aviation mishap. MFOQA is not a defined technology, but rather a concept that exploits aircraft data and intelligent analysis systems to find and quantify risks. Some aircraft are capable of providing the needed data, whereas others may require some type of modification. The complexity of the modification depends on the current capability and the desired level of analysis sophistication.

1.2. Purpose.

The Office of the Secretary of Defense (OSD) directed the establishment of the MFOQA process in all Department of Defense (DoD) aircraft, and the U.S. Air Force defines the requirement in AF Policy Directive 90-13, *Military Flight Operations Quality Assurance*. The OSD direction also allows a waiver to the MFOQA process requirement for those platforms where a cost-benefit analysis demonstrates a need for exclusion.

The simple Cost/Benefit Analysis (CBA) outlined in this document provides Lead MAJCOMs a format for an initial assessment. This CBA was not designed to generate a specific total cost savings; instead, it assigns a value to aircraft cost, remaining service life, mishap rate, fatality rate, and the cost to integrate the MFOQA process on a fleet. The total points assessed are used to determine if a benefit from MFOQA implementation is likely to exist. This format may be used both when MFOQA implementation is not considered cost effective and to validate a decision to implement the MFOQA process. The aircraft Lead MAJCOM shall submit requests for waivers to the MFOQA requirement through AF/SE for AF/CV approval.

1.3. Exceptions.

Generation of a CBA is not required for those platforms whose recorded data is currently used to generate MFOQA analyses, or those in the process of fielding an analysis process endorsed by the Air Force Safety Center (AFSEC). In addition, no CBA is required when guidance waives the requirement for equipment age or retirements (e.g., Public Law 105-56, Title VIII, Sec 8053).

1.4. References.

The following references and statistical reports may be used in preparation of the MFOQA Cost/Benefit Analysis:

- a. Air Force Safety Center Aircraft Mishap Statistics Charts
- b. AFI 65-503, *US Air Force Cost and Planning Factors*, 4 Feb 1994
- c. AFI 91-204, *Safety Investigations and Reports*, 24 Sep 2008

- d. DODI 6055.07, *Mishap Investigation, Reporting, and Recordkeeping*, 6 Jun 2011
- e. Aircraft Flyaway Cost Table, US Air Force Cost Analysis Agency

2. METHODOLOGY

2.1. This CBA format defines five evaluation criteria and establishes value ranges for each; points are then assigned to each value range. The total point value determines if the aircraft is a viable MFOQA process candidate.

2.2. Criteria.

2.3. Aircraft Cost.

Consult with the Air Force Cost Analysis Agency, Accounting and Financial Operations Directorate (SAF/AFCAA/FMCAB) to determine average unit Flyaway Cost. The unit flyaway cost provided by AFCAA represents the original purchase price of the aircraft. It does not include costs associated with any modifications that were performed subsequent to initial purchase and does not account for depreciation of the aircraft cost over time.

a. Average Unit Flyaway Cost. The average unit flyaway cost (equivalent to rollaway and sail away) relates to the production of a usable end-item of military hardware.

b. The following items are included in unit flyaway cost under Appropriation 3010 (Aircraft Procurement):

1. Airframe
2. Propulsion
3. Electronics
4. Avionics
5. Engineering Change Orders
6. Government Furnished Equipment
7. First destination transportation (unless a separate line item)
8. System Engineering and Program Management if funded by 3010
9. Warranties
10. Recurring costs
11. Nonrecurring costs
12. Advance buy costs

c. Unit flyaway cost does not include:

1. Research, Development, Test and Evaluation (RDT&E) expenditures (Appropriation 3600)
2. Weapons and armaments (except if part of the airframe, e.g., the 30MM GAU- 81A gun on the A-10)
3. Peculiar ground support equipment
4. Peculiar test equipment
5. Technical data
6. Initial and replenishment spares
7. Modifications and upgrades

Example:

A-10A Flyaway Cost - \$13.0M

2.1.2. Service Life In Years.

Service Life in years will be determined by the Lead MAJCOM and the platform program office, consulting MIL STD 1530C (USAF), *Aircraft Structural Integrity Program*, service life guidelines, and the AF Technical Airworthiness Authority in AFLCMC/ENEZ.

2.1.3. Mishap Rate.

Class A mishaps are those that resulted in loss of life, permanent total disability, or over \$2,000,000 in damage. Utilize the statistical data available in the Flight Statistics section of the AF Safety Center webpage to determine the Class A Mishap Rate per 100,000 hours for the most recent ten fiscal years available.

(<http://www.afsec.af.mil/organizations/aviation/aircraftstatistics/index.asp>)

Example:

A-10 Mishap Rate FY98-07

14 Class A Mishaps

Flight Rate = Flight Hours/100K Hours = 1,161,725/100,000 = 11.6

Mishap Rate = Mishaps/Flight Rate = 14/11.6 = **1.21**

2.1.4. Fatality Rate.

Utilize the statistical data available in the Flight Statistics sections of the Air Force Safety Center webpage to determine the total Fatality Rate per 100,000 hours for the most recent ten fiscal years available.

(<http://www.afsec.af.mil/organizations/aviation/aircraftstatistics/index.asp>)

Example:

A-10 Fatality Rate FY98-07

5 Fatalities

Flight Rate = Flight Hours/100K Hours = 1,161,725/100,000 = 11.6

Fatality Rate = Fatalities/Flight Rate = 5/11.6 = **0.43**

2.1.5. Integration Cost.

Integration cost will be determined by the Lead MAJCOM requirements office in collaboration with system program offices to determine possible aircraft modifications and associated costs which would provide MFOQA parameters at the desired quality and quantity. The Aircraft

Information Management Plan, generated to support the Aircraft Information Program, is a good reference for documenting integration costs.

2.2. Criterion Valuation.

Use the Criterion Value Table below to assign a point value (left column) for each criterion. If the point total for all criteria is 12 or below, the cost likely outweighs the benefit, MFOQA implementation is not required, and the MAJCOM may request a waiver from OSD. If the point total is 20 or above, implement the MFOQA process as the benefit likely outweighs the cost. If the point total falls within the 13-19 range, the Lead MAJCOM must consider additional factors before making the final implementation decision. Factors such as a recent change to the aircraft mission, Class B, C and E mishap rates, command or USAF corporate interest and/or the ease of process implementation may indicate a benefit from MFOQA can be derived.

Table A2.1. Criterion Value Table.

Criterion Value	Aircraft Cost (M\$)	Service Life (years)	Fatality Rate	Mishap Rate	Integration Cost (M\$)
1	0 - 25	1 - 5	0 - 0.25	0-.50	36 - Above
2	25 - 50	6-10	0.26 - 0.50	.51 - 1.00	32 - 36
3	50 - 75	11-15	0.51 - 0.75	1.01 - 1.50	28 - 32
4	75 - 100	16-20	0.76 - 1.00	1.51 - 2.00	24 - 28
5	100 - 125	21-25	1.01 - 1.25	2.01 - 2.50	20 - 24
6	125 - 150	26-30	1.26 - 1.50	2.51 - 3.00	16 - 20
7	150 - 175	31-35	1.51 - 1.75	3.01 - 3.50	12 - 16
8	175 - 200	36-40	1.76 - 2.00	3.51 - 4.00	8 - 12
9	225 - 250	41-45	2.01 - 2.25	4.01 - 4.50	4 - 8
10	250 - Above	45 - above	2.26 - Above	4.51 - Above	0 - 4

Attachment 3**WAIVER TEMPLATE**

Note: The following Cost Benefit Analysis template is provided for stand-alone use by the MAJCOM and program offices, and thus does not follow the numbering formats used in the remainder of the AFI.

WAIVER TEMPLATE**Request for Waiver to Requirements of AFPD 90-13, *Military Flight Operations Quality Assurance***

MEMORANDUM FOR: AF/SE
AF/CV
DepSecDef
In Turn

FROM: <Lead MAJCOM>

SUBJECT: Waiver to Requirements of AFPD 90-13

AFPD 90-13 requires the incorporation of MFOQA process requirements on all legacy and new weapon system procurements unless waived by the Deputy Secretary of Defense. MFOQA is the analysis and trending of aircraft system and flight performance data to enhance combat readiness through improvements in operations, maintenance, training and safety functions.

<Lead MAJCOM> utilized the following MFOQA Cost/Benefit Analysis and determined MFOQA process implementation is not technically or fiscally feasible on the <subject aircraft>.

COST/BENEFIT ANALYSIS

Methodology - The MFOQA Cost/Benefit Analysis defines five evaluation criteria. Value ranges for each criterion are outlined in the Criterion Value Table below (left column), with points assigned to each value range. If the point total for all criteria is 12 or below, the cost likely outweighs the benefit. If the point total is between 13 and 19 the benefit may outweigh the cost and further research is needed. If the total is over 19 a benefit can be derived from the implementation of the MFOQA process.

Criteria:

Aircraft Cost – Utilizing the established Air Force cost inflation methodology, the <aircraft> value in <previous calendar year> is approximately <dollar amount>.

Service Life – As determined by the <aircraft> program office, the <aircraft> has approximately <years> of its service life remaining.

Mishap Rate – Utilizing the statistics available in the Flight Statistics section of the AF Safety Center webpage, the fatality rate per 100,000 flight hours for the <aircraft> over the last ten years is <rate>.

Fatality Rate – Utilizing the statistics available in the Flight Statistics section of the AF Safety Center webpage, the Class A Mishap rate per 100,000 flight hours for the <aircraft> over the last ten years is <rate>.

Integration Cost/Effort – Working with MAJCOM requirements personnel, the <aircraft > program office, and referencing the Aircraft Information Management Plan, <outline potential modifications and costs which would enable the MFOQA process.>

Table A3.1. Criterion Value Table.

Criterion Value	Aircraft Cost (M\$)	Service Life (years)	Fatality Rate	Mishap Rate	Integration Cost (M\$)
1	0 - 25	1 - 5	0 - 0.25	0-.50	36 - Above
2	25 - 50	6-10	0.26 - 0.50	.51 - 1.00	32 - 36
3	50 - 75	11-15	0.51 - 0.75	1.01 - 1.50	28 - 32
4	75 - 100	16-20	0.76 - 1.00	1.51 - 2.00	24 - 28
5	100 - 125	21-25	1.01 - 1.25	2.01 - 2.50	20 - 24
6	125 - 150	26-30	1.26 - 1.50	2.51 - 3.00	16 - 20
7	150 - 175	31-35	1.51 - 1.75	3.01 - 3.50	12 - 16
8	175 - 200	36-40	1.76 - 2.00	3.51 - 4.00	8 - 12
9	225 - 250	41-45	2.01 - 2.25	4.01 - 4.50	4 - 8
10	250 - Above	45 - above	2.26 - Above	4.51 - Above	0 - 4

Valuation – Utilizing the valuation criteria, the <aircraft> scored <points>, and the implementation of the MFOQA process will likely not provide a cost benefit. <State additional factors for consideration if the criteria total fell between 13 and 20.>

RECOMMENDATION:

Request a waiver to the MFOQA implementation requirements of AFPD 90-13 for the <aircraft>.

NAME
Lead MAJCOM/CV

CC:
AF/PEO AC