



**NON MEASUREMENT
SENSITIVE**

**DOE G 440.2B-2
7-18-03**

IMPLEMENTATION GUIDE

AVIATION MANAGEMENT, OPERATIONS, MAINTENANCE, SECURITY, AND SAFETY for use with DOE O 440.2B, *Aviation Management and Safety*

[This Guide describes suggested nonmandatory approaches for meeting requirements. Guides are not requirements documents and are not construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.]



**U.S. Department of Energy
Washington, D.C. 20585**

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All Departmental Elements

INITIATED BY:
Office of Aviation Management/OMBE/CFO

FOREWORD

This Department of Energy (DOE) Implementation Guide is approved for use by the Office of Aviation Management (OAM) and is available for use by all DOE/NNSA elements and their contractors. This Guide is applicable to DOE Order 440.2B, "AVIATION MANAGEMENT AND SAFETY" (hereafter referred to as DOE O 440.2B), to the policy that created that Order, and the requirements that are part of that Order.

Beneficial comments (recommendations for changes, additions, or deletions) should be sent to the Director, Office of Aviation Management (ME-2.4), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, by letter or by sending the self-addressed Standardization Document Improvement Proposal (DOE F 1300.3) in Attachment 1.

This Guide provides supplemental information regarding the expectations of the Department on specific provisions of DOE O 440.2B. It identifies acceptable methods of implementing the Order, although other methods may also be acceptable. It identifies relevant principles and practices by referencing Government and non-Government standards. The discussions on methods and approaches and other information are intended to be useful in understanding and implementing the requirements of the Order.

The use of this Guide will facilitate consistency in implementing the Order and help ensure that all of the provisions of the Order are addressed. This Guide will not supersede any requirements of the Order. The word "should" is used throughout this Guide to indicate a recommended practice to meet DOE O 440.2B. The word "shall" is used because it denotes an action(s) that must be performed if a requirement in the Order is to be met.

The statements in this Guide are not substitutes for requirements. If a statement or provision from this Guide is explicit in a contract or a plan required by a DOE Rule, an enforceable obligation is created by those documents. Additionally, implementation plans that reference a procedure as the intended methodology to accomplish an action cause the referenced parts to become mandatory.

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CHAPTER I INTRODUCTION

A. OVERVIEW OF THE DEPARTMENT'S AVIATION PROGRAM

Government aircraft are used to support the four core programs; National Security, Environmental Quality, Science, and Energy Resources. The aircraft operations that support these programs are: cargo, hazardous materials, and personnel transportation; aerial patrol such as pipeline, powerline, and security; aerial photography; research and development; aerial survey such as atmospheric, biological, environmental, and radiological assessment; aerial applications; rotorcraft external load operations for construction; and operations with remotely operated aircraft (ROA) formerly known as unmanned air vehicles for atmospheric research. Additionally, a varying number of Commercial Aviation Services (lease, contract, rental, and charter) aircraft are used. Aviation operations range from the use of a single aircraft to complex missions involving numerous aircraft.

The Secretary of Energy issued DOE O 440.2B, AVIATION MANAGEMENT AND SAFETY, to institutionalize a framework within which the aviation program of DOE and NNSA is conducted. The Order establishes requirements to assure the effectiveness, efficiency, security, and safety of the aviation program. These parameters are measured in terms of dollars, time, and the elimination of injuries and losses in the Department's aviation operations.

The responsibility for implementing the requirements of DOE O 440.2B is applicable to the requirements and rules governing DOE and NNSA elements and to contractors of DOE and NNSA elements that conduct aviation operations of any kind using DOE-Federal aircraft, Commercial Aviation Services providers, or military aircraft. These requirements are not applicable to official travel of individuals, or the shipment of cargo, on scheduled United States Flag air carriers. Most of the requirements are not applicable to aircraft under the operational control of other Federal and State agencies or the Department of Defense.

To facilitate and improve communications within the Department, the Secretary of Energy appointed the Director, Office of Aviation Management (OAM) as the DOE Senior Aviation Management Official and an Aviation Board of Directors. The OAM Director is responsible for the policy, requirements, implementation guidelines, and technical standards of the Department's aviation program. The OAM Director is also responsible for: providing technical assistance and guidance and is the focal point for the collection, retention, evaluation, and dissemination of aviation information; representing the Department to other government agencies concerning aviation operations, safety, airworthiness and reporting issues; and approving aviation implementation plans. In addition, the OAM Director exercises the decision authority on requests for variances to the mandatory directives within the program and the acquisition and disposal of Federal aircraft.

The OAM Director chairs the Aviation Board of Directors. The members of the Aviation Board of Directors come from the Headquarters Program Offices and DOE/NNSA Field elements that are responsible for the day-to-day management of aviation. The Aviation Board of Directors recommends broad policy and procedures for the procurement, operations, safety, and disposal of DOE-Federal aircraft and aviation services to the Departmental policy review process.

The requirements in DOE O 440.2B are delineated in seven broad groups; management, training, aviation operations, airworthiness, safety, reporting, and official travel on aircraft. An aviation implementation plan (See Attachment 3, Definitions) detailing the procedures for complying with the Order is required to be submitted for review and approval. The aviation operations and airworthiness requirements pertain to civil and public aircraft operations. Departmental standards for civil and public aircraft are equal to or more stringent than those in Title 14 CFR, Chapter 1, the Federal Aviation Regulations.

B. PURPOSE OF THE GUIDE

This Guide provides detailed information to help all personnel, responsible for a part of the aviation program, understand and comply with the rules and regulations applicable to their assignments. By so doing, the goals and missions of the Department will be achieved.

This Guide has been prepared to assist DOE Field elements in complying with DOE O 440.2B. It presents an acceptable way to comply with each of the requirements applicable to the various components of the aviation program of the Department.

This Guide is formatted in broad and narrow areas because of the nature of the subject matter. It is not meant to be all inclusive. For those subjects not presented in detail, there are references that contain additional information. For additional information contact the Director, Office of Aviation Management or your local Federal Aviation Administration (FAA) office.

C. SUGGESTIONS FOR IMPROVEMENT OF THE GUIDE

To be useful, this Guide must be accurate, current, and complete. This Guide must be a living document and reflect the needs of the users and changes that occur with time.

Users are urged to provide beneficial comments for improving this Guide. The comments should be sent to the Director, Office of Aviation Management (ME-2.4), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, by letter or by sending the pre-addressed Standardization Document Improvement Proposal (DOE F 1300.3) in Attachment 1 to this Guide.

CHAPTER II APPLICATION

A. DOE AND CONTRACTOR AVIATION ELEMENTS

This Guide is applicable to the requirements and rules governing DOE/NNSA elements and to contractors of DOE/NNSA elements that conduct aviation operations of any kind using DOE-Federal aircraft, Commercial Aviation Service providers, or military aircraft not under the control of DoD. It is not applicable to the requirements governing travel by individuals, or the shipment of cargo, on scheduled U.S. Flag air carriers.

B. SCOPE OF THE GUIDE

This Guide encompasses the requirements for the operation of public and civil aircraft operations by DOE/NNSA elements and DOE contractors. One preferable way to comply with each requirement is presented and discussed in "DISCUSSION" sections of this Guide, alternatives that achieve the same results or level of safety may be used.

DOE and Federal Aviation Regulations (FAR) are both performance-oriented and specification-oriented. Methods to comply with the former are given in FAA Advisory Circulars. The circulars are referenced in this Guide, but not contained herein. References to other advisory and standards documents also are given. Sample manuals and documents may be requested from the Director, Office of Aviation Management (ME-2.4) or the FAA.

This Guide contains general principles and suggestions for all types of aviation missions. It does not, however, contain details specific to all of the types of aviation operations in the DOE program.

Assistance for unique operations should be requested from the Director, Office of Aviation Management.

CHAPTER III ALTERNATIVE APPROACHES AND METHODS

A. DISCUSSION

This Guide contains technical standards and preferable methods necessary for complying with the requirements for DOE public and civil aircraft operations. The methods presented may not be entirely appropriate for the specific aviation operation conducted by a DOE or contractor element. In such cases, an alternate approach that meets the intent of this guide may be presented in the implementation plan of the DOE Field element. Each Field element should utilize established risk management protocols (Integrated Safety Management) for operations or maintenance, and for operations outside those recognized by this guide or established within the Field element's approved aviation implementation plan. Use of the alternate approach or method should result in at least an equivalent level of effectiveness, efficiency, security, and safety as the compliance methods given herein.

B. GENERAL INFORMATION

Aircraft in the DOE aviation program are used for Departmental purposes and are identified as "public" or "civil", depending on the operation the aircraft is performing. If it is a civil operation (e.g., carrying passengers) the organization must adhere to FAA regulations during that flight. Public aircraft operations (e.g., security patrol, transportation of mission personnel, emergency response) are self-regulated by DOE. In addition, operations in the National Airspace System, as defined by law, are regulated by the FAA regardless of the status of the aircraft. As a consequence of this diversity, several of the FAR are noted in DOE O 440.2B and this Guide. The "GENERAL" AND "DISCUSSION" sections of this Guide contain details on the requirements in DOE O 440.2B and the FAR.

CHAPTER IV AVIATION PROGRAM MANAGEMENT

A. PURPOSE

The purpose of this section is to ensure that an adequate management structure exists for an effective, efficient, secure, and safe aviation operation.

B. APPLICABILITY

This section sets forth the recommendations for the establishment of an aviation management structure for all DOE/NNSA, and contractor elements.

C. GENERAL

The management structure of the DOE/NNSA aviation programs are modeled after Federal Aviation Administration certificated air carriers and most corporate aviation programs. The DOE and NNSA structure includes a designated Senior Aviation Management Official, a Board of Directors, and aviation staff at DOE Headquarters. In addition, the structure also includes designated Federal Aviation Program Managers and Aviation Safety Officers in the field, who conduct and/or oversee the day-to-day aviation operations, whether the operation is Federally operated or contracted. Federal aviation management personnel ensure that DOE and NNSA aviation operations are effective, efficient, secure and safe; that Departmental personnel are qualified and trained; that aircraft, whether Federal or Commercial Aviation Services are airworthy; and there is compliance with policy statements, regulations, requirements, and procedures.

D. RESPONSIBILITIES

D.1 The Secretary of Energy: Is responsible for appointing a Senior Aviation Management Official and an Aviation Board of Directors.

D.2 Administrator of Nuclear Security: Is responsible for approving aviation implementation plans (AIP) submitted by NNSA elements after receiving a recommendation from the Director, Office of Aviation Management. In addition, the Administrator implements effective aviation operations, airworthiness, security and safety programs that meet the requirements of the DOE O 440.2B. The Administrator also identifies the major facilities management contracts to which the DOE O 440.2B, Contractor Requirement's Document applies.

D.3 Office of Aviation Management (OAM) Director: Serves as the DOE Senior Aviation Management Official and provides recommendations to the Secretary of Energy and the Administrator, NNSA, for the safe, efficient, secure and reliable management of aircraft used by DOE. In addition, the Director chairs the DOE Aviation Board of Directors and nominates candidates for Board membership to the Director, Office of Management, Budget and Evaluation/CFO for approval.

The Director is responsible for implementing policies, procedures, practices, and systems that provide for the highest professional standards for aviation operations and airworthiness as well as for aviation safety, security, effectiveness and efficiency. The Director also approves the selections of the types of aviation assets or services required to carry out the respective aviation missions for DOE/NNSA elements and independent operating entities that are not part of the NNSA, based on OMB Circular A-76 studies and in collaboration

with DOE program and Field elements. The OAM Director will review and make recommendations for or against selections to the Administrator for Nuclear Security submitted by NNSA elements. If a difference of opinion develops between the OAM Director, and the NNSA Administrator regarding selections of the types of aviation assets or services required, they will bring the issue to the Secretary or Deputy Secretary for resolution or direction. The OAM Director also provides for the final approval for the acquisition and disposal of Departmental aviation assets and approves AIPs for non-NNSA elements of DOE and makes recommendations to the Administrator for Nuclear Security on the AIPs submitted by NNSA elements. The OAM Director is the approving authority for any deviations from or waivers to or from the requirements of the DOE Order 440.2B for non-NNSA elements of DOE and makes recommendations regarding any deviations or waivers to the Administrator for Nuclear Security for NNSA elements.

D.4 Aviation Board of Directors Membership: The OAM Director, acting as Senior Aviation Management Official, is designated as Chairperson of the Board of Directors. The Board consists of members appointed by the Director, Office of Management, Budget and Evaluation/CFO (ME-1) from a list of nominees submitted by the Senior Aviation Management Official. The Board may have a maximum of 20 members, consisting of one nominee for regular membership submitted from each of the following organizations:

- Office of Management, Budget and Evaluation/CFO
- Office of Aviation Management
- Defense Programs Lead Program Secretarial Offices (LPSO) (Emergency Response and Weapons Maintenance)
- Science LPSO (Office of Biological and Environmental Research)
- Office of Security LPSO (Site Security)
- Office of Fossil Energy
- Office of Nonproliferation and National Security
- Bonneville Power Administration
- Southwest Power Administration
- Western Area Power Administration
- Office of Transportation Safeguards
- Chicago Operations Office
- Idaho Operations Office
- Nevada Site Office
- Lawrence Livermore Site Office
- Oak Ridge Operations Office
- Richland Operations Office
- Savannah River Site Office
- Strategic Petroleum Reserve Program Management Office

The DOE Aviation Board of Directors recommends broad policy, regulations, and procedures for the procurement, operations, airworthiness, safety, and disposal of DOE-Federal aircraft to the Department's policy approval process. Additionally, Operations Offices, Power Administrations, and independent offices of the Department are responsible for the day-to-day aviation operations, safety, security and maintenance programs. Lead Program Offices are responsible for broad program strategy, policy definition, evaluation and oversight (those LPSOS which are also assigned responsibility for one or more field locations also have site-wide Integrated Safety Management, business management and site service responsibilities).

D.5 Headquarter Program Elements: Are responsible for developing and implementing effective aviation operations, airworthiness, security and safety programs that meet the requirements of DOE O 440.2B and ensure the effectiveness of contractor aviation operations, airworthiness, security and safety programs.

D.6 Office of Assurance: Is responsible for conducting independent aviation safety oversight.

D.7 Field Elements: Elements with DOE- Federal aircraft should have a Federal Aviation Manager appointed by the respective Head of a DOE or NNSA Field element that manages the day-to-day aviation operations for that element. The recommended minimum management positions responsible for DOE-Federal aircraft will be covered in the following paragraphs of this document. For recommended management qualification requirements refer to Chapter V.

D.7.1 Recommended Aviation Program Personnel at the Field element level operating DOE-Federal aircraft.

Each Field element that has Federal personnel managing and operating **more than three DOE-Federal aircraft**, should have enough qualified management personnel in the following or equivalent positions to ensure safety and effectiveness in its operations:

- (a) Aviation Program Manager (Federal) or Director of Operations (Federal);
- (b) Chief Pilot (Federal);
- (c) Director of Maintenance (Federal); and
- (d) Aviation Safety Officer (Federal).

Each Field element that operates **more than three DOE-Federal aircraft** that has **contractors operating and managing the aircraft**, should have enough qualified management personnel in the following or equivalent positions to ensure safety and effectiveness in its operations:

- (a) Aviation Program Manager (Federal);
- (b) Aviation Safety Officer (Federal);
- (c) Aviation Program Manager (Contractor) or Director of Operations (Contractor);
- (d) Chief Pilot (Contractor);
- (e) Director of Maintenance (Contractor); and
- (f) Aviation Safety Officer (Contractor).

Each Field element that has Federal personnel managing and operating **more than one but less than three DOE-Federal aircraft**, should have enough qualified management personnel in the following or equivalent positions to ensure safety and effectiveness in its operations:

- (a) Aviation Program Manager (Federal) and/or
- (b) Aviation Safety Officer (Federal).

Each Field element that has contractors managing and operating **more than one but less than three DOE-Federal aircraft**, should have enough qualified management personnel in the following or equivalent positions to ensure safety and effectiveness in its operations:

- (a) Aviation Program Manager (Federal) and/or
- (b) Aviation Safety Officer (Federal); and
- (c) Director of Operations (Contractor); or
- (d) Chief Pilot (Contractor); and
- (e) Director of Maintenance (Contractor).

D.7.2 Recommended Aviation Program Personnel at the Field element level that utilizes only Commercial Aviation Service providers.

A DOE or NNSA Field element procuring Commercial Aviation Service providers, on an occasional basis or frequent basis, should appoint a collateral duty Aviation Manager and/or Aviation Safety Officer or request support from the Director, Office of Aviation Management or a field element with experienced aviation management staff.

D.7.3 Each Field element should:

- (a) Set forth the duties, responsibilities, and authorities of the personnel required by this section in the Field element's Aviation implementation plan or aviation operations manual as required by DOE O 440.2B;
- (b) List in the plan or manual as required by DOE O 440.2B, the name of the person or persons assigned to those positions; and
- (c) Within a reasonable time, notify the Director, Office of Aviation Management of any change made in the assignment of persons to the listed positions.

E. DISCUSSION

Upon request by the Field element manager, the OAM Director may concur with and recommend approval of different positions or numbers of positions than those listed in paragraphs D.7.1 and D.7.2, of this section for a particular operation, if the Field element manager shows that it can perform its operations safely and effectively under the direction of fewer or different categories of management personnel.

F. APPLICABLE STANDARDS

- DOE Order 440.2B, Aviation Management and Safety
- 14 CFR Chapter 1, Part 119

G. SUPPLEMENTAL GUIDANCE

- NBAA Aircraft Management Guide
- HAI SAFETY MANUAL

CHAPTER V MANAGEMENT PERSONNEL QUALIFICATIONS

A. PURPOSE

The purpose of this section is to ensure that management personnel are adequately qualified to ensure the effectiveness, efficiency, security and safety of aviation operations.

B. APPLICABILITY

This section is applicable to all DOE/NNSA and contractor elements that operate government aircraft.

C. GENERAL

The qualifications of management and safety personnel of the DOE and NNSA aviation programs are modeled after Federal Aviation Administration certificated air carriers and most corporate aviation programs. The minimum Federal management positions listed in Chapter IV, Section D.7 responsible for DOE-Federal aircraft or CAS providers are covered in the approved DOE Technical Qualification Standard for DOE Aviation Managers and Aviation Safety Officers which require compliance within 18 months of assignment in accordance with DOE O 440.2B.

C.1 Recommended Management Qualifications

C.1.1 Federal Aviation Program Manager

A person should not serve as an Aviation Program Manager unless he knows the contents of the Field element's policies and procedures manual and/or aviation implementation plan required by DOE O 440.2B, applicable DOE and NNSA policies, the provisions of this guide and other applicable regulations necessary for the proper performance of the person's duties and responsibilities. The person should have completed or be able to complete the Technical Qualification Standard for DOE Aviation Managers within 18 months of assignment. This person will have the overall responsibility for ensuring the aircraft operations conducted by the Field element are effective, efficient, secure and safe and in compliance with DOE O 440.2B, applicable Federal Aviation Regulations, Federal Management Regulations, Federal Travel Regulations, and Federal Property Management Regulations.

C.1.2 Director of Operations (Federal or Contractor)

A person should not serve as Director of Operations unless that person knows the contents of the Field element's policies and procedures manual and/or aviation implementation plan required by DOE O 440.2B, the provisions of this guide and other applicable regulations necessary for the proper performance of the person's duties and responsibilities and:

C.1.2.1 The Director of Operations of a Field element conducting any operations for which the pilot-in-command is required to hold an Airline Transport Pilot certificate under 14 CFR Part 61 or required by the Field element should:

- (a) Hold or have held an Airline Transport Pilot certificate; or

- (b) Have at least 3 years of experience as pilot-in-command of an aircraft in the civil government, military, or operated under parts 121, 125, or 135 of the FAR; or
- (c) Have at least 3 years of experience as Director of Operations in civil government, military or with a certificate holder operating under parts 121, 125, or 135 of the FAR.

C.1.2.2 The Director of Operations of a Field element who is not conducting any operation for which the pilot-in-command is required to hold an Airline Transport Pilot certificate under 14 CFR Part 61 or required by the Field element should:

- (a) Hold or have held a commercial pilot certificate; or
- (b) Have at least 3 years of experience as a pilot-in-command of an aircraft operated in the civil government, military, or operated under parts 121, 125, or 135 of the FAR; or
- (c) Have at least 3 years of experience as Director of Operations in civil government, military or with a certificate holder operating under parts 121, 125, or 135 of the FAR.

C.1.3 Chief Pilot (Federal or Contractor)

A person should not serve as Chief Pilot unless that person knows the contents of the Field elements's policies and procedures manual and/or aviation implementation plan required by DOE O 440.2B, DOE and NNSA policies, the provisions of this guide and other applicable regulations necessary for the proper performance of the person's duties and responsibilities, and:

C.1.3.1 The Chief Pilot of a Field element conducting any operation for which the pilot-in-command is required to hold an Airline Transport Pilot certificate under 14 CFR Part 61 or required by the Field element should:

- (a) Hold a current Airline Transport Pilot certificate with appropriate ratings for at least one of the types of aircraft used;
- (b) Hold a current Flight Instructors Rating in the category and class of aircraft to be operated and hold an Instrument Instructors Rating, if flight operations are conducted under instrument conditions; and
- (c) Have at least 3 years of experience as a pilot-in-command of an aircraft under parts 121, 125, or 135 of the FAR or military or civil government service.

C.1.3.2 The Chief Pilot of a Field element who is not conducting any operation for which the pilot-in-command is required to hold an Airline Transport Pilot certificate under 14 CFR Part 61 or required by the Field element should:

- (a) Hold a current, commercial pilot certificate with an instrument rating. If an instrument rating is not required for the pilot-in-command, the Chief Pilot must hold a current, commercial pilot certificate;
- (b) Hold a current Flight Instructors Rating in the category and class of aircraft to be operated and hold an Instrument Instructors Rating, if flight operations are conducted under instrument conditions; and

- (c) Have at least 3 years of experience as a pilot-in-command of an aircraft under parts 121, 125, or 135 of the FAR or military or civil government experience.

C.1.4 Director of Maintenance (Federal or Contractor)

A person should not serve as a Director of Maintenance unless that person knows the maintenance sections and contents of the Field element's policies and procedures manual and/or aviation implementation plan required by DOE O 440.2B, DOE and NNSA policies, the provisions of this guide and other applicable regulations necessary for the proper performance of the person's duties and responsibilities, and:

- (a) Hold a mechanic certificate with both airframe and power plant ratings;
- (b) Have at least three years of maintenance experience as a certificated mechanic on aircraft, including, at the time of appointment as Director of Maintenance, the recent experience requirements of Part 65, Section 65.83 of the FAR in the same category and class of aircraft used by the Field element, or at least three years of experience with a certificated airframe repair station, including one year in the capacity of approving aircraft for return to service;and
- (c) Have at least 3 years of experience as Director of Maintenance in civil government, military or with a certificate holder operating under parts 121, 125, or 135 of the FAR.

C.1.5 Aviation Safety Officer (Federal or Contractor)

A person should not serve as an Aviation Safety Officer unless that person knows the operations and maintenance sections of the contents of the Field element's policies and procedures manual and/or aviation implementation plan required by DOE O 440.2B, DOE and NNSA policies, the provisions of this guide and other applicable regulations necessary for the proper performance of the person's duties and responsibilities. The person must have completed or be able to complete the Technical Qualification Standard for DOE Aviation Safety Officer within 18 months of assignment. In addition, the person should:

- (a) Hold or have held an Airline Transport Pilot or Commercial Pilot certificate;
- (b) Have at least 3 years of experience as a safety professional, or
- (c) Has completed an approved aviation safety management training program.

C.1.6 Incidental Pilot Qualifications (Federal Personnel Only)

C.1.6.1 An organization may use the Field element's designated Federal Aviation Manager or Aviation Safety Officer, but not both, as an incidental pilot (DOE O 440.2B). An incidental pilot must be a full-time Federal employee of DOE that is responsible for managing and/or operating DOE-Federal aircraft. The assigned aviation manager or safety professional must be responsible for the direct management or oversight of DOE-Federal aircraft. The requirements of Section 4.h., 2.d of the Order 440.2B and this section of the guide do not apply to a Federal Aviation Manager or Aviation Safety Officer who's position description and primary duty is that of a Pilot, GS 2181.

C.1.6.2 The use of incidental pilots should be on a closely controlled and limited basis, to supplement or assess flight operations. The direction given in the Order was meant to limit the use of incidental pilots in flight programs that have a limited amount of annual flying. OAM is an advocate for aviation managers actively flying to ensure the operations are effective, efficient, secure and safe. However, because some of the emergency response and security programs are limited in the amount of annual flight hours, the intent of the Order was to have each manager or safety professional weigh the need to fly against that of impacting the full-time pilot's ability to maintain proficiency. Therefore, each organization should determine the impact and benefit of using incidental pilots before deciding to do so.

C.1.6.3 The qualifications and processes for using these staff members must be included in the Field element's AIP and, if applicable, the contractor's aviation procedures or operations manual, refer to the Order 440.2B Section 4.h., 2.d.

C.1.6.4 As stated in the Order, the use of the Aviation Manager or Safety Officer is prohibited unless the pilot(s) meet the following criteria:

- (a) holds an appropriate pilot rating for the operation being conducted and a type rating, if required;
- (b) has a valid FAA Class II or Class I medical certificate, as prescribed by Title 14 CFR, Chapter 1;
- (c) for instrument ratings: 1) airplane pilots must hold a current airplane instrument rating; and 2) helicopter pilots must hold a helicopter instrument rating, if the operation requires flight under instrument conditions;
- (d) has a minimum 1200 hours as a pilot in the category and class of aircraft to be flown;
- (e) has a minimum 500 hours as pilot-in-command in the category and class of aircraft to be flown;
- (f) logs at least 15 hours as a pilot in the make and model of aircraft to be flown during the 45 days preceding assignment as a flight crew member or complete a formal initial qualification training course in the make and model of aircraft to be flown;
- (g) completes a training course, conducted by the organization, that includes orientation flights in the type of mission to be flown that addresses crew resource management and any identified hazards associated with the area or type of operation and the flight mission profile to be performed;
- (h) passes an initial check ride given by the Field element before any flight operations;
- (i) maintains pilot proficiency and qualifications in accordance with the Field element's requirements;
- (j) has a minimal impact on the ability of the full-time flight crew members to maintain proficiency; and
- (k) is limited to a flight crew member assignment commensurate with the pilot's qualifications and currency; and as approved by the OAM Director.

C.1.6.5 Deviation from this section may be authorized if the person has had equivalent aeronautical experience. The OAM Director may authorize a deviation for the Federal employees who are appointed as an Aviation Program Manager, Director of Operations, Chief Pilot, Director of Maintenance or the Aviation Safety Officer. If an

organization needs to submit a deviation request to the Director, the organization should ensure the following:

- (a) All documentation submitted should be verifiable and accurately state the experience and qualifications of the person;
- (b) Explain what additional training, if any, the organization intends to provide; and
- (c) Provide any other pertinent information that may be necessary to assist the Director in deciding to grant the deviation.

D. DISCUSSION

It is the position of OAM that Federal Aviation Managers and Federal Aviation Safety Officers be involved with the aviation programs operationally as much as possible. The best method of evaluating the policies, processes, and procedures is to participate during actual operations. That is the purpose of DOE O 440.2B Section 4. h. (2) (d), establishing a baseline qualification for Federal management personnel who may participate as an incidental pilot. The Field element should evaluate its full-time pilot flying program and conduct an analysis to determine whether or not an incidental pilot would adversely impact the ability of the full-time pilot(s) to meet monthly, quarterly, semi-annual, or annual proficiency goals. In addition, since an incidental pilot must meet the same proficiency and currency requirements as those of the full-time pilots, programs that have a limited flying program may be impacted substantially by using an incidental pilot. Other considerations prior to using an incidental pilot, would be contacting the Contracting Officer to determine, if the Federal Management Regulations, Federal Acquisition Regulations, Department of Energy Procurement Regulations, or the contract will allow an incidental pilot to operate the aircraft or act in the capacity as a Flight crewmember for operations that have contractors managing, operating, and maintaining Federal aircraft.

E. APPLICABLE STANDARDS

- Title 41 CFR Part 102-33, Federal Management Regulations
- Title 14 CFR Parts 119.65, 119.67, 119.69, and 119.71
- Classification Act of 1949, which has been codified in Chapter 51 of Title 5, United States Code
- DOE O 360.1B, Federal Employee Training
- DOE P 426.1, Federal Technical Capability for Defense Nuclear Facilities
- DOE M 426.1-1, Federal Technical Capability Manual
- DOE O 440.2B, Aviation Management and Safety
- DNFSB Approved Technical Qualification Standards for Aviation Managers and Aviation Safety Officers

F. SUPPLEMENTAL GUIDANCE

- Energy On-Line Learning Center Training for Aviation Managers and Safety Officers
- Chapter VI and VII, DOE G 440.2B-X

CHAPTER VI FEDERAL AVIATION MANAGER AND FEDERAL AVIATION SAFETY OFFICER TRAINING PROGRAM

A. PURPOSE

The purpose of this section is to ensure qualification standardization, and to enhance the safety of aviation operations through the appropriate training of key Federal personnel.

B. APPLICABILITY

This section is applicable to all DOE/NNSA elements that operate government aircraft.

C. GENERAL

This document sets forth the recommended standards for the establishment and maintenance of a training program for DOE/NNSA Aviation Managers (AMs) and Aviation Safety Officers (ASOs). No personnel should serve as a DOE/NNSA ASO or AM unless he/she has completed the appropriate initial or recurrent training phase appropriate to the position they are assigned. There are three basic categories of training applicable to DOE/NNSA AMs and ASOs. The appropriate category of training is determined by the individual's previous experience, and duty position. At the conclusion of any category training curriculum, the individual involved should be able to successfully demonstrate his knowledge of the regulations, policies, and procedures applicable to the specific block of instruction by correctly answering 90 percent of the questions on written tests.

C.1 Initial Assignment Training

This training category is for personnel **who have not had previous experience** with DOE (newly-hired personnel). It also applies, however, to personnel employed by DOE who have not previously held an AM or ASO position within DOE. Initial assignment training includes basic indoctrination training and training for a specific duty position. Since initial assignment training is usually the employee's first exposure to specific organization methods, systems, and procedures, it is also the most comprehensive of the three categories of training. The requirements of the Technical Qualification Standards can be found on the internet at <http://cted.inel.gov/cted/qualstd.html>.

The initial assignment training for Aviation Managers and Aviation Safety Officers can be found on the DOE On-line Learning Center under DOE courses. This course satisfies most of the training needs of the Technical Qualification Program for an Aviation Manager or Aviation Safety Officer of the Department. Those areas unique to your organization such as aviation implementation plans, aircraft operations, etc., need to be assessed locally by the person's supervisor or call the Office of Aviation Management for assistance.

The course is presented in three sections, called Modules, with a post-test at the end. Module 1 presents the history and mission of the DOE aviation program and some of the management systems in place within the Department. Module 2 will provide training on the Directives System along with the newest Directive, DOE Order 440.2B, Aviation Management and Safety. Module 3 covers the aviation-specific parts of the Code of Federal Regulations. Once an individual has viewed all three modules, the person will complete a "post-test" that must be passed with 90% accuracy in order to receive credit for the course.

The training information will automatically be forwarded to the CHRIS system for inclusion with the AM or ASO's training records. Here is how to access the course:

- (1) Open your browser (Internet Explorer is preferred).
- (2) Type <http://www.energyolc.com/> into the "address" line (or clicking from here will also work).
- (3) When the site appears, choose Add to Favorites from your Favorites menu to remember the website location for future use.
- (4) Enter your login information:
 - Your login is first name. last name as it appears in your DOE employee record;
 - Your password initially is the last four digits of your social security number; and
 - At this point, a prompt will ask the individual to change his or her password. All personnel must comply with DOE security regulations when choosing a new password, which will be explained in detail on the website. Remember the password because you will need it each time you visit the site.
- (5) The Campus Map will appear next. The AM and ASO course is located in the Learning Center. Click this building (located above the flag) to continue.
- (6) Choose DOE Courses from the list that appears next. (For future visits, choose Your Most Recent Course as a shortcut here)
- (7) Choose Training for Aviation Managers and Safety Officers from the list of courses on the left.
- (8) The main course page will appear. Click the Take Course button to launch the course.
- (9) The Module menu will appear on the left broken down into lessons. Clicking a lesson will display a menu on the right containing that lesson's learning topics.
- (10) Before beginning the training, you should view the Introduction to this Course lesson at the top of the menu for an overview of how to maximize your training experience and utilize all the features available in the course.

C.2 Recurrent Training

This category of training is for an AM or ASO who has been previously trained and qualified by DOE. The AM/ASO should receive recurrent training annually. If recurrent training has not been completed within 18 months of the AM or ASO's last training period, that individual must complete re-qualification training to maintain his/her qualification status.

The recurrent training for Aviation Managers and Aviation Safety Officers can be found on the DOE On-line Learning Center under DOE courses. The identified training satisfies most of the recurrent training for an Aviation Manager or Aviation Safety Officer of the Department. Areas unique to an organization such as aviation implementation plans, aircraft operations, etc., need to be assessed locally by the person's supervisor or call the Office of Aviation Management for assistance.

C.3 Re-qualification Training

This category of training is for personnel who have been trained and qualified by DOE, but have become unqualified to serve in a particular duty position due to not receiving recurrent training or a competency test within an 18 month period. The re-qualification training curriculum is identical to the initial assignment training.

C.4 Record Keeping

Record keeping is an integral part of training. Without adequately documented records, auditors may question whether the training ever took place. It is imperative that DOE Aviation Managers and Safety Officers maintain well-organized training records.

C.5 Other Suggested Training

- University of Southern California, Aviation Safety Officer Course
- Emory Riddle College, Aviation Management and Safety Course
- Helicopter Association International, Aviation Safety Officer Course
- Helicopter Association International, Aviation Manager's Course
- Helicopter Association International, Human Factors Course
- University of Southern California, Human Factors Course
- Transportation Safety Institute, Risk Management
- Transportation Safety Institute, Accident Investigation
- Transportation Safety Institute, Accident Investigation (Rotorcraft)
- Transportation Safety Institute, Accident Investigation (Airplane)
- National Transportation Safety Board, Accident Investigation
- National Transportation Safety Board, Accident Investigation (Airplane)

C.6 Aviation Program Manager/Safety Officer Curriculum (Refer to Tables)

C.6.1 Initial Training Curriculum Table

MODULE	SUBJECT	TRAINING HOURS
1	History/Mission DOE Aviation Program History	3
2	Directives System	2
2.1	Introduction to Directives System	3
3	CFRs	2
3.1	Introduction to CFRs	8
4	Applicable Property Regulations/Reporting Requirements	3
5	Accident /Incident Scenarios, AAIRS, and the DOE Safety Award Program	2
6	Typical Aviation Organizational Structures/Manuals/Operating Policies	5
7	Charter Operations - Types and Evaluation Techniques	3
8	Implementation Plan-Specific Training	3
9	Mission/Aircraft-Specific Training (as applicable)	TBD by FIELD
	TOTAL	34

C.6.2 Recurrent Training Curriculum Table

MODULE	SUBJECT	TRAINING HOURS
1	Changes/Updates Applicable to DOE Policy/Orders/Regulations/Reporting Requirements	4
2	Changes/updates in Non-DoE Regulations	1
3	Accident Prevention Review	1
4	Previous Year Lessons-Learned Forum	1
5	To Be Determined (alternate training subjects annually)	4
	TOTAL	11

D. APPLICABLE STANDARDS

- Classification Act of 1949, which has been codified in Chapter 51 of Title 5, United States Code
- DOE O 360.1B, Federal Employee Training
- DOE P 426.1, Federal Technical Capability for Defense Nuclear Facilities
- DOE M 426.1-1, Federal Technical Capability Manual
- DOE O 440.2B, Aviation Management and Safety
- DNFSB Approved Technical Qualification Standards for Aviation Managers and Aviation Safety Officers

E. SUPPLEMENTAL GUIDANCE

- Energy On-Line Learning Center Training for Aviation Managers and Safety Officers
- Chapter V and VII, DOE G 440.2B-X

CHAPTER VII FLIGHT CREWMEMBER, CREWMEMBER, QUALIFIED NON-CREWMEMBER AND MAINTENANCE TECHNICIAN TRAINING PROGRAMS

A. PURPOSE

The purpose of this section is to ensure qualification standardization, and to enhance the safety of aviation operations through the appropriate training of flight, mission, and maintenance personnel.

B. APPLICABILITY

This section is applicable to all DOE/NNSA and contractors elements that operate DOE-Federal aircraft.

C. GENERAL

This section sets forth minimum recommendations for establishment and maintenance of training programs for flight crewmembers, crewmembers, qualified non-crewmembers, and maintenance technicians who operate, perform duties during missions, and maintain DOE-Federal aircraft. Personnel should not serve as a flight crewmember, crewmember, qualified non-crewmember, or perform maintenance on DOE-Federal aircraft unless he/she has completed the appropriate initial or recurrent training phase appropriate to the position they are assigned and is current and proficient. There are six basic categories of training applicable to flight crewmembers and crewmembers and there are three basic categories of training for qualified non-crewmembers and maintenance technicians. The appropriate category of training is determined by the individual's previous experience and duty position.

C.1 Categories of Training Flight Crewmembers and Crewmembers

- C.1.1 Initial Training: The training required for flight crewmembers who have not qualified and served in the same capacity on an aircraft.
- C.1.2 Transition Training: The training required for flight crewmembers who have qualified and served in the same capacity on another aircraft.
- C.1.3 Upgrade Training: The training required for crewmembers who have qualified and served as second-in-command or other duties on a particular aircraft type, before they serve as pilot-in-command or other crewmember duties on that aircraft.
- C.1.4 Differences Training: The training required for flight crewmembers who have qualified and served on a particular type aircraft, when the Aviation Program Manager or Safety Officer finds differences training is necessary before a crewmember serves in the same capacity on a particular variation of that aircraft.
- C.1.5 Recurrent Training: The training required for flight crewmembers to remain trained in each aircraft, crewmember position, and type of operation in which the crewmember serves.
- C.1.6 Flight Proficiency Training: The number of maneuvers, procedures, or functions that must be conducted in the aircraft to maintain mission proficiency within a specified time period.

C.2 Categories of Training Qualified Non-crewmembers and Maintenance Technicians

- C.2.1 Initial Training: The training required for maintenance technicians or qualified non-crewmembers who have been recently hired or not served in the same capacity within the maintenance or flight organization.
- C.2.2 Differences Training: The training required for maintenance personnel or qualified non-crewmembers who have qualified and performed maintenance or performed mission duties on a particular type aircraft, when the Aviation Program Manager, Safety Officer or Director of Maintenance finds differences training is necessary before performing maintenance or conducting mission duties on a particular variation of that aircraft or a different type of aircraft. Refer to Chapter VII C.4.
- C.2.3 Recurrent Training: The training required for maintenance personnel or qualified non-crewmembers to remain adequately trained and currently proficient in the processes, procedures, and equipment necessary to maintain and inspect each aircraft or perform mission duties while on board an aircraft.

C.3 Training Program

C.3.1 General

C.3.1.1 Each DOE/NNSA element should establish or ensure a written training program is established, the program should:

- (a) Ensure that each flight crewmember, flight instructor, check airman, maintenance technician, qualified non-crewmember, and each person assigned duties for the carriage and handling of hazardous materials (as defined in 49 CFR 171.8) is adequately trained to perform their assigned duties.
- (b) Describe the ground and flight training facilities and/or where the organization obtains the facilities, including the process used to ensure the adequacy of the facilities.
- (c) Establish qualifications for the ground instructors used for the training.
- (d) Provide and keep current for each aircraft type used and, if applicable, the particular variations within the aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks recommended in this guide.
- (e) Describe the number of flight instructors, check airmen, maintenance instructors and simulator instructors used to conduct the flight training, flight checks, ground and maintenance training, simulator training courses or identify what organization provides the flight instructors, check airmen, maintenance instructors and simulator instructors recommended by the guide.
- (f) Identify each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under the organization's program:

- (1) Should certify as to the proficiency and knowledge of the flight crewmember, crewmember, qualified non-crewmember, flight instructor, check airman, or maintenance technician concerned upon completion of that training or check. That certification should be made a part of the flight crewmember's, crewmember's, qualified non-crewmember's, or maintenance technician's record.
 - (2) When the certification recommended by this paragraph is made by an entry in a computerized record keeping system, the certifying instructor, supervisor, or check airman, must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman, is not required for computerized entries.
- (g) Identify all proficiency checks and knowledge tests which should be performance based using a measurable scale to determine the flight crewmember's, crewmember's, qualified non-crewmember's or maintenance technician's mastery of the subject or task.
- (h) Identify training subjects that apply to more than one aircraft or flight crewmember, crewmember, qualified non-crewmember or maintenance position and that have been satisfactorily completed and identify previous training while employed by the organization for another aircraft or another flight crewmember, crewmember, qualified non-crewmember or maintenance position. That training need not be repeated during subsequent training other than recurrent training.
- (i) Identify aircraft simulators and other training devices that may be used in the organization's training program, if approved by the FAA. Simulators or other training devices used for qualified non-crewmember training are not required to be FAA approved.
- (j) Ensure whenever a flight crewmember, crewmember, qualified non-crewmember or maintenance technician, who is required to take training under the organization's program, completes the training during the month or in the calendar month before, or after in which that training is required, the flight crewmember, crewmember, qualified non-crewmember or maintenance technician is considered to have completed it in the calendar month in which it was required.

C.3.2 Training Program Curriculum

C.3.2.1 Each organization should prepare and keep current a written training program curriculum for each type of aircraft, mission profile, or maintenance function for each flight crewmember, crewmember, qualified non-crewmember, and maintenance technician required for that type aircraft or maintenance program.

C.3.2.2 The curriculum should include ground and flight training for flight crewmembers, crewmembers, qualified non-crewmembers, if applicable and the maintenance training recommended by this guide in VIIC.4.

C.3.2.3 Each training program curriculum should include the following:

- (a) A list of principal ground training subjects, including emergency training subjects and learning objectives that are to be accomplished.
- (b) A list of all the training devices, mockups, systems trainers, procedures trainers, or other training aids that the organization will use.
- (c) For flight crewmembers, detailed descriptions and/or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures, and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the inflight portions of flight training and flight checks.
- (d) For crewmembers or qualified non-crewmembers, detailed descriptions and/or pictorial displays of the approved normal, abnormal, emergency procedures and functions that will be performed by crewmembers or qualified non-crewmembers during each flight phase and flight check.
- (e) For maintenance technicians, detailed descriptions or pictorial displays of the approved maintenance processes, procedures, and special inspection procedures, if any. If the maintenance technician acts in a capacity onboard the aircraft, then the normal, abnormal, emergency maneuvers, procedures and functions they would be expected to perform.

C.3.3 Flight Crewmember Training Requirements

C.3.3.1 Each organization should include in its training program the following initial, recurrent and transition ground training as appropriate to the particular assignment of the flight crewmember:

- (a) Basic indoctrination ground training for newly hired flight crewmembers including instruction, in at least the:
 - (1) duties and responsibilities of flight crewmembers as applicable;
 - (2) appropriate provisions of DOE O 440.2B, applicable DOE and NNSA policies, and applicable parts and sections of 14 CFR Chapter 1; and
 - (3) contents of the organization's aviation implementation plan operations manual or procedures manual.
- (b) The initial, upgrade, recurrent and transition ground training should include, but is not limited to:
 - (1) General subjects:
 - i. The organization's flight locating procedures;
 - ii. Principles and methods for determining weight and balance, and runway limitations for takeoff and landing, if applicable;
 - iii. Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear and, if appropriate, high altitude weather situations;

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- iv. Air traffic control systems, procedures, and phraseology;
 - v. Navigation and the use of navigational aids, including instrument approach procedures;
 - vi. Normal and emergency communication procedures;
 - vii. Visual cues before and during descent below DH or MDA;
 - viii. Crew resource management initial training; and
 - iv. Other instructions as necessary to ensure competence.
- (2) For each aircraft type:
- i. General description;
 - ii. Performance characteristics;
 - iii. Engines and propellers;
 - iv. Major components; and
 - v. Major aircraft systems (i.e., flight controls, electrical, and hydraulic), other systems, as appropriate, principles of normal, abnormal, emergency operations, appropriate procedures and limitations.
- (3) Knowledge and procedures for:
- i. Recognizing and avoiding severe weather situations;
 - ii. Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be trained in escaping from low-altitude windshear);
 - iii. Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and
 - iv. Operating aircraft during ground icing conditions, (i.e., any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft), if the organization expects to authorize takeoffs in ground icing conditions, including:
 - a. The use of holdover times when using deicing/anti-icing fluids;
 - b. Aircraft deicing/anti-icing procedures, including inspection and check procedures and responsibilities;
 - c. Communications;
 - d. Aircraft surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and knowledge of how contamination adversely affects airplane performance and flight characteristics;
 - e. Types and characteristics of deicing/anti-icing fluids, if used by the organization;
 - f. Cold weather preflight inspection procedures;
 - g. Techniques for recognizing contamination on the airplane;
 - h. Operating limitations;
 - i. Fuel consumption and cruise control;
 - j. Flight planning;
 - k. Each normal and emergency procedure; and
 - l. The approved aircraft or rotorcraft flight manual or equivalent.

C.3.4 Emergency Training

C.3.4.1 Each training program must provide emergency training for each aircraft type, model, and configuration, each crewmember, and each kind of operation conducted, as appropriate for each crewmember and the organization's mission.

- (a) Emergency training should provide the following:
- (1) Instruction in emergency assignments and procedures, including coordination among crewmembers;
 - (2) Individual instruction in the location, function, and operation of emergency equipment including:
 - i. Equipment used in ditching and evacuation;
 - ii. First aid equipment and its proper use; and
 - iii. Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires.
 - (3) Instruction in the handling of emergency situations including:
 - i. Rapid decompression;
 - ii. Fire in flight or on the surface and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas;
 - iii. Ditching and evacuation;
 - iv. Illness, injury, or other abnormal situations involving passengers, crewmembers or qualified non-crewmembers; and
 - v. Hijacking and other unusual situations.
 - (4) Review of the organization's or other DOE previous aircraft accidents and incidents involving actual emergency situations.
 - (5) Performance by each crewmember of at least the following emergency drills, using the proper emergency equipment and procedures, unless the organization finds that, for a particular drill, the crewmember can be adequately trained by demonstration:
 - i. Ditching, if applicable;
 - ii. Emergency evacuation;
 - iii. Fire extinguishing and smoke control;
 - iv. Operation and use of emergency exits, including deployment and use of evacuation chutes, if applicable;
 - v. Use of crew and passenger oxygen;
 - vi. Removal of life rafts from the aircraft, inflation of the life rafts, use of life lines, and boarding of passengers and crew, if applicable; and
 - vii. Donning and inflation of life vests and the use of other individual flotation devices, if applicable.
 - (6) Instruction to crewmembers who serve in operations above 25,000 feet in the following:
 - i. Respiration;
 - ii. Hypoxia;
 - iii. Duration of consciousness without supplemental oxygen at altitude;
 - iv. Gas expansion;
 - v. Gas bubble formation; and
 - vi. Physical phenomena and incidents of decompression.

C.3.5 Emergency and Emergency Evacuation Duties

C.3.5.1 Each Field element should, for each type and model of aircraft, assign to each category of crewmember, as appropriate, the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The Field element should show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency, including the possible incapacitation of individual crewmembers or their inability to reach the crewmember cabin because of shifting cargo or mission equipment.

C.3.5.2 The Field element should describe in its aviation implementation plan, operations manual or procedures manual, or other ruling document, the functions of each category of required crewmembers.

C.3.6 Demonstration of Emergency Evacuation Procedures

C.3.6.1 Each Field element should show, by actual demonstration, that the emergency evacuation procedures for each type and model of aircraft that is used in law enforcement, security missions, or research and development operations, allow the evacuation of the full seating capacity, in 90 seconds or less, in each of the following circumstances:

- (a) A demonstration should be conducted by the Field element upon the initial introduction of a type and model of aircraft applicable to this section. However, the demonstration need not be repeated for any aircraft type or model that has the same number and type of exits, the same cabin configuration, and the same emergency equipment as any other aircraft used by the Field element in successfully demonstrating emergency evacuation in compliance with this paragraph.
- (b) A demonstration should be conducted:
 - (1) Upon increasing by more than 5 percent the crewmember seating capacity for which successful demonstration has been conducted; or
 - (2) Upon a major change in the crewmember cabin interior configuration that will affect the emergency evacuation of crewmembers.
 - (3) If a Field element has conducted a successful demonstration required by 14 CFR Part 121, Section 121.291(a) in the same type aircraft as a Part 121, or Part 125 certificate holder, it need not conduct a demonstration under this paragraph in that type aircraft.
 - (4) When operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under Chapter VIII of the Guide, should show, by a simulated ditching conducted that it has the ability to efficiently carry out its ditching procedures.
 - (5) If a Field element has conducted a successful demonstration required by 14 CFR Part 121, Section 121.291(b) in the same type aircraft as Part 121, or Part 125 certificate holder, it need not conduct a demonstration under this paragraph in that type aircraft.

C.3.6.2 Each training program should provide the initial, upgrade, recurrent, transition flight, and proficiency training, as applicable in the following maneuvers:

(a) Airplanes:

- (1) Takeoffs and landings (normal, crosswind, short and soft-field)
- (2) Rejected Take-offs
- (3) Go-arounds
- (4) Maneuvering during slow flight
- (5) Stalls
- (6) Constant altitude turns
- (7) Simulated forced landings and other emergency operations
- (8) Flight by reference to instruments
- (9) Simulated engine-out procedures and performance
- (10) Mission profile and maneuvers

(b) Rotorcraft-Helicopters:

- (1) Normal takeoffs and landings to a hover and to the ground
- (2) Rejected Take-offs
- (3) Confined area operations
- (4) Maximum performance takeoffs
- (5) Pinnacle operations
- (6) Slope operations
- (7) Quick stops
- (8) Running landings
- (9) Autorotative approaches from altitude
- (10) Hovering autorotations
- (11) Forced landings
- (12) Settling with power (demonstration)
- (13) Loss of tail rotor effectiveness
- (14) System failures, e.g., anti-ice, hydraulics, electrical, etc.
- (15) Mission profile and maneuvers

(c) Instrument flight, if applicable:

- (1) Instrument cockpit check
- (2) Intercepting/tracking VOR/NDB
- (3) Intercepting/tracking GPS
- (4) Steep turns
- (5) Recovery from unusual attitudes
- (6) Basic attitude instrument flying
- (7) VOR approach
- (8) ILS Front course approach
- (9) ILS Back course approach
- (10) Holding procedures
- (11) Missed approach procedures
- (12) Circling approach procedures
- (13) Simulated engine-out
- (14) Other areas

C.3.7 Differences Training: The DOE/NNSA element should establish or ensure, the differences training includes for each aircraft type:

- (a) A general description;
- (b) Performance characteristics;
- (c) Engines and propellers;
- (d) Major components;
- (e) Major airplane systems (i.e., flight controls, electrical, hydraulic); other systems as appropriate; principles of normal, abnormal, and emergency operations; appropriate procedures and limitations;
- (f) Procedures for:
 - 1. Recognizing and avoiding severe weather situations;
 - 2. Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear; and
 - 3. Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions.
- (g) Operating limitations;
- (h) Fuel consumption and cruise control;
- (i) Flight planning;
- (j) Each normal and emergency procedure; and
- (k) The approved airplane or rotorcraft flight manual.

C.4 Initial and Recurrent Training Maintenance Personnel and Qualified Non-crewmembers

C.4.1 Maintenance Technician Training Programs

C.4.1.1 Each person performing maintenance, inspection, preventive maintenance or alteration on a DOE-Federal aircraft, propeller, powerplant, appliance, system or accessory shall be trained and qualified in the manufacturer's or supplemental type certificate holders methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or instructions for continued airworthiness, and the practices and techniques acceptable to the FAA.

C.4.1.2 The initial training should include, but is not limited to, the following:

- (a) The operation of the test equipment, special tools, or other equipment required to maintain or test an aircraft, propeller, powerplant, appliance, system or accessory.
- (b) The procedures and requirements for conducting any tests as described in the manufacturer's or Supplemental Type Certificate holders methods, techniques, and practices prescribed in the current manufacturer's maintenance manual, or instructions for continued airworthiness.

C.4.1.3 Recurrent and Proficiency Training:

- (1) Each organization should ensure that each maintenance technician receives recurrent training and is adequately trained and currently proficient for the type aircraft and inspection procedures that the maintenance technician is involved.

- (2) Each organization should ensure the recurrent training for maintenance technicians should include at least a quiz or other review to determine the maintenance technician's knowledge of the aircraft and inspection procedures that the maintenance technician is involved.

C.4.2 Qualified Non-crewmember Training Program

(a) General subjects:

- (1) The authority of the pilot-in-command;
- (2) Personnel handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety; and
- (3) DOE and the Field element's policies, pertinent Federal regulations, and the organization's flight and safety procedures.

(b) For each aircraft type:

- (1) A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and inflight emergency procedures and on other related duties;
- (2) The use of both the intercommunication or public address system and the means of communicating with flight crewmembers, including emergency means in the case of attempted hijacking or other unusual situations; and
- (3) Proper use of electrical equipment, mission equipment and the controls for cabin heat and ventilation.

(c) Emergency training to include: emergency training for each aircraft type, model, and configuration, each crewmember, and each kind of operation conducted, as appropriate for each crewmember and the Field element's mission.

(d) Emergency training should provide the following:

- (1) Instruction in emergency assignments and procedures, including coordination among crewmembers.
- (2) Individual instruction in the location, function, and operation of emergency equipment including:
 - i. Equipment used in ditching and evacuation;
 - ii. First aid equipment and its proper use; and
 - iii. Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires.
- (3) Instruction in the handling of emergency situations including:
 - i. Rapid decompression;
 - ii. Fire in flight or on the surface and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas;
 - iii. Ditching and evacuation;
 - iv. Illness, injury, or other abnormal situations involving passengers, crewmembers or qualified non-crewmembers;
 - v. Hijacking and other unusual situations; and

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- vi. Review of the organization's or other DOE previous aircraft accidents and incidents involving actual emergency situations.
- (e) Each crewmember and qualified non-crewmember should perform at least the following emergency drills, using the proper emergency equipment and procedures, unless the organization finds that, for a particular drill, the crewmember or qualified non-crewmember can be adequately trained by demonstration:
 - (1) Ditching, if applicable.
 - (2) Emergency evacuation.
 - (3) Fire extinguishing and smoke control.
 - (4) Operation and use of emergency exits, including deployment and use of evacuation chutes, if applicable.
 - (5) Use of crew and passenger oxygen.
 - (6) Removal of life rafts from the aircraft, inflation of the life rafts, use of life lines, and boarding of passengers and crew, if applicable.
 - (7) Donning and inflation of life vests and the use of other individual flotation devices, if applicable.
 - (f) Qualified non-crewmembers who serve in operations above 25,000 feet must receive instruction in the following:
 - (1) Respiration.
 - (2) Hypoxia.
 - (3) Duration of consciousness without supplemental oxygen at altitude.
 - (4) Gas expansion.
 - (5) Gas bubble formation.
 - (6) Physical phenomena and incidents of decompression.
 - (g) Recurrent Training: Each organization should ensure that each qualified non-crewmember receives recurrent training and is adequately trained and currently proficient for the type aircraft and crewmember position involved.
 - (h) Recurrent ground training for qualified non-crewmembers must include at least the following:
 - (1) A quiz or other review to determine the crewmember's knowledge of the aircraft and qualified non-crewmember position involved, and
 - (2) Emergency procedures.

C.5 Establishing Proficiency Events

The purpose of this paragraph is to establish guidelines to the Field element for establishing pilot, maintenance technician, and qualified non-crewmember proficiency events to meet the requirement in DOE O 440.2B. DOE recognizes that in many cases DOE's diverse flying programs provide for limited monthly or annual flying hours for each crewmember or maintenance technician to maintain a satisfactory level of proficiency. Using information gathered from other Federal agencies, Department of Defense, NTSB accident causal factors, and the civil industry regarding crewmember and maintenance technician proficiency, it was determined a need exists, above that established in Title 14 CFR Parts 61, 91, 121 and 135, to establish proficiency events to enhance the safety and effectiveness of operations.

C.5.1 Flight Crewmembers

C.5.1.1 Each Field element should evaluate the types of flight operations necessary to perform the aircraft's mission profile, such as low altitude radiological survey, power line patrol, Night Vision Goggle operations, etc., to determine the types of events that the pilot executes to conduct the mission. Identify the key maneuvers involved and establish a baseline number to be completed within the preceding 30, 45, 90, 180 days or annually to document the pilot's proficiency. As an example the Aviation Manager or Chief Pilot involved with powerline patrols could:

- (a) Identify the maneuvers involved with a powerline patrol in mountainous terrain, such as:
 - (1) Hovering near an obstacle;
 - (2) Approach to an out-of-ground hover;
 - (3) Turns—transition from up-wind to down-wind;
 - (4) Steep approach;
 - (5) Confined area take-off, normal;
 - (6) High-altitude (above 5000 feet MSL) confined area take-off;
 - (7) Slow flight (down-wind); and
 - (8) Snow field operations.
- (b) Then establish a baseline proficiency for each key maneuver within the previous 30, 45, 90, 180 days, or annually.

C.5.2 Recording Events

C.5.2.1 At the end of each flight the pilot should enter the number of events completed for that days mission. This will ensure the pilot has a record of his/her proficiency. If the pilot fails to maintain proficiency then the Field element's check pilot or chief pilot can conduct a training flight with the pilot to evaluate the pilot's proficiency in the identified maneuvers and recommend the pilot for further training or release him/her for operations.

C.5.3 Maintenance Technicians

C.5.3.1 Each Field element should evaluate the types of maintenance activities performed by the organization (component overhaul, flight control rigging, weighing of aircraft, sheet metal repairs, etc.) to determine the types of events that a maintenance technician should perform to stay proficient. It is not the expectation of DOE to have every single maintenance activity performed and identified (i.e., proper technique in using a torque wrench, removing screws, etc.,) the process is focused on the larger tasks such as disassembly of main gearbox, inspection of main gearbox, removal and installation of flight controls, etc. Once the major proficiency events are identified establish a baseline number to be completed within a specified time such as six months, annually, or whatever time period the Field element determines is best for their operation/mission.

D. DISCUSSION

Many of the suggested training elements in this Chapter are required when operating under a 14 CFR Part 121 or 135 Air Carrier certificate, but each Field element should evaluate their mission and operating environment to determine if other training may be required. A properly trained workforce is key to maintaining safe and effective operations.

E. APPLICABLE STANDARDS

- Title 14 CFR Part 61.56; 61.57; 61.58; 61.65; 61.67; 61.68; 61.127; and 61.157
- Title 14 CFR Parts 43.3, 65.81 and 65.83
- Title 14 CFR Part 135. 293 through 135.351
- Title 14 CFR Part 121.400 through 121.465
- DOE O 360.1B, Federal Employee Training
- DOE P 426.1, Federal Technical Capability for Defense Nuclear Facilities
- DOE M 426.1-1, Federal Technical Capability Manual
- DOE O 440.2B, Aviation Management and Safety

F. SUPPLEMENTAL GUIDANCE

- Chapter V, VI and VII, DOE G 440.2B-X
- FAA Advisory Circular (AC) 120-46A Use of Airplane Flight Training Devices (Inflight Training and Checking for Airman Qualification and Certification)
- FAA AC 120-45A Airplane Flight Training Device Qualification
- FAA Advisory Circular (AC) 120-51D Crew Resource Management Training
- FAA AC 120-61 Crewmember Training on In-flight Radiation Exposure
- FAA AC 120-62 Takeoff Safety Training Aid Announcement of Availability
- FAA AC 120-63 Helicopter Simulator Qualification
- FAA AC 120-68B Pilot Records Improvement Act of 1996, as Amended
- FAA AC 120-50 Guidelines for Operational Approval Of Windshear Training Programs
- FAA AC 120-72 Maintenance Resource Management Training
- FAA AC 121-32 Dispatch Resource Management Training

CHAPTER VIII AIRCRAFT AND EQUIPMENT

A. PURPOSE

The purpose of the Chapter is to state the basic minimum certification requirements for aircraft, engines, propellers, appliances and mission equipment so that program planning efforts, procedures, and evaluations support the effectiveness and safety of the aviation program.

B. APPLICABILITY

This section is applicable to all DOE/NNSA elements operating Federal aircraft and contains airworthiness standards acceptable for Departmental aviation services. Other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, are not required to meet these standards.

C. GENERAL INFORMATION

C.1 Civil Airworthiness Standards

DOE-Federal aircraft on occasion fly personnel for other than mission travel purposes; because of these operations the aircraft must meet the civil airworthiness standards for certification of aircraft. This includes the aircraft's engines and propellers, as well as the aircraft as a whole. A civil aircraft must have a current airworthiness certificate to operate in the National Airspace System. Additionally, all civil aircraft must meet the following requirements:

- (a) The aircraft must have an effective U.S. registration certificate on board during all operations as required by 14 CFR Chapter 1, Section 91.203.
- (b) An appropriate and current airworthiness certificate must be displayed in accordance with 14 CFR Chapter 1, Section 91.203(c). An airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with 14 CFR Chapter 1, Parts 21, 43, and 91, as appropriate, and the aircraft is registered in the United States.
- (c) The aircraft must have been inspected in accordance with FAR Section 91.409 within the preceding 12-calendar months.
- (d) If the Field element plans to use a progressive inspection program, it must submit a written request to the FAA. The request must be sent to the Flight Standards District Office (FSDO) having jurisdiction over the area in which the applicant is located and the applicant must be able to meet the requirements identified in FAR Section 91.409(d).
- (e) Large airplanes, turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft must have a program approved that meets the requirements of FAR Section 91.409(e).
- (f) All maintenance and required inspections must have been completed by a person authorized under FAR Sections 43.3 and 43.7. Additionally, the maintenance and inspections performed must be recorded in accordance with FAR Sections 43.9 and 43.11. FAR Part 43 prescribes the rules governing the maintenance, preventative maintenance, rebuilding, and alteration of civil U.S. registered aircraft.

- (g) Any alterations to the aircraft must have been accomplished and returned to service by an appropriately certified and authorized person under FAR Part 43.
- (h) Federal aircraft operations that receive funding from other than DOE funding accounts or outside the Federal Treasury are considered for compensation or hire. Therefore, during that operation, the aircraft and operator must comply with the appropriate Air Operations Certificate issued under 14 CFR Part 119, e.g., FAR part 125, 135, etc.

C.2 Type Certification

Prior to airworthiness certification, the type design must be certificated by the FAA. Section 603(c) of the Federal Aviation Act of 1958 makes a type certificate a prerequisite for issuance of airworthiness certificates. Each Field element who wishes to determine the eligibility of its aircraft for civil operations must contact the responsible geographic Aircraft Certification Office (ACO) for assistance in seeking either:

- design approval for aircraft that have been type certificated in the past; or
- type certification approval of aircraft that have been operated in the past under public aircraft status without a type certificate.

C.3 Aircraft Previously Type Certificated

If a DOE-Federal aircraft was originally built to an FAA type certificate, the Aircraft Certification Office will review the type certificate data and make a comparison with the aircraft's current design and condition.

- (a) The applicant should provide the FAA Aircraft Certification Office with the technical information to assist in the following:
 - (1) A review of type design for any engineering changes or modifications;
 - (2) A review of replacement parts and technical data on the replacement parts;
 - (3) A review of applicable Airworthiness Directives (AD);
 - (4) A review of previous operating regimes; and
 - (5) If needed, application of later regulatory amendments or special conditions for any changes found necessary to establish current airworthiness standards for safe design.
- (b) The applicant must provide accurate records of any changes from the approved type design that are necessary to establish the current design. The applicant should update all maintenance manuals as necessary. If there has been a substantial change in the type design, e.g., in the configuration, power, power limitations, speed limitations, or weight that have proven so extensive that a substantially complete investigation of compliance with the applicable regulations is required, DOE/NNSA will be required to apply for a new type certificate.

C.4 DOE-Federal Helicopters – Minimum Equipment

Aviation accident reports and improvements in helicopter safety equipment have led to the realization that enhanced safety equipment should be installed on DOE-Federal helicopters. DOE-Federal helicopters may be used for operations that involve a significant degree of risk. These operations make it imperative that precautions be taken to preserve the health of employees, the public, and to prevent damage to property. The following equipment, if available and certified for the model in use, should be installed on DOE-Federal helicopters:

- (a) A wire strike protection system (for new purchases and leased aircraft);
- (b) A crash resistant fuel system (for new purchases and leased aircraft);
- (c) Shoulder restraints for each seat (for new purchases and leased aircraft);
- (d) A cockpit voice recorder (if required by 14 CFR Part 135.151);
- (e) A digital flight data recorder (if required by 14 CFR Part 135.152);
- (f) Energy attenuating seats (new purchases); and
- (g) At least one radar altimeter with aural and visual warning systems available to both pilots, if two pilots are used, and the helicopters are used for IFR and Night Vision Goggle operations. This equipment is not suggested or expected to be installed in helicopters engaged in VFR operations only.

C.5 DOE-Federal Aircraft

C.5.1 Equipment Requirements, General: The Field element should ensure aircraft operated by the organization are not operated unless equipped with:

- (a) A sensitive altimeter that is adjustable for barometric pressure;
- (b) Heating or deicing equipment for each carburetor or, for a pressure carburetor, an alternate air source;
- (c) For turbojet airplanes, in addition to two gyroscopic bank-and-pitch indicators (artificial horizons) for use at the pilot stations, a third indicator that is installed in accordance with the instrument requirements prescribed in Title 14 CFR Chapter 1 Part 121, Section 121.305(j);
- (d) The equipment required by Part 91.205, paragraphs (b) and (c) for all aircraft, and paragraph (d) if operating under Instrument Flight rules or Night Vision Goggle operations; and
- (e) For turbine-powered aircraft, any other equipment as the Field element may require.

C.5.2 Small Aircraft, Crewmember Interphone Systems

- (a) The Field element should ensure that no person operates an aircraft having a crewmember seating configuration, excluding any pilot seat, of less than nine unless it is equipped with:
 - (1) Operational crewmember intercommunication system including handsets, headsets, microphones, and selector switches; and
 - (2) Is approved in accordance with Title 14 CFR Chapter 1, Section 21.305.
- (b) The Field element should provide a means of two-way communication between the pilot compartment and:
 - (1) Each crewmember or qualified non-crewmember; and
 - (2) Each station located on other than the main crewmember deck level.

C.5.3 Large Aircraft, Public Address and Crewmember Interphone Systems

The Field element should ensure that no person operates an aircraft having a crewmember seating configuration, excluding any pilot seat, of more than 19 unless it is equipped with:

- (a) A public address system which [14 CFR 121.318]:
 - (1) Is capable of operation independent of the crewmember interphone system required by paragraph (b) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;
 - (2) Is approved in accordance with Section 21.305 of this chapter;
 - (3) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
 - (4) For each required floor-level crewmember emergency exit which has an adjacent flight attendant or crewmember seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants or crewmembers;
 - (5) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;
 - (6) Is audible at all crewmember seats, lavatories, and flight attendant seats and work stations; and
 - (7) For transport category airplanes manufactured on or after November 27, 1990, meets the requirements of Title 14 CFR Chapter 1, Part 25, Section 25.1423.

- (b) A crewmember interphone system which [14 CFR 121.319]:
 - (1) Is capable of operation independent of the public address system required by paragraph (a) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;
 - (2) Is approved in accordance with Section 21.305 of this chapter;
 - (3) Provides a means of two-way communication between the pilot compartment;
 - i. Each crewmember compartment;
 - ii. Each galley located on other than the main crewmember deck level;
 - (4) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
 - (5) Is accessible for use from at least one normal flight attendant station in each crewmember compartment; and
 - (6) Is capable of operation within 10 seconds by a flight attendant at each of those stations in each crewmember compartment from which its use is accessible; and
 - (7) For Large Turbojet-powered Airplanes:
 - i. Is accessible for use at enough flight attendant or crewmember stations so that all floor-level emergency exits (or entryway to those exits in the case of exits located within galleys) in each crewmember compartment are observable from one or more of those stations so equipped;
 - ii. Has an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers;

- iii. For the alerting system required by paragraph (c)(2) of this section, has a means for the recipient of a call to determine whether it is a normal call or an emergency call; and
- iv. When the airplane is on the ground, provides a means of two-way communication between ground personnel and either of at least two flight crewmembers in the pilot compartment. The interphone system station for use by ground personnel must be so located that personnel using the system may not avoid visible detection from within the airplane.

C.5.4 Flight Navigator and Long-range Navigation Equipment [14 CFR 125.267]

- (a) No Field element should allow anyone to operate an aircraft outside the 48 conterminous States and the District of Columbia when its position cannot be reliably fixed for a period of more than one hour, without:
 - (1) A flight crewmember who holds a current flight navigator certificate; or
 - (2) Two independent, properly functioning, and approved long-range means of navigation which enable a reliable determination to be made of the position of the aircraft by each pilot seated at that person's duty station.
 - (3) Operations where a flight navigator or long-range navigation equipment, or both, are specified by the FAA in the operations specifications issued to an operator.

C.5.5 Equipment Requirements: Aircraft Operating Under IFR [14 CFR 91.205]

- (a) No Field element should allow anyone to operate an aircraft under IFR, unless it has:
 - (1) A vertical speed indicator;
 - (2) A free-air temperature indicator;
 - (3) A heated pitot tube for each airspeed indicator;
 - (4) A power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source;
 - (5) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators;
 - (6) For a single-engine aircraft, a generator or generators able to supply all probable combinations of continuous inflight electrical loads for required equipment and for recharging the battery;
 - (7) For multiengine aircraft, at least two generators each of which is on a separate engine, of which any combination of one-half of the total number are rated sufficiently to supply the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft except that for multiengine helicopters, the two required generators may be mounted on the main rotor drive train; and
 - (8) Two independent sources of energy (with means of selecting either), of which at least one is an engine-driven pump or generator, each of which is able to drive all gyroscopic instruments and installed so that failure of one instrument or source does not interfere with the energy supply to the remaining instruments or the other energy source unless, for single-engine aircraft, the rate-of-turn indicator has a source of energy separate from the bank and pitch and direction

indicators. For the purpose of this paragraph, for multiengined aircraft, each engine-driven source of energy must be on a different engine.

- (b) For the purpose of paragraph (8) of this section, a continuous inflight electrical load includes one that draws current continuously during flight, such as radio equipment, electrically driven instruments, and lights, but does not include occasional intermittent loads.

C.5.6 Radio and Navigational Equipment: Extended Overwater or IFR Operations [14 CFR 125.203]

- (a) No Field element should allow anyone to operate a turbojet airplane or multiengined airplane having a crewmember seating configuration, excluding any pilot seat, of 10 seats or more, under IFR or in extended overwater operations unless it has at least the following radio communication and navigational equipment appropriate to the facilities to be used which are capable of transmitting to, and receiving from, at any place on the route, at least one ground facility:
 - (1) two transmitters,
 - (2) two microphones,
 - (3) two headsets or one headset and one speaker,
 - (4) a marker beacon receiver,
 - (5) two independent receivers for navigation, and
 - (6) two independent receivers for communications.
- (b) No Field element should allow anyone to operate an aircraft other than that specified in paragraph (a) of this section, under IFR or in extended overwater operations, unless it has at least the following radio communication and navigational equipment appropriate to the facilities to be used and which are capable of transmitting to, and receiving from, any place on the route, at least one ground facility:
 - (1) A transmitter,
 - (2) two microphones,
 - (3) two headsets, or one headset and one speaker,
 - (4) a marker beacon receiver,
 - (5) two independent receivers for navigation,
 - (6) two independent receivers for communications, and
 - (7) for extended overwater operations only, an additional transmitter.
- (c) For the purpose of paragraphs (a)(5), (a)(6), (b)(5), and (b)(6) of this section, a receiver is independent if the function of any part of it does not depend on the functioning of any part of another receiver. However, a receiver that can receive both communications and navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver.

C.5.7 Reduced Vertical Separation Minimum

- (a) The Field element must contact the regional FAA RVSM coordinator for application and implementation guidance.

C.6 Aviation Life Support Equipment [14 CFR 125.209]

- (a) Each Field element should require the carriage of all or any specific items of the equipment listed below for any overwater operation:
- (1) A life preserver equipped with an approved survivor locator light, for each occupant of the airplane.
 - (2) Enough life rafts (each equipped with an approved survivor locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane. Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate all occupants of the airplane in the event of a loss of one raft of the largest rated capacity.
 - (3) At least one pyrotechnic signaling device for each life raft.
 - (4) An FAA approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than one cumulative hour, or when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water- activated batteries) that are essentially unaffected during probable storage intervals.
 - (5) The required life rafts, life preservers, and survival type emergency locator transmitter must be easily accessible in the event of a ditching without appreciable time for preparatory procedures. This equipment must be installed in conspicuously marked, approved locations.
 - (6) A survival kit, appropriately equipped for the route to be flown, must be attached to each required life raft.
- (b) Each Field element should, require the carriage of all or any specific items of the equipment listed below for winter operation, if applicable:
- (1) Survival tent;
 - (2) Sleeping bag for each occupant;
 - (3) Enough rations to survive for a 48 hour period;
 - (4) Matches in a water proof container;
 - (5) Saw;
 - (6) Flare gun or flares;
 - (7) An FAA approved survival type emergency locator transmitter; and
 - (8) One pair of snow shoes.

D. APPLICABLE STANDARDS:

- Title 14 CFR Parts 21, 91, 121, 125 and 135
- DOE Order 440.2B, Aviation Management and Safety
- Helicopter Association Aviation Safety Manual
- Airman's Information Manual

E. SUPPLEMENTAL GUIDANCE

- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations
- FAA AC 20-62D Eligibility, Quality, and Identification of Aeronautical Replacement Parts
- FAA AC 20-96 Surplus Military Aircraft
- FAA AC 20-132 Public Aircraft
- FAA AC 20-142 Eligibility and Evaluation of U.S. Military Surplus Flight Safety Critical Aircraft Parts, Engines, and Propellers
- FAA AC 21-13 Standard Airworthiness Certification of Surplus Military Aircraft and Aircraft Built from Spare and Surplus Parts
- FAA AC 21-23A Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States
- FAA AC 21-29B Detecting and Reporting Suspected Unapproved Parts
- FAA AC 21-40 Application Guide for Obtaining a Supplemental Type Certificate

CHAPTER IX AVIATION OPERATIONS

A. PURPOSE

The purpose of the Chapter is to standardize flight operations so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

The use of aircraft other than scheduled U.S. Flag Air Carriers or other Federal agency aircraft to include DOD, is subject to the policies, rules, orders, and management controls of the Department. An aircraft owned (Federal aircraft) or Commercial Aviation Service providers (leased, chartered, contracted, or rented aircraft) solely for the use of the Department is designated a government aircraft. Government aircraft are subject to Departmental requirements.

C.1 Department Requirements—Operating Government Aircraft

- (a) Field elements operating Government aircraft should show a clear line of accountability and delegation of authority from the Secretary of Energy to the person with authority to dispatch the aircraft.
 - (1) The authority to approve a Government aircraft flight for **mission requirements** should be delegated, but not limited to the following:
 - i. DOE Field element managers using aircraft in support of their respective programs;
 - ii. Aviation managers, so designated by position description;
 - iii. Designated flight dispatchers or schedulers; and/or
 - iv. Pilot-in-Command (PIC) of the respective aircraft.
 - (2) The authority to approve a Government aircraft flight for other official travel is the responsibility of the:
 - i. Aviation Manager; and/or
 - ii. Program Officer
 - (3) The authority to approve the Traveler onboard a Government aircraft flight for official travel involving **required use** travel and travelers who are Senior Federal Officials, Senior Executives and Non-Federal employees, is the responsibility of the:
 - i. Travel approving official; and
 - ii. Office of General Counsel, DOE.
 - (4) The authority to approve the Traveler onboard a Government aircraft flight for official travel, **other than required use** travel and travel involving GM/GS-15 or below, is the responsibility of the:

- i. Travel approving official; and
- ii. Chief Counsel of the Field element.

C.2 Mission Authorization

Some DOE missions require routine operations outside the provisions of Title 14 CFR Chapter 1 (e.g., aerial gunnery operations; research and development). The Field element manager or designee may grant initial authorization for such routine operations. In addition, concurrence of the Director, Office of Security Affairs, should be obtained for aircraft used in aviation missions involving Protective Forces (e.g., security helicopters). After initial authorization for these operations is granted by the appropriate authority, no further authorization is required for conducting such operations, unless the area of operations change or other circumstances exist requiring additional risk management protocols to be exercised by management. Each mission, even "routine," should have a designated approval authority, in writing, from the responsible DOE Field element manager.

C.3 DOE Pre-flight Actions and Operating Information Required

- (a) The Field element operating a DOE-Federal aircraft should provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station, and the pilot should use them:
 - (1) A cockpit checklist;
 - (2) An emergency cockpit checklist containing the procedures required by paragraph (c) of this section, as appropriate;
 - (3) Pertinent aeronautical charts;
 - (4) Current hazard assessment map, if applicable;
 - (5) Pertinent sections of the Field element's Operations Manual or an Aviation Safety Document applicable to the mission;
 - (6) For IFR operations, each pertinent navigational en route, terminal area, and approach and letdown chart; and
 - (7) One-engine-inoperative climb performance data and, if the aircraft is approved for use in IFR or over-the-top operations, that data must be sufficient to enable the pilot to determine that the aircraft is capable of carrying crewmembers over-the-top or in IFR conditions at a weight that will allow it to climb, with the critical engine inoperative, at least 50 feet a minute when operating at the MEA's of the route to be flown or 5,000 feet MSL, whichever is higher.
- (b) Each cockpit checklist required by paragraph C.3 (a) (1) of this section should contain the following procedures:
 - (1) Before starting engines;
 - (2) Before take-off (to include any mission equipment);
 - (3) Climb;
 - (4) Cruise;
 - (5) Descent;
 - (6) Before landing (to include any mission equipment);
 - (7) After landing; and
 - (8) Stopping engines (to include any mission equipment).
- (c) Each emergency cockpit checklist required by paragraph C.3 (a) (2) of this section must contain the following procedures, as appropriate:

- (1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems;
 - (2) Emergency operation of instruments and controls;
 - (3) Engine inoperative procedures;
 - (4) Any other emergency procedures necessary for safety; and
 - (5) Failure of mission equipment during flight and emergency operation of any controls.
- (d) The Field element should have policies that limit the pilot from taking off an aircraft that has frost, ice, or snow adhering to any rotor, propeller, windshield, wing, stabilizing or control surface, to a powerplant installation, or to an airspeed, altimeter, rate of climb, or flight attitude instrument system, except under the following conditions:
- (1) Takeoffs may be made with frost adhering to the wings, rotors, stabilizing or control surfaces, if the frost has been polished to make it smooth; and
 - (2) Takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the FAA. (Section 121.629(c) of Title 14 CFR Chapter 1)
- (e) The Field element may not authorize an aircraft to takeoff and no pilot may takeoff an aircraft any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft unless the pilot has completed the training required in Chapter VII paragraph C.3.3.1 (b) (3) and unless one of the following requirements is met:
- (1) A pre-takeoff contamination check, that has been established by the Field element and approved by the FAA for the specific aircraft type, has been completed within 5 minutes prior to beginning takeoff. A pre-takeoff contamination check is a check to make sure the wings and control surfaces are free of frost, ice, or snow.
 - (2) The Field element has an FAA approved alternative procedure and under that procedure the aircraft is determined to be free of frost, ice, or snow.
 - (3) The Field element has an FAA approved deicing/anti-icing program that complies with Section 121.629(c) of Title 14 CFR Chapter 1 and the takeoff procedures comply with that program.
- (f) Except for an aircraft that has ice protection provisions that meet Appendix C of Part 125 of Title 14 CFR Chapter 1 or rotorcraft or transport category aircraft type certification, no pilot should fly:
- (1) Under IFR into known or forecast light or moderate icing conditions; or
 - (2) Under VFR into forecast light or moderate icing conditions, unless the aircraft has functioning deicing or anti-icing equipment protecting each propeller, rotor, powerplant, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.
- (g) If current weather reports and briefing information, relied upon by the pilot-in-command, indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraph (f) of this section based on forecast conditions do not apply.
- (h) The Field element should establish a policy that before each takeoff, each pilot-in-command of an aircraft carrying passengers should ensure that all personnel have been orally briefed on:

- (1) Smoking. Each person should be briefed on when, where, and under what conditions smoking is prohibited. This briefing should include a statement that the Federal Aviation Regulations require crewmember compliance with the lighted passenger/crewmember information signs, posted placards, areas designated for safety purposes as no smoking areas, and passenger/crewmember instructions with regard to these items;
 - (2) The use of safety belts, including instructions on how to fasten and unfasten the safety belts. Each person should be briefed on when, where, and under what conditions the safety belt must be fastened about him or her. This briefing should include a statement that the Federal Aviation Regulations require passenger/crewmember compliance with lighted passenger/crewmember information signs and passenger/crewmember instructions concerning the use of safety belts;
 - (3) The placement of seat backs in an upright position before takeoff and landing;
 - (4) Location and means for opening the entry door and emergency exits;
 - (5) Location of survival equipment;
 - (6) If the flight involves extended over-water operation, ditching procedures and the use of required flotation equipment;
 - (7) If the flight involves operations above 12,000 feet MSL, the normal and emergency use of oxygen;
 - (8) Location and operation of fire extinguisher(s); use and operation of mission equipment;
 - (9) Mission objectives; and
 - (10) Any known hazards.
- (i) Before each takeoff, the pilot-in-command should ensure that each person who may need the assistance of another person to move expeditiously to an exit if an emergency occurs and that person's attendant, if any, has received a briefing as to the procedures to be followed if an evacuation occurs.
 - (j) Paragraphs (h) and (i) do not apply to a person who has been given a briefing before a previous leg of a flight in the same aircraft.
 - (k) The oral briefing required by paragraph (h) should be given by the pilot-in-command or a member of the flight crew. It should be supplemented by printed cards for the use of each passenger/crewmember containing:
 - (1) A diagram and method of operating the emergency exits; and
 - (2) Other instructions necessary for the use of emergency equipment on board the aircraft.
 - (l) Each card used under this paragraph should be carried in the aircraft in locations convenient for the use of each passenger/crewmember and must contain information that is appropriate to the aircraft on which it is to be used. The Field element should describe in its AIP, operations manual or policy document the procedure to be followed in the briefing required by paragraph (h) of this section.
 - (m) If the aircraft does not proceed directly over water after takeoff, no part of the briefing required by paragraph (h) (6) of this section has to be given before takeoff but the briefing required by paragraph (h) (6) should be given before reaching the over water part of the flight.

- (n) The briefing required by paragraph (h) (1) through (8) of this section should be part of the initial and recurrent training program for crewmembers and qualified non-crewmembers and is not required before each flight, if the pilot-in-command ensures the crewmember or qualified non-crewmember understand their responsibilities. However, the briefing elements (h) (9) and (10) must be briefed prior to flight by the pilot-in-command.
- (o) The Field element must develop a method or process for disseminating the briefing information required by National Transportation Safety Board (NTSB) document Federal Plan for Aviation Accidents Involving Aircraft Operated by or Chartered by Federal Agencies, Appendix F (NTSB/SPC-99-04), to all personnel who are onboard a DOE government aircraft.
- (p) The Field element should ensure policies and processes are established to address the recording of maintenance discrepancies found during pre-flight and how the pilot-in-command determines if maintenance discrepancies from the previous flight, if any, are corrected prior to departure.
- (q) The Field element should ensure policies and processes are established to address security as recommended in Chapter XXVI of this guide.

C.4 DOE Pre-flight Actions–Flight Plans

- (a) An FAA flight plan appropriate to the conditions of flight (Instrument Flight Rules [IFR], Visual Flight Rules [VFR]) should be filed with a responsible party for each flight of a DOE-Federal aircraft or in accordance with the Field element's flight locating procedures, unless required by 14 CFR Chapter 1, Part 91.
- (b) A pilot departing a location without communications facilities may file a flight plan as soon as practical after he/she becomes airborne.
- (c) A pilot remaining within 25 statute miles of the point of departure need not file a flight plan if he/she notifies air traffic controllers or an appropriate responsible DOE official of his/her location, estimated flight time, and intent.
- (d) A manifest with the name(s) of all crewmembers and any personnel on-board should be given to the DOE representative or left with the contractor's organization. The manifest will consist of the full name of each person for each leg of the flight, a person to be contacted in the event of an emergency (who is not aboard the flight), and a telephone number for the emergency contact.

C.5 DOE Pre-flight Actions–Flight Locating Information

- (a) A Field element should establish a process or procedure when VFR flight plans are not practical. The Field element's flight locating processes or procedures should ensure:
 - (1) A planned route of flight is filed;
 - (2) The Estimated Time Enroute (ETE);
 - (3) Estimated Time of Arrival (ETA);
 - (4) Number and identity of individuals on board the aircraft;
 - (5) Person to be contacted in the event of an emergency (who is not aboard the flight);
 - (6) Telephone number for the emergency contact;

- (7) At least the information required to be included in a VFR flight plan;
 - (8) For timely notification of an FAA facility or search and rescue facility, if an aircraft is overdue or missing; and
 - (9) The location, date, and estimated time for reestablishing radio or telephone communications, if the flight will operate in an area where communications cannot be maintained.
- (b) Flight locating information shall be retained at the Field element's principal operations base, or at other places designated by the Field element in the flight locating procedures, until the completion of the flight.
- (c) Each Field element should furnish the representative of the FAA, if applicable, with a copy of its flight locating procedures and any changes or additions, unless those procedures are included in a manual required by the FAA.
- (d) The flight crew should update the ETA if they expect to arrive more than 30 minutes after the planned ETA.
- (e) The flight crew of a security helicopter operating within the boundary of a site should update their ETA if they expect to arrive more than 15 minutes after their planned ETA.
- (f) The flight crew should notify the responsible personnel when the aircraft has landed. If the flight crew has not made notification of their landing within the appropriate amount of time following the planned ETA, the responsible personnel should initiate a search for the aircraft.
- (g) Initiating Search and Rescue: A Field element should establish processes or procedures for initiating search and rescue for aircraft that are overdue or missing. Processes or procedures should ensure essential personnel are notified, including the FAA, and that a record is kept of the steps taken and time of each event during the search and rescue.

C.6 DOE Pre-flight Actions–Weight and Balance

DOE/NNSA elements should ensure that a Flight crewmember or Flight Dispatcher perform weight and balance calculations to ensure that aircraft are within manufacturer's and FAA- or military-established weight and balance limitations for each operation, flight, or mission profile for which the aircraft are to be operated. Where mission profiles remain constant (e.g., emergency medical evacuation, aerial patrols, etc.) then a single mission weight and balance may be kept for that mission profile.

C.7 DOE Pre-flight Actions–Airport Requirements

- (a) The Field element should ensure policies establish that Flight crewmembers should not use any landing site or airport unless it is adequate for the proposed operation, considering such items as size, aircraft weight and performance, surface, altitude, density altitude, obstructions, and lighting. An effective takeoff plan shall be developed which allows a considered sequence of actions to be implemented without delay if an emergency arises. Performance charts can be used to compute aircraft response resulting from various types of engine failures, environmental conditions, aircraft loading, and other factors affecting aircraft performance upon takeoff. DOE-Federal aircraft should be capable of maintaining a minimum climb gradient of 200 feet per nautical mile at airports for which there are no published IFR departure procedures or nonstandard IFR takeoff minimums. The aircraft

must also be capable of maintaining any climb gradient established in the Standard Instrument Departures or in published IFR takeoff procedures. With regard to fixed wing aircraft, takeoffs will be accomplished only when runway lengths are sufficient to provide for a balanced field condition.

- (b) The pilot of an airplane at night may not take off from, or land on, any landing site or airport unless:
 - (1) That pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications, or in the case of takeoff, that pilot's personal observations; and
 - (2) The limits of the area to be used for landing or takeoff are clearly shown by boundary or runway marker lights.

For the purposes of paragraph (b) of this section, if the area to be used for takeoff or landing is marked by flare pots or lanterns, their use must be approved by the FAA.

- (c) No pilot of a helicopter at night may take off from, or land on, any landing site or airport unless:
 - (1) That pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications, or that pilot's personal observations; and
 - (2) That pilot has determined the limits of the area to be used for landing or takeoff are sufficient considering gross weight, density altitude, and performance of the aircraft.
- (d) Standard Instrument Departures (SID)/IFR Departure Procedures: At those locations where SIDs are available, pilots are encouraged to utilize them for each IFR departure, provided no unacceptable flight delays ensue. Appropriate SID and IFR departure procedures should be reviewed and utilized for IFR departure to ensure separation from aircraft and obstacles during takeoff.

C.8 DOE Pre-flight Actions–Cargo Operations

Cargo operations conducted under Departmental operational control should be done in accordance with the Federal Aviation Regulations and applicable regulations governing the movement of hazardous materials.

- (a) At all times it is important to ensure that cargo is secured and prevented from any unplanned movement on board the aircraft. Cargo should be appropriately secured prior to and during flight.
- (b) Only approved items, under 49 CFR Subchapter C, should be transported by air. DOE/NNSA elements should have appropriate manuals for conducting cargo operations in accordance with 14 CFR and 49 CFR.
- (c) Hazardous materials operations should be reviewed annually, and policy statements, regulations, and procedures should be followed by DOE employees and DOE contractors.
- (d) Title 49 Parts 171 through 175 and the Convention on International Civil Aviation "Technical Instructions for the Safe Transport of Dangerous Goods by Air" require a

program to ensure that no employee or agent of DOE will accept or cause to be transported any hazardous materials without following appropriate procedures.

- (e) The hazardous materials program should ensure that DOE complies with the requirements of the FAA approved Hazardous Materials Recognition Program for all individuals that perform duties involving passengers' carry-on or checked baggage or have responsibilities involving the acceptance, handling, storage or transport of freight or packages. (Refer to Chapter VII, C.3.1.1 (a))
- (f) DOE should ensure that hazardous materials information warning signs as required by 49 CFR are posted at appropriate locations advising shippers and passengers of DOE policy and of the potential hazards associated with the offering and/or carriage of such materials onboard an aircraft if the shipper and/or the operator fail to comply with the requirements of 49 CFR Parts 172.25 and 175.26.
- (g) DOE should advise the proper authorities of incidents or discrepancies that are discovered as described in 49 CFR Part 175.
- (h) DOE should ensure that hazardous materials recognition training of employees and/or agents should be satisfactorily completed. A copy of this training documentation should be maintained until 90 days after the employee's termination date.

C.9 DOE Departure Actions and Operations–Airman: Limitations on Use of Services

- (a) Field elements should establish policies that ensure flight crewmember(s):
 - (1) Hold(s) an appropriate current airman certificate issued by the FAA;
 - (2) Has any required appropriate current airman and medical certificates in that person's possession while engaged in flight operations; and
 - (3) Is otherwise qualified for the operation for which that person is to be used.
- (b) Each flight crewmember covered by paragraph C.9 (a) of this section should present the certificates for inspection upon the request of the FAA or DOE official.

C.10 DOE Departure Actions and Operations–Airman: Composition of Flightcrew

- (a) Field elements should establish policies that ensure no aircraft is operated with less than the minimum flightcrew specified in the type certificate data sheet, supplemental type certificate data sheet, FAA approved Aircraft Flight Manual, Rotorcraft Flight Manual, or military operations manual for that type aircraft and for the kind of operation being conducted.
- (b) In any case in which the Title 14 CFR Chapter 1, Part 91 requires the performance of two or more functions for which a flight crewmember certificate is necessary; that requirement is not satisfied by the performance of multiple functions at the same time by one flight crewmember.
- (c) On each flight requiring a flight engineer, at least one flight crewmember, other than the flight engineer, must be qualified to provide emergency performance of the flight engineer's functions for the safe completion of the flight if the flight engineer becomes ill

or is otherwise incapacitated. A pilot need not hold a flight engineer's certificate to perform the flight engineer's functions in such a situation.

C.11 DOE Departure Actions and Operations—Flight Crewmembers at Controls

- (a) Field elements should establish policies that ensure, except as provided in paragraph (b) of this section, each required flight crewmember on flight deck duty must remain at the assigned duty station with seat belt fastened while the aircraft is taking off or landing and while it is enroute.
- (b) A required flight crewmember may leave the assigned duty station:
 - (1) If the crewmember's absence is necessary for the performance of duties in connection with the operation of the aircraft;
 - (2) If the crewmember's absence is in connection with physiological needs; or
 - (3) If the crewmember is taking a rest period and relief is provided:
 - i. In the case of the assigned pilot-in-command, by a pilot qualified to act as pilot-in-command.
 - ii. In the case of the assigned second-in-command, by a pilot qualified to act as second-in-command of that aircraft during enroute operations.

C.12 DOE Departure Actions and Operations—Dual Controls Required

Field elements should establish policies that ensure no person may operate an aircraft in operations requiring two pilots unless it is equipped with functioning dual controls. However, if the aircraft type certification operating limitations do not require two pilots, a throw-over control wheel may be used in place of two control wheels.

C.13 DOE Departure Actions and Operations—Crewmember Information

- (a) Field elements should establish policies that ensure no person should operate a large aircraft carrying personnel unless it establishes procedures in the Field elements AIP, Flight Operations Manual or policy document, or is equipped with signs that meet the requirements of Title 14 CFR Chapter 1, Part 25, Section 25.791 that are visible to crewmembers to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be constructed so that the crew can turn them on and off. They must be turned on during aircraft movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot-in-command.
- (b) No passenger/crewmember may smoke while any “No Smoking” sign is lighted or the instruction “No Smoking” has been given by the pilot-in-command; nor may any crewmember smoke in any lavatory.
- (c) Each passenger/crewmember required on board an aircraft must occupy a seat or berth and shall fasten his or her safety belt about him or her and keep it fastened while any “Fasten Seat Belt” sign is lighted.
- (d) Each passenger/crewmember shall comply with instructions given him or her by the Pilot-in-command or second-in-command regarding compliance with paragraphs (b) and (c) of this section.

- (e) Carriage of cargo or test equipment in crewmember compartments. Field elements should establish policies that ensure no pilot-in-command permits cargo to be carried in any aircraft unless:
 - (1) It is carried in an approved cargo rack, bin, or compartment installed in the aircraft;
 - (2) It is secured by means approved by the FAA; or
 - (3) It is carried in accordance with each of the following:
 - i. It is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.
 - ii. It is packaged or covered to avoid possible injury to crewmembers or passengers.
 - iii. It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.
 - iv. It is not located in a position that restricts the access to or use of any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment.
 - v. It is not carried directly above seated crewmembers or personnel.
- (f) Carriage of cargo in cargo compartments. Field elements should establish policies that ensure when cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand-held fire extinguisher.
- (g) Stowage of food, beverage, and crewmember service equipment during aircraft movement on the surface, takeoff, and landing. Field elements should establish policies that state:
 - (1) No Field element should allow any movement of an aircraft on the surface, take off, or land when any food, beverage, or tableware, furnished by the Field element or crew, is located at any crewmember seat.
 - (2) No Field element should allow any movement of an aircraft on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.
 - (3) No Field element should permit an aircraft to move on the surface, take off, or land unless each crewmember serving cart and loose mission equipment is secured and stowed.
 - (4) Each crewmember, passenger, or qualified non-crewmember should comply with instructions given by the pilot-in-command with regard to compliance with this section.

C.14 DOE Departure Actions and Operations—Crewmembers Other Than Airmen (Essential Crew)

- (a) The number of crewmembers authorized on board an aircraft will be determined by:
 - (1) Type certificate;
 - (2) Number of approved seats installed; or
 - (3) Set forth in the mission specifications, for the specific mission being flown.

- (b) During takeoff and landing, the pilot-in-command will ensure that crewmembers are located as near as practicable to exits and shall be uniformly distributed throughout the aircraft to provide the most effective egress of crewmembers in event of an emergency evacuation.

C.15 DOE Departure Actions and Operations–Weather Minimums

C.15.1 Fixed-wing Takeoff Minimums

- (a) A pilot-in-command of a DOE-Federal airplane should not take off an airplane from an airport where weather conditions are at or above takeoff minimums but are below authorized IFR landing minimums unless there is an alternate airport within 1 hour's flying time (at normal cruising speed, in still air) of the airport of departure.
- (b) A pilot-in-command of a DOE-Federal airplane should not takeoff an airplane under IFR or begin an IFR or over-the-top operation unless the latest weather reports or forecasts, or any combination of them, indicate that weather conditions at the estimated time of arrival at the next airport of intended landing will be at or above authorized IFR landing minimums.

C.15.2 Helicopter Takeoff Minimums

Single pilot helicopter operations should require takeoff weather minimums of 500 feet ceiling and 1/2 mile visibility. The pilot-in-command of a DOE-Federal helicopter is authorized to depart under terms of a Special VFR clearance when takeoff weather is below these minimums when, in the judgment of the pilot-in-command, such operations are necessary and can be safely accomplished, in accordance with 14 CFR Part 91. Dual-pilot helicopter operations may use Special VFR weather criteria without restriction.

C.15.3 Destination with Alternate

No pilot-in-command may designate an alternate airport unless the weather reports or forecasts, or any combination of them, indicate that the weather conditions will be at or above authorized alternate airport landing minimums for that airport at the estimated time of arrival.

C.15.4 Destination with Two Alternates

Pilot-in-command may be cleared to a destination when prevailing ceiling and visibility are forecast to be below minimums for precision or non-precision approaches at the estimated time of arrival if two alternates are named in the clearance, and if the second alternate meets the appropriate criteria.

C.15.5 Destination with No Alternate Required

No alternate airport is required if for at least one hour before and after the estimated time of arrival at the destination, the appropriate weather reports or forecasts, or any combination thereof, indicate that:

- (a) The ceiling will be at least 2,000 feet above the airport elevation, and
- (b) Visibility will be at least three miles.

C.15.6 Destination with No Alternate Available

The destination must meet the weather minimums stated in paragraph 15.5 (a). This requirement is intended to address operations into remote, foreign, arctic or island destinations where an alternate does not exist or is beyond practical fuel range.

C.15.7 Alternate Weather Minimums

- (a) Except as provided in paragraph (b) of this section, a pilot-in-command of a DOE-Federal aircraft should not operate an aircraft in IFR conditions unless it carries enough fuel (considering weather reports or forecasts or any combination of them) to:
 - (1) Complete the flight to the first airport of intended landing;
 - (2) Fly from that airport to the alternate airport; and
 - (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

- (b) Paragraph (a)(2) of this section does not apply if Part 97 of Title 14 CFR Chapter 1 prescribes a standard instrument approach procedure for the first airport of intended landing and, for at least one hour before and after the estimated time of arrival, the appropriate weather reports or forecasts, or any combination of them, indicate that:
 - (1) The ceiling will be at least 1,500 feet above the lowest circling approach MDA; or
 - (2) If a circling instrument approach is not authorized for the airport, the ceiling will be at least 1,500 feet above the lowest published minimum or 2,000 feet above the airport elevation, whichever is higher; and
 - (3) Visibility for that airport is forecast to be at least three miles, or two miles more than the lowest applicable visibility minimums, whichever is the greater, for the instrument approach procedure to be used at the destination airport.

C.15.8 Alternate Airports Outside CONUS

For an airfield to qualify as an alternate for destination outside CONUS, the pilot-in-command should use the worst prevailing weather forecast for the estimated time of arrival, plus or minus one hour, but in no case may an airfield be named as an alternate if the forecast weather is below published approach minimums.

C.16 DOE Enroute Actions and Operations—Oxygen for Medical Use by Crewmembers

- (a) Except as provided in paragraphs (h) and (i) of this section, each Field element should not allow the carriage or operation of equipment for the storage, generation, or dispensing of medical oxygen unless the unit to be carried is constructed so that all valves, fittings, and gauges are protected from damage during that carriage or operation and unless the following conditions are met:
 - (a) The equipment should be:
 - i. Of an approved type or in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements of Title 49 CFR Parts 171, 172, and 173, except Section 173.24(a)(1);
 - ii. When owned by the Field element, maintained under the Field element's maintenance program;
 - iii. Free of flammable contaminants on all exterior surfaces; and
 - iv. Appropriately secured.

- (b) When the oxygen is stored in the form of a liquid, the equipment should be under the Field element's maintenance program since its purchase new or since the storage container was last purged.
- (c) When the oxygen is stored in the form of a compressed gas as defined in Title 49 CFR 173.300(a):
 - i. When owned by the Field element, it should be maintained under the Field element's maintenance program; and
 - ii. The pressure in any oxygen cylinder should not exceed the rated cylinder pressure.
- (d) The pilot-in-command must be advised when the equipment is on board and when it is intended to be used.
- (e) The equipment should be stowed, and each person using the equipment should be seated so as not to restrict access to or use of any required emergency or regular exit or of the aisle in the crewmember/passenger compartment.
- (f) When oxygen is being used, no person may smoke and no Field element may allow any person to smoke within 10 feet of oxygen storage and dispensing equipment carried under paragraph (a) of this section.
- (g) The Field element should not allow any person other than a person trained in the use of medical oxygen equipment to connect or disconnect oxygen bottles or any other ancillary component while any crewmember is aboard the aircraft.
- (h) Paragraphs (2), (3), and (4) of this section do not apply when that equipment is furnished by a professional or medical emergency service for use on board an aircraft in a medical emergency when no other practical means of transportation (including any other properly equipped commercial service provider) is reasonably available and the person carried under the medical emergency is accompanied by a person trained in the use of medical oxygen.
- (i) Each Field element, under the authority of paragraph (C.16) of this section, deviates from paragraphs (b), (c), and (d) of this section under a medical emergency should establish a procedure for notifying DOE management, after the deviation, with a complete report of the operation involved, including a description of the deviation and the reasons for it.

C.17 DOE Enroute Actions and Operations—Manipulation of Controls

Field elements should establish a policy that states:

- (a) That no pilot-in-command should allow any person to manipulate the controls of an aircraft during flight, nor should any person manipulate the controls during flight, unless that person is a qualified and current pilot of the Field element operating that aircraft; or
- (b) The Field element is conducting training under Part 61 of this chapter; or

- (c) Flight crewmember training is being conducted in accordance with the Field element's training program.

C.18 DOE Enroute Actions and Operations—Admission to Flight Deck

Field elements should establish a policy that states:

- (a) No person should admit any person to the flight deck of an aircraft unless the person being admitted is:
 - (1) A Flight crewmember;
 - (2) A crewmember;
 - (3) An FAA inspector or an authorized representative of the National Transportation Safety Board who is performing official duties;
 - (4) A DOE representative who is performing official duties; or
 - (5) Any person who has the permission of the pilot-in-command.
- (b) No person should admit any person to the flight deck during ground or airborne operation unless there is a seat available for the use of that person in the crewmember compartment, except:
 - (1) An FAA inspector or an authorized representative of the FAA Administrator or National Transportation Safety Board who is checking or observing flight operations; or
 - (2) A certificated airman employed by the Field element whose duties require an airman certificate.

C. 19 DOE Enroute Actions and Operations—Inspector's Credentials / Admission to Pilots' Compartment

- (a) Whenever, in performing the duties of conducting an inspection, an FAA inspector presents an Aviation Safety Inspector credential, FAA Form 110A, to the pilot-in-command of an aircraft operated by a Field element, the inspector must be given free and uninterrupted access to the pilot compartment of that aircraft. However, this paragraph does not limit the emergency authority of the pilot-in-command to exclude any person from the pilot compartment in the interest of safety.
- (b) A forward observer's seat on the flight deck, or forward crewmember seat with headset or speaker, must be provided for use by the FAA or DOE representative that is a certificated airman while conducting en route inspections. The suitability of the location of the seat and the headset or speaker for use in conducting enroute inspections is determined by the FAA.

C.20 DOE Enroute Actions and Operations—Emergencies

Field elements should establish a policy that states:

- (a) In an emergency situation that requires immediate decision and action, the pilot-in-command may take any action considered necessary under the circumstances. In such a case, the pilot-in-command may deviate from prescribed operations, procedures and methods, weather minimums, and the Federal Aviation Regulations, to the extent required in the interests of safety.

- (b) In an emergency situation arising during flight that requires immediate decision and action by appropriate management personnel in the case of operations conducted with a flight following service and which is known to them, those personnel should advise the pilot-in-command of the emergency, should ascertain the decision of the pilot-in-command, and should have the decision recorded. If they cannot communicate with the pilot, they should declare an emergency and take any action that they consider necessary under the circumstances.
- (c) Whenever emergency authority is exercised, the pilot-in-command or the appropriate management personnel shall keep the appropriate ground radio station fully informed of the progress of the flight. The person declaring the emergency should send a written report of any deviation, through the Field element's Aviation Manager or the Director of Operations, to the FAA and the Office of Aviation Management within 10 days, if requested, exclusive of Saturdays, Sundays, and Federal holidays, after the flight is completed or, in the case of operations outside the United States, upon return to the home base.
- (d) Reporting potentially hazardous meteorological conditions and irregularities of ground and navigation facilities. Field elements should establish a policy that states: Whenever the pilot-in-command encounters a meteorological condition or an irregularity in a ground or navigational facility in flight, the knowledge of which the pilot-in-command considers essential to the safety of other flights, the pilot-in-command should notify an appropriate FAA ground station as soon as practicable.

C.21 DOE Enroute Actions and Operations–VFR: Minimum Altitudes for Special Operations

Field elements should establish a policy that states:

- (a) The Field element must comply with Title 14 CFR Chapter 1, Part 91, Section 91.119 unless conducting the following special operations;
 - (1) Law Enforcement: except when necessary for takeoff and landing, no person should operate under VFR unless:
 - i. An airplane complies with 14 CFR Chapter 1, Section 91.119.
 - ii. A Helicopter operated over a congested area at an altitude less than 300 feet above the surface, or at an altitude approved by the FAA.
 - (2) Biological or Radiological survey or game count activities; except when necessary for takeoff and landing, no person should operate under VFR unless:
 - i. Airplane - At an altitude that allows the pilot-in-command to safely land the aircraft in the event of an emergency without presenting a hazard to persons or property on the ground, and has established written safety procedures including; low level flight training, collision avoidance, high and low reconnaissance procedures, and any other procedures the Field element deems necessary.
 - ii. Helicopter - At an altitude that allows the pilot-in-command to safely land the aircraft in the event of an emergency without presenting a hazard to persons or property on the ground, and established written safety procedures including; low level flight training, collision avoidance, high and low reconnaissance procedures, and any other procedures the Field element deems necessary.

- (3) Fire fighting and/or forest management activities; except when necessary for takeoff and landing, no person may operate under VFR unless:
 - i. Airplane - At an altitude that allows the pilot-in-command to safely land the aircraft in the event of an emergency without presenting a hazard to persons or property on the ground, and has established written safety procedures including; low level flight training, collision avoidance, high and low reconnaissance procedures, multiple aircraft in close proximity operations procedures, minimum visibility requirements, and any other procedures the Field element deems necessary.
 - ii. Helicopter - At an altitude that allows the pilot-in-command to safely land the aircraft in the event of an emergency without presenting a hazard to persons or property on the ground, and has established written safety procedures including; low level flight training, collision avoidance, high and low reconnaissance procedures, multiple aircraft in close proximity operations procedures, minimum visibility requirements, and any other procedures the Field element deems necessary.

C.22 DOE Enroute Actions and Operations–VFR: Visibility Requirements

Field elements should establish a policy that states:

- (1) No person may operate an airplane under VFR in Class G airspace contrary to Title 14 CFR Chapter 1, Part 91, Section 91.155.
- (2) No person may operate a helicopter under VFR in Class G airspace at an altitude of 1,200 feet or less above the surface or within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport unless the visibility is at least:
 - i. During the day - ½ mile;
 - ii. At night - 1 mile; or
 - iii. Meets the requirements of 14 CFR Chapter 1, Part 91, Section 91.155.

C.23 DOE Enroute Actions and Operations–VFR: Over-the-Top

Operating Limitations: Field elements should establish a policy that states:

- (a) Subject to any additional limitations in paragraph (a) (1) below, no person should operate an aircraft under VFR over-the-top, unless:
 - (1) Weather reports or forecasts, or any combination of them, indicate that the weather at the intended point of termination of over-the-top flight:
 - a. Allows descent to beneath the ceiling under VFR and is forecast to remain so until at least 1 hour after the estimated time of arrival at that point; or
 - b. Allows an IFR approach and landing with flight clear of the clouds until reaching the prescribed initial approach altitude over the final approach facility, unless the approach is made with the use of radar under Title 14 CFR Chapter 1, Part 91, Section 91.175(f); or
 - (2) It is operated under conditions allowing:
 - a. For multi-engine aircraft, descent or continuation of the flight under VFR if its critical engine fails; or

- b. For single-engine aircraft, descent under VFR if its engine fails.

C.24 DOE Enroute Actions and Operations—Low Level Operation

Field elements should establish a policy that states:

- (a) Flight operations conducted less than 500 feet Above Ground Level (AGL), should have hazard maps that are updated at least every 60 days (except those involved in pipeline and powerline patrols).
- (b) The maps should indicate height AGL of all existing obstacles and/or hazards to a flight on:
 - 1. The DOE site on which the operations occur; and
 - 2. Along commonly used flight paths.
- (c) A FAA waiver from 14 CFR Part 91.119, (b) and (c) is required for airplanes over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft or when an airplane is operated over open water or sparsely populated areas closer than 500 feet to any person, vessel, vehicle, or structure.
- (d) The operator is solely responsible for filling out and submitting a FAA Form 7711-2. (If the operator has any questions refer to the FAA Operations Inspector Handbook, 8300.1.2, Chapter 51. Issue a Certificate of Waiver or Authorization: 14 CFR Part 91, Section 91.119(b) and/or (c) Minimum Safe Altitudes).
- (e) Where practical, the conduct of pipeline and powerline patrols less than 500 feet AGL should use a system of warning signs and marker balls, supplemented with a current VFR sectional map, to alert pilots to hazards within pipeline and powerline rights of way. Field elements or commercial aviation service providers operating airplanes in pipeline or powerline patrols must have the required waiver referred to in paragraph (c) of this section.

C.25 DOE Enroute Actions and Operations—IFR Flight

Field elements should establish a policy that states:

- (a) All IFR operations must comply with 14 CFR Chapter 1, Part 91, except where more stringent recommendations are defined in this document; and
- (b) Operations flown in Instrument Meteorological Conditions (IMC) should be conducted in multi-engine turbine-jet or turbine-propeller aircraft certified for instrument flight and should be crewed by two current, instrument-rated pilots.
- (c) Aircraft should have dual flight instrumentation or instrumentation that is easily visible to both pilots.
- (d) Each pilot position should be equipped with fully functional flight controls.

C.26 All Aircraft–IFR

The minimum operating altitudes should be the MEA, MSA or the altitude specified by the FAA Air Traffic Controller.

C.27 DOE Enroute Actions and Operations–Night Operations

Field elements should establish a policy that states:

- (a) For operations later than 1 hour after official sunset until 1 hour before official sunrise; or
- (b) In Alaska, for operations during the period when a prominent unlit object cannot be seen from a distance of three (3) statute miles; or
- (c) When the sun is more than six (6) degrees below the horizon:
 1. Multiengine aircraft should be used.
 2. Flight crews should include a minimum of two current, qualified pilots who meet minimum requirements for recency of experience in night and instrument operations and the Field element's proficiency standards.
 3. As a minimum, both pilots should hold current commercial certificates and instrument ratings.
 4. Helicopters should have at least one radar altimeter with aural and visual warning systems. The radar altimeter display and the visual warning system(s) should be situated such that at least one radar altimeter display and one visual warning system are clearly visible to both pilots. Radar altimeters installed in aircraft used for night vision goggle (NVG) operations should have digital displays.
- (d) The following minimum altitudes for unaided night flight should be maintained except during take off, departure, approach, and landing:
 1. All Aircraft-VFR. Aircraft should maintain the minimum safe altitudes required by 14 CFR Part 91, unless a waiver from 14 CFR Part 91.119 has been obtained.
- (e) Single-pilot, single-engine aircraft operations during the period from 1 hour after official sunset until 1 hour before official sunrise should be authorized for emergency operations only and are subject to the following:
 1. The flight crew should obtain approval for the initiation of emergency flights during this time period from the Head of the DOE Field element, the PMA, the CSO, or their designee.
 2. In circumstances in which the loss of life is highly probable and immediate action is required, the pilot-in-command may initiate the flight, only after the pilot has conducted a pre-mission risk assessment to consider the identified hazards.
 3. If a single-pilot, single-engine aircraft is inadvertently stranded and cannot return to base prior to 1 hour after sunset, oral approval for continued operation should be obtained from the Chief Pilot, Aviation Manager, or designee. Individuals designated to approve continued operation should be listed in the Field element's aviation operations policy, manual, or AIP.

- (f) The Aviation Manager may authorize the required number of VFR night operations to allow the organization's pilots to maintain night currency and proficiency.
- (g) The Aviation Manager should keep a log recording the dates and return times of all flights operating later than 1 hour after official sunset and 1 hour before official sunrise.
- (h) Enhanced position-reporting and flight-following procedures should be used.
- (i) Under no circumstances should a flight be initiated under instrument conditions or under forecast enroute Instrument Meteorological Conditions (IMC), if the pilot is not properly certified, trained, proficient and current to conduct IMC flight operations. In addition, the aircraft to be used must be certified for IFR flight.

C.28 DOE Enroute Actions and Operations—VFR: Night Vision Goggle Operations

Field elements should establish a policy that states:

- (a) No person should operate an aircraft utilizing Night Vision Goggles as the main reference to horizon or attitude control unless:
 - (1) Crewmembers have completed a formal Night Vision Goggle training course in accordance with Field element's policies and procedures.
 - (2) Goggles meet the Radio Technical Commission for Aeronautics (RTCA) Minimum Operational Performance Standards (MOPS) for Night Vision Goggles.
 - (3) Aircraft cockpit lighting has been modified to meet RTCA Minimum Operational Performance Standards (MOPS) for Night Vision Goggles.
 - (4) A Night Vision Goggle preventative maintenance and testing program based on the manufacturer's recommendations has been implemented.
- (b) NVG flight must be conducted under Visual flight rule minima and the RTCA Operational Concept and Operational Requirements for NVG Implementation into the National Airspace System (NAS) recommendations.

C.29 DOE Approach Actions and Operations

- (a) Instrument approach procedures and IFR landing minimums. Field elements should establish a policy that states: No person may make an instrument approach at an airport except in accordance with IFR weather minimums and the published approach procedures.
- (b) Minimum altitudes for use of autopilot. Field elements should establish a policy that states:
 - (1) Except as provided in paragraphs (2), (3), and (4) of this section, no person should use an autopilot at an altitude above the terrain which is less than 500 feet or less than twice the maximum altitude loss specified in the approved Aircraft Flight Manual or equivalent for a malfunction of the autopilot, whichever is higher.
 - (2) When using an instrument approach facility other than ILS, no person should use an autopilot at an altitude above the terrain that is less than 50 feet below the approved minimum descent altitude for that procedure, or less than twice the maximum loss

specified in the approved Aircraft Flight Manual or equivalent for a malfunction of the autopilot under approach conditions, whichever is higher.

- (3) For ILS approaches when reported weather conditions are less than the basic weather conditions in Title 14 CFR Chapter 1, Section 91.155, no person should use an autopilot with an approach coupler at an altitude above the terrain that is less than 50 feet above the terrain, or the maximum altitude loss specified in the approved Aircraft Flight Manual or equivalent for the malfunction of the autopilot with approach coupler, whichever is higher.
 - (4) Without regard to paragraph (1), (2), or (3) of this section, the FAA may issue operations specifications to allow the use, to touchdown, of an approved flight control guidance system with automatic capability, if:
 - i. The system does not contain any altitude loss (above zero) specified in the approved Aircraft Flight Manual or equivalent for malfunction of the autopilot with approach coupler; and
 - ii. The FAA finds that the use of the system to touchdown will not otherwise adversely affect the safety standards.
 - (5) Request for FAA waivers or deviations be coordinated through the OAM.
- (c) The Field element Aviation Manager or Aviation Safety Officer should evaluate the mission and operational environment to determine if higher landing minimums are warranted based on identified hazards.

C.30 DOE Post Flight Actions and Operations

- (a) Upon landing, the DOE Field element should establish policies for the reporting and recording of any aircraft discrepancies noted during the flight or found during post flight inspection.
- (b) The Field element should establish policies for the proper recording of flight time, cycles, landings, fuel usage, and other pertinent information.
- (c) The Field element should establish policies for the proper recording of flight crewmember, crewmember and qualified non-crewmember proficiency events and other pertinent training information.

D. APPLICABLE STANDARDS

- Title 14 CFR Chapter 1
- Title 41 CFR 101-37
- Title 49 CFR Subchapter C
- DOE Order 440.2B
- DOE O 460.1A
- Convention on International Civil Aviation "Technical Instructions for the Safe Transport of Dangerous Goods by Air"

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- Air Transportation Operations Inspector's Handbook 8400-10
- General Aviation Operations Inspector's Handbook 8700-10

- RTCA /DO-275, Mops Night Vision Imaging Systems

CHAPTER X EXTERNAL LOADS OPERATIONS

A. PURPOSE

The purpose of the Chapter is to standardize Rotorcraft External Load operations so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

- (a) DOE Federal and CAS contractor aircraft external load operations should be accomplished in accordance with 14 CFR Part 133.
- (b) A DOE Field element conducting such operations need not be certificated as a 14 CFR Part 133 operator unless the Field element manager deems it necessary.
- (c) CAS operations should be conducted by certificated 14 CFR Part 133 operators.
- (d) A Field element that conducts or contracts for external load operations should ensure that an External Loads Manual is submitted for approval by the appropriate DOE official. Sample external load manuals are available from the DOE Office of Aviation Management or the FAA.
- (e) The sample external load manuals should include the requirements of 14 CFR 133 except as it applies to hand signals. The section of the sample external load manual addressing hand signals must be customized to meet the needs of each individual aviation organization.
- (f) The Field element conducting exterior load operations with DOE-Federal aircraft should establish an appropriate and comprehensive training program to address initial, recurrent, and requalification training. The training should be performance based and require initial and recurrent check rides given by a qualified check pilot.
- (g) The Field element conducting exterior load operations with DOE-Federal aircraft should establish proficiency events appropriate to the operations and missions conducted, and track (document) the events by individual pilot.

D. APPLICABLE STANDARDS

- Title 14 CFR Part 43
- Title 14 CFR Part 91
- Title 14 CFR Part 133

E. SUPPLEMENTAL GUIDANCE

- HAI Safety Manual
- FAA Advisory Circular (AC) 133-1A Rotorcraft External-load Operations in Accordance With Federal Aviation Regulations Part 133
- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations

CHAPTER XI AERIAL APPLICATIONS

A. PURPOSE

The purpose of the Chapter is to standardize flight operations involving aerial applications so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

- (a) Aerial Applications involve dispensing a solid, liquid, or gas cargo from an aircraft to the ground or ground-based structures. Although DOE-Federal aircraft are not routinely used in aerial applications, it is anticipated that DOE-Federal aircraft may be used to dispense substances to assist in fighting forest fires. This section assumes that DOE-Federal aircraft will dispense only non-poisonous cargo during these applications. These operations should be conducted in accordance with the requirements of 14 CFR Part 137.
- (b) Flight crewmembers should be trained to perform aerial applications safely and to demonstrate their knowledge and skills in accordance with the requirements of 14 CFR Part 137.19.
- (c) Aircraft should not carry any person other than flight crewmembers during an aerial application mission.
- (d) Aircraft modifications required for the aerial application mission should have a Supplemental Type Certificate (STC) or a FAA Form 337 for the modification.
- (e) Field elements that use Commercial Aviation Service providers to perform aerial applications should use the Chapter on, "Commercial Aviation Services" of this document for guidance for their operations.
- (f) The Field element should establish an appropriate and comprehensive training program to address initial, recurrent, and requalification training. The training should be performance based and require initial and recurrent check rides given by a qualified check pilot.
- (g) The Field element should establish proficiency events appropriate to the operations and missions conducted.

D. APPLICABLE STANDARDS

- Title 14 CFR Part 137
- Title 14 CFR Part 91
- Title 14 CFR Part 43

E. SUPPLEMENTAL GUIDANCE

- FAA Advisory Circular (AC) 137-1 Agricultural Aircraft Operations
- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations

CHAPTER XII AERIAL SENSING AND PHOTOGRAPHY**A. PURPOSE**

The purpose of the Chapter is to standardize flight operations involving aerial sensing and photography so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

The DOE aerial sensing and photography operations are extensive and diverse. These types of missions may be as basic as photographing a DOE site from a government aircraft or as complex as monitoring politically sensitive areas in foreign countries with highly technological instruments. Due to increased security concerns regarding over-flights of DOE facilities during aerial sensing and photography missions, the use of DOE-Federal aircraft, if practical, is strongly encouraged.

When qualified non-crewmembers, such as DOE or M&O personnel, are onboard the aircraft during aerial sensing and photography missions the requirements of DOE O 440.2B , Field element's aviation implementation plan and the guidance contained in this document must be complied with during the operation.

- (a) The Field element should establish an appropriate and comprehensive training program to address initial, recurrent, and requalification training. The training should be performance based and require initial and recurrent check rides given by a qualified check pilot.
- (b) The Field element should establish proficiency events appropriate to the operations and missions conducted.

D. APPLICABLE STANDARDS

- Title 14 CFR Part 91 and 135
- DOE O 440.2B

E. SUPPLEMENTAL GUIDANCE

- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations

CHAPTER XIII PIPELINE AND POWERLINE PATROL

A. PURPOSE

The purpose of the Chapter is to standardize flight operations involving aerial patrols of pipe and power lines so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

Aerial patrols are performed on pipelines and powerlines to identify major problems requiring maintenance. Examples of these problems are broken insulators, structure damage, leakage, right-of-way access problems, encroachment problems, weather damage, and emergency outages. Each mile of pipeline and powerline is flown on a periodic basis to identify such problems. Pipeline and powerline patrols should be conducted in accordance with the FAR regardless of whether the aircraft is operated as a civil or public aircraft.

C.1 Crewmember Authority

The pilot or the qualified non-crewmember have the authority to cancel the pipeline and powerline patrol at any time. The pilot-in-command is the ultimate authority for the safety of the aircraft.

C.2 Flight Crewmembers

Pilots conducting patrols should be certified and trained to the requirements of 14 CFR Part 135 or Chapter VII of this Guide. Pipeline patrols may be conducted with only a pilot onboard performing both pilot and observer roles.

C.3 Crewmember Experience

- (a) Pipeline and Powerline patrol flights should be conducted with at least one crewmember familiar with the patrol routes, the hazards along those routes, and fuel stops. If a backup pilot is used, the qualified non-crewmember should be experienced. If an inexperienced qualified non-crewmember is used, the pilot should be familiar with the routes, hazards, and fuel stops.
- (b) Experience Criteria: Pilots and qualified non-crewmembers should complete a minimum of three complete patrols over each route to be considered an experienced crewmember familiar with the routes, hazards, fuel stops, and patrol techniques. A method should be established to verify qualified non-crewmember experience. Pilot experience may be verified from the daily aircraft flight log.

C.4 Pilot Responsibilities

- (a) The pilot should involve the qualified non-crewmembers with tasks such as preflight planning, discussion of the weather forecast and reports, flight routes, fuel stops, rest breaks, and lunch breaks. These tasks should be a coordinated effort.
- (b) The qualified non-crewmember's input should be taken into consideration when planning a patrol.
- (c) The qualified non-crewmember shall be given a briefing using a briefing card as a checklist, as required by Chapter 1X Section C.3(h).
- (d) The pilot should not perform qualified non-crewmembers duties or volunteer line assessment information to the qualified non-crewmembers unless he/she specifically requests it.
- (e) The pilot should identify the hazards that exist along the patrol route and the locations for placing marking signs or marking balls, responding to requests from the qualified non-crewmember, refraining from distracting the qualified non-crewmembers with an excessive amount of unrelated conversation during the patrol, informing the qualified non-crewmembers of the intent to maneuver the aircraft, taking rest breaks, fueling stops, and being alert to weather changes.

C.5 Qualified Non-crewmembers (Observer) Responsibilities

- (a) The qualified non-crewmembers should be involved with the preflight planning and the preflight briefing, discussing the pipeline or powerlines that are to be patrolled, and stating a patrol route preference.
- (b) Questions should be asked to clarify the pilot's intentions regarding fuel stops, sky conditions, forecast weather conditions, patrol routes, rest, and lunch breaks.
- (c) The rules that relate to emergency procedures and use of the aircraft communications systems should be demonstrated.
- (d) Patrol observations should be accurately reported.
- (e) Comments concerning flight safety should be expressed verbally warning the pilot of hazards along the route of flight.
- (f) Contribute to safety by avoiding accidental contact with the flight controls, or in any way restricting the pilot's freedom of movement.
- (g) Understand and have a working knowledge of the equipment (helmet, aircraft emergency equipment, aircraft communication equipment).
- (h) Do not distract the pilot with an excessive amount of unrelated conversation during the patrol.

C.6 Preflight Planning

During the preflight planning, the pilot and qualified non-crewmember should use the hazard map and location list to discuss the hazards along their proposed patrol routes. The location list/map also should be referred to during the day as the patrol progresses and should be revised as needed.

C.7 Flight Time

Total flight time for patrolling should not exceed 5 hours per day, except in emergencies. The 5-hour period is for patrol time only and does not include ferry time nor limit the pilot from other types of flying. Procedures should be established for extending past the 5-hour limit, if necessary; however, if for any reason one of the crewmembers do not want to continue the patrol past 5 hours, the patrol should be stopped.

C.8 VFR Operating Limitations and Weather Requirements

The following list of operating limitations and weather requirements should be complied with during powerline or pipeline patrol.

- (a) All patrols should be restricted to Day/VFR conditions.
- (b) VFR: Minimum Altitudes (14 CFR Chapter 1, Part 91 Section 91.119)
 - (1) Helicopters. An altitude allowing, if a power unit fails, an emergency landing without presenting undue hazards to persons or property on the surface. In addition, each person operating a helicopter should comply with any routes or altitudes specifically prescribed for helicopters by the FAA Administrator.
 - (2) Airplanes. An altitude allowing, if a power unit fails, an emergency landing without presenting undue hazards to persons or property on the surface. The aircraft operator should obtain an authorization from the FAA to conduct operations within 500 feet of any structure or obstacle (A waiver from 14 CFR Part 91.119).
- (c) VFR: Visibility Requirements—Helicopters (14 CFR Part 135.205)—No person may operate a helicopter under VFR in Class G airspace at an altitude of 1,200 feet or less above the surface or within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport unless the visibility is at least one-half (½) mile during the day.
 - (1) Visibility. The following is a list of hazards that may affect pilot and qualified non-crewmember visibility and must be considered during powerline or pipeline patrol:
 - i. Sky Conditions. Pilots should plan pipeline or powerline patrols flying away from the sun (sun to the pilot's back). If this is not possible or practical, then the use of special equipment such as sunglasses, sun visors, sun bills, or a combination of these, should be used to decrease the glare of the sun.
 - ii. Inclement Weather. During inclement weather conditions, the pilot should comply with the 14 CFR minimum visibility requirements given above. If during the patrol the visibility drops below minimums, the pilot should inform the dispatcher of his/her intentions. The ground patrol speed should be adjusted to accommodate inclement weather conditions.

- (d) VFR: Fuel Supply (14 CFR Part 135.209)—No person may begin a flight operation in a helicopter under VFR unless, considering wind and forecast weather conditions, it has enough fuel to fly to the first point of intended landing. Assuming normal cruising fuel consumption, a helicopter must have enough fuel to remain airborne an additional 20 minutes, and an airplane must have enough fuel to remain airborne at least 30 minutes during the day and 45 minutes at night.
- (e) Weather Reports and Forecasts: Pilots are required to use a weather report or forecast that is provided by the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the FAA Administrator. However, for operations under VFR, the pilot-in-command may, if such a report is not available, use weather information based on that pilot's own observations or on those of other persons competent to supply appropriate observations.
- (f) Weather Considerations:
- (1) Wind. Pilots should plan pipeline and powerline patrol flights, when possible, using a head wind. The following is a list of techniques that should be considered when patrolling during windy conditions.
 - (2) Crabbing/Slipping. Crabbing into the wind should take precedence over slipping into the wind. However, slipping should take precedence over crabbing if the crab angle points the nose of the aircraft away from the line being patrolled. In some cases, patrolling on the opposite side of the line may be the best choice (pilot's decision).
 - (3) The normal patrol speed in order to maintain the rotor disc in translational lift. This should prevent loss of tail rotor effectiveness and/or settling with power, or prevent airplane stalls. If excess ground speed is a problem because of the tail wind component and no other options are available, the pilot should call off the patrol.
 - (4) Downwind Turns. Low-level downwind turns (turning from upwind to downwind) can be deceiving. During calm wind conditions, translational lift airspeed and translational lift ground speed look the same. However, with a wind factor involved, translational lift airspeed and translational lift ground speed look different. A consideration of the wind factor is critical when making a low-level downwind turn (turning from upwind to downwind). When circling pipeline or powerline structures during the patrol, the pilot must consider the wind factor and remember that stall ground speed will be faster and look faster during the downwind leg. If the pilot uses the same ground reference speed during windy conditions as is used during calm wind conditions, the helicopter will not be in translational lift during the turn (upwind to downwind). Maintaining situational awareness is crucial in windy conditions.

C.9 Patrol Conduct

Under routine patrol, patrol flights should be conducted at speeds, altitudes, and distances that afford the qualified non-crewmember the best opportunity to thoroughly inspect the pipeline and powerline and right-of-way, and that are commensurate with safe flight practices. The following guidelines should apply:

- (a) Patrol Speeds. Patrol speeds should normally be conducted at 50-70 knots indicated airspeed per hour for helicopters, or at speeds at least 1.3 above stall speed (VSO) for airplanes.
- (b) Terrain. Flat terrain will accommodate patrolling with higher ground speeds than will rugged or mountainous terrain.
- (c) Clearance. During routine pipeline or powerline patrols, the aircraft should be flown at a safe distance determined by local policy. Crewmember comfort, difference in terrain, weather conditions, sky condition, timber growth, visibility of structures, etc., should dictate actual aircraft clearance. However, it is understood that a pilot should never patrol below powerlines.
- (d) Patrol Flight Technique. The aircraft pilot will maintain sufficient clearance by referencing crossarms or structures down line rather than referencing conductors. This provides the qualified non-crewmember the best possible site picture while providing a safe margin of clearance for the aircraft.
- (e) Parallel Lines. The aircraft will not be flown between two parallel pipeline or powerlines without adequate spacing for an emergency landing.
- (f) Passback. Occasionally, the qualified non-crewmember will require a better look at a structure or pumping station for damage or perhaps to observe the structure or station number and will request the pilot to make a passback. When this happens, the pilot may have to consider the following options:
 - 1. Hovering. When hovering is necessary, the pilot will maintain a safe distance from the conductor and static line. Hovering under a conductor is not permitted. However, if hovering the helicopter for the purpose of observing structure numbers turns out to be a frequent occurrence, then renumbering the pipeline or powerline structures should be a consideration.
 - 2. Circling. When circling a structure, the pilot will fly the aircraft at an airspeed above stall speed or translational lift, and at an altitude to allow clearance over the pipeline or powerline and to permit an emergency landing away from the line.

NOTE: Pilots should not be deceived into thinking that ground speed and airspeed are the same during the downwind part of the turn. Remember, translational lift equates to airspeed, not ground speed.

C.10 Landing

If the qualified non-crewmember has trouble observing the damage or seeing the structure number while the helicopter is hovering, the option is to land the helicopter, get out, and walk over to the area to be observed. If landing or hovering the helicopter for the purpose of observing structure numbers turns out to be a frequent occurrence, then renumbering the pipeline or powerline structures should be a consideration.

C.11 Hazard Maps and Location List

A site-specific hazard map and location list should be developed to indicate where ground patrols will be performed in lieu of aerial patrols because of specific flight hazards (dams, canyons, congested pipeline

or powerline areas, restricted areas, etc.) The hazard map and location list should include all hazards along the patrol routes.

C.12 Dispatcher Communication

Dispatcher communication should be established and the initial flight plan should be filed prior to pipeline or powerline patrol. A separate flight plan should be filed for each pipeline or powerline segment or local area route.

C.13 Pilot/Qualified Non-crewmember Communication

During the patrol, both the pilot and qualified non-crewmember should monitor hazard marking signs/balls. Upon seeing a hazard marker, crewmembers should verbally communicate the hazard. As an example, the pilot might say, "I have the overhead crossing," or whatever the hazard may be, or the qualified non-crewmember may see the hazard marker first and say, "Do you have the overhead crossing?" A verbal response to a comment or question regarding a hazard is required. If no response is received, stronger action should be initiated to get the other crewmember's attention. The qualified non-crewmember should ascertain that the pilot has initiated a climb or that evasive action is being taken before resuming a reconnaissance of the pipeline or powerline.

C.14 Pilot Recordkeeping

Aircraft pilots performing aerial pipeline or powerline patrol should keep a record of the routes patrolled on the Daily Aircraft Flight Log.

C.15 Flight Locating/Emergency Procedures Handbook

Qualified non-crewmembers should be on the distribution list and should receive a copy of the Area/District site-specific Handbook for reporting overdue aircraft. The qualified non-crewmembers can use this handbook as a study guide to become familiar with the procedures used by the local dispatcher if their patrol aircraft is overdue for any reason during aerial pipeline or powerline patrol. Patrol aircraft should be maintained to 14 CFR Part 135, Subpart J.

D. APPLICABLE STANDARDS

- Title 14 CFR Part 91
- Title 14 CFR Part 135 Subparts C through H, and J

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- HAI UPAC Safety Manual
- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations

CHAPTER XIV SECURITY HELICOPTER OPERATION

A. PURPOSE

The purpose of the Chapter is to standardize security helicopter flight operations so that planning efforts, procedures, and evaluations support strict internal controls, safety, cost effective operations, compliance with laws, regulations, policies, and other requirements.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL INFORMATION

Security helicopter flight operations provide a timely and effective response to a security emergency. DOE security helicopters may be used for response force transport, as a firing platform when required, and to perform command, control, communications, and surveillance functions. Operational requirements, rules of engagement, night vision goggles usage, instrument/visual flight rules, and organizational requirements are discussed in the following items. Also refer to Chapters VII, VIII and IX of this guide.

C.1 Operational Requirements

C.1.1 General

Helicopters employed in support of security provide an airborne dimension to protective capabilities against a threat posed by adversaries who may attempt to steal or sabotage nuclear weapons, special nuclear materials, and/or sabotage vital facilities and equipment. The decision to utilize security helicopters is based upon site-specific considerations with concurrences of the Program manager, if any, and the Office of Aviation Management. Security helicopters are operated as "public" aircraft and in accordance with the applicable Federal Aviation Regulations (FAR) for flight operations, equipment, air crew qualification, training and maintenance to the maximum extent possible.

C.1.2 Mission Readiness

Site-specific mission requirements of security helicopters should be documented in local operations plans. Mission Capable Rate goals should be determined by the Field element.

C.1.3 Emergency Security Helicopter Operations

During a security emergency, helicopters may be employed to transport special response teams to the scene of the incident or staging area as directed by the senior on-scene commander or standard operating procedure. Additional emergency response functions should be fully documented and may include the removal or relocation of response forces; directed fire; command, control, communications and surveillance; resupply of response forces; and fresh pursuit.

C.1.4 Routine Security Helicopter Operations: Routine helicopter operations may include:

- (a) Pilot proficiency, training, and testing program.
- (b) Training for emergency response.
- (c) Site surveillance, search and observation.
- (d) Movement of protective forces.
- (e) Training for observation and pursuit of airborne and ground intruders.
- (f) Escort of convoys transporting special nuclear material.
- (g) Command, control and communications of ground security activities in routine operations.

C.1.5 Special Use of Security Helicopters: Such use should include other site support local documents.

C.1.6 Visual Flight Rules Operations Plan: A designated individual at each site, in coordination with the site DOE ASO, Contractor Aviation Manager/Director of Flight Operations, and DOE Field element Safeguards and Security Director, should provide to the Head of the DOE Field element a visual flight rules minimum operations plan based on the site terrain and weather patterns. This plan should address:

- (a) The minimum weather conditions under which airborne response can be launched for day and night operations.
- (b) Transition to a no-air support reaction condition.
- (c) Altitude Considerations.
- (d) Routine Training and Operations.

C.1.7 Daylight Operations

Aircraft should maintain a minimum altitude of 200 feet above any known obstacle within 500 feet either side of the planned route of flight during daylight operations except for takeoff, approach, and landing.

C.1.8 Night and Night Vision Goggle Operations

Except for takeoff, approach, and landing, aircraft should maintain a minimum altitude of 500 feet above ground level or 200 feet above the highest obstacle within 1,000 feet either side of the planned flight route, whichever is higher. When using night vision goggles, aircraft should maintain a minimum altitude of 300 feet above ground level or 200 feet above the highest obstacle within 1,000 feet of the planned route of flight, whichever is higher.

C.1.9 Hazard Mapping

Each aircraft should be equipped with a map displaying all identifiable hazards to flight within the operating area. A map displaying all identifiable hazards to flight and depicting elevation above ground level should be conspicuously posted in the mission planning area. Aircraft maps and mission planning area maps should be reviewed for currency at least every 30 days and marked with the current date.

C.1.10 Terrain Flight (Nap of the Earth, Contour and Low Level)

There are three modes of terrain flight: contour, low level, and nap of the earth. Terrain flight is flight at 200 feet or less above the highest obstacle on the intended flight path. Terrain flight and night vision device/goggle flight are essential to DOE tactical and security needs. Low level or contour flight may provide a tactical advantage in a security emergency. Nap of the earth flight is not essential to the Department's security needs and should not be performed. Contour flight conforms with the contours of

the earth and is characterized by varying airspeeds and altitudes. Contour flight altitudes are not less than 25 feet above the highest obstacle. Low level flight is not less than 100 feet above the highest obstacle. It is conducted at a selected altitude and generally conforms to a predetermined course, with constant airspeed. Nap of the earth flight is characterized by maneuvers as close to the earth's surface as vegetation, obstacles, or ambient light will permit.

C.2 Training Route(s)/Areas

- (a) Low level and contour flight for training and proficiency should be conducted only over designated training routes or in designated training areas.
- (b) A low level flight route/area for training should be developed at each site. The training route(s)/area should be clear of hazardous obstacles. The training route(s)/area and associated altitude minimums should be approved by each site DOE ASO, Contractor Aviation Manager/Director of Flight Operations, and the Field element Safeguards and Security Director.
- (c) The training route(s)/area(s) should be clearly marked on each aircraft map and mission planning map. A master map showing all hazards to flight should be conspicuously displayed for the flight crews use.

C.3 Pilot Training

- (a) Pilot initial training, qualification, requalification, proficiency, and currency training should be conducted in accordance with applicable requirements of 14 CFR 61, 135, and this guide Chapter VII.
- (b) Only the instructor pilot and pilot(s) should be permitted on board the helicopter during any pilot training unless the response team is required to be on board during a specific training scenario, such as crew coordination training or night low level insertions.

C.4 Crewmember Coordination

The pilot-in-command should ensure that routine mission training and tactical activities involving both flight and qualified non-crewmembers are fully briefed and coordinated.

C.5 Use of Helicopters as Firing Platforms and Rules of Engagement

The primary purpose for employing helicopters to support security operations is to provide a rapid response capability for delivering Security Response Teams in an emergency. Aerial firing is not a principal element of the Department's denial or containment tactics. Firing from a helicopter can be a viable and effective means of supporting security operations, however, aerial firing should only be considered:

- (a) When authority to include aerial firing in response procedures is granted following development of site specific rules of engagement that are consistent with the Department's policy on the use of force.
- (b) When firing is done by specifically trained response force members with weapons that are attached to a gun mount which provides field of fire limitations.

- (c) When an Aviation Safety Document (ASD) addressing aerial firing is completed.
- (d) After the cognizant DOE Field element Aviation Safety Officer certifies approval, in writing, of the technical and operational procedures and the Aviation Safety Document for aerial firing is concurred with by the Head of the DOE Field element.
 - (1) Final approval authority at each site is the Head of the DOE Field element.
 - (2) Copies of the approved technical and operational procedures for aerial firing are provided to the Office of Safeguards and Security, the Office of Aviation Management, and the LPSO, if any.

C.6 Night Vision Goggles

Operation, maintenance, testing, and calibration of night vision goggles used by protective forces flight crew and designated air crew members should conform to the manufacturer's current procedures and specifications, or equivalent standards.

C.6.1 Operations

In all stages of night vision goggle training and use, two pilots are required. Pilots using night vision goggle devices should be FAA instrument rated and current in the rating. Pilots are required to follow specified procedures in operating night vision goggles. Procedures contained in the Manufacturer's operating instructions should be followed. Exceptions may only be approved by the site Aviation Manager in coordination with the Office of Aviation Management.

- (a) Night vision goggle operational checks should be accomplished prior to official sunset. These checks should be documented on the pilot's Flight Operations Daily Checklist.
- (b) Any discrepancy noted during operational checks should be recorded on the night vision goggle/visor maintenance log, to include the correct goggle serial number.
- (c) Each pilot-in-command is responsible for ensuring that their aircrew night vision goggles are checked in accordance with the manufacturer's maintenance manual or Army TM 11-5855-263-10.
- (d) During qualification training with night vision goggles, one of the pilots should be designated a night vision goggle trainer and a FAA Certified Flight Instructor. Only the pilot and instructor pilot should be permitted on board the helicopter.
- (e) After initial night vision goggle training has been completed, minimum night vision goggle currency flight time requirements and proficiency checkrides, should be met as approved by the site DOE AM or ASO and Contractor Aviation Manager/Director of Flight Operations, and coordinated with the DOE Field element Safeguards and Security Director.
- (f) Response team members may be carried for site patrols, tactical training, and security emergency operations only when both pilots are fully night vision goggle qualified and current. Any locally required crew use of night vision goggles should be based upon local guidelines and procedures which should include pilot/crew coordination and training. Such crew use of night vision goggles should optimize 360 degree observation from the aircraft.

- (g) Aircraft that are used for night vision goggle flight should have the minimum standard night vision goggle equipment as follows: (1) Night vision goggle-compatible cockpit; (2) night vision goggle compatible digital/analog radar altimeter with visual and audible warnings; (3) wire strike protection, if mountable; (4) night sun with infrared filter; and (5) wire detection system (if applicable).
- (h) A Night Vision Goggle Maintenance Program should be instituted. Such a program should include standardized maintenance practices and equipment, a standard operating procedure, regular maintenance schedules, a records management system with permanent records, standard maintenance training, and standard pilot pre flight procedure training.

C.6.2 NVG Maintenance

- (a) Maintenance technicians should follow procedures contained in the manufacturer's maintenance manual, the program must meet the requirements in RTCA/DO-275.
- (b) Night vision goggle testing and repair should be conducted only by a FAA certified Airframe and Powerplant mechanic who has completed the manufacturer's vision goggle maintenance course.
- (c) In circumstances when this certified airframe and powerplant mechanic is not available, night vision goggle testing and repair may be conducted by a certified repair station.
- (d) Test equipment used on the night vision goggles should meet RTCA/DO-275 specifications and should be calibrated according to those specifications.
- (e) Mandatory testing and maintenance should be at intervals no less frequent than that specified by the manufacturer or in RTCA/DO-275.
- (f) Night vision goggle maintenance logs should be checked at the beginning of each shift. Discrepancies should be cleared and noted on the night vision goggle maintenance log and the goggles returned to service with an appropriate serviceability tag.

C.7 Instrument Flight Rules/Visual Flight Rules Flight

There are no requirements for intentional instrument flight rule flight in the conduct of a security mission other than the maintenance of a recovery capability in the event of inadvertent instrument meteorological conditions. The aircraft should have the equipment required under 14 CFR Chapter 1, Part 135, Sections 135.143, 135.149, 135.159, 135.161, and Pilot instrument proficiency should be part of a local flight training syllabus.

D. APPLICABLE STANDARDS

- Title 14 CFR Chapter 1
- RTCA/DO-275
- DOE O 440.2B
- DOE 5632.7, "Protective Forces," Chapter 5

CHAPTER XV AVIATION MAINTENANCE**A. PURPOSE**

The purpose of this section is to ensure that an adequate management, maintenance standards and quality control process exist for an effective, efficient, secure and safe aviation operation.

B. APPLICABILITY

This section contains maintenance procedures and systems acceptable for Departmental aviation services. The maintenance of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

DOE Field element managers who have the responsibility for aviation operations should ensure that aviation managers are cognizant of the requirements for DOE-Federal aircraft maintenance, quality control processes and airworthiness. The maintenance guidance provided in this section is intended to provide DOE/NNSA elements and contractors latitude in compliance methods. DOE Field elements should use this guidance for implementing aircraft maintenance programs. Methods should be established for evaluating contractor maintenance programs for compliance with 14 CFR.

C.1 Methods for Compliance with 14 CFR

- (a) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of nine (9) passenger seats or less should be maintained in accordance with 14 CFR Chapter 1, Parts 43, 91, and 135 Section 135.411(a)(1); or, if a Departmental element chooses to maintain aircraft under 135.411(b), it may do so, provided the program is submitted to the Office of Aviation Management or the local FAA FSDO for approval.
- (b) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of ten (10) passenger seats or more, and conducting other than air-carrier operations, should be maintained in accordance with 14 CFR Part 135 Section 135.411(a)(2).
- (c) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of ten (10) passenger seats or more, and conducting scheduled air carrier operations, should be maintained in accordance with 14 CFR Part 121, Subparts J, L, and V.
- (d) Aircraft operating that have a passenger seating configuration of twenty (20) passenger seats, or a maximum payload capacity of 6,000 pounds or more when common carriage is not involved, or operations not certificated under 14 CFR Parts 121, 129, 135, or 137, should be maintained in accordance with 14 CFR Part 125, Subparts G and L.
- (e) Bailed, surplused, or leased military aircraft should be maintained in accordance with an accepted FAA maintenance and inspection programs.
- (f) Rotorcraft operating under 14 CFR Part 133 should comply with the airworthiness requirements of 14 CFR Parts 43, 91, and 133.

- (g) Elements with maintenance facilities located at a DOE facility or with contracted maintenance/inspection operations should adhere to 14 CFR Part 145, or 14 CFR Part 121, Subparts L and V.
- (h) A training and recurrent training program for maintenance personnel and maintenance specialists should be established, see Chapter VII of this guide.
- (i) The Aviation Program Manager and Director of Maintenance are responsible for:
 - (1) Ensuring the aircraft are maintained properly and a quality control process is established during the performance of maintenance.
 - (2) Ensuring that maintenance technicians and repairmen are trained in the type aircraft, engine, propeller, and/or system the technician or repairman is required to maintain.
 - (3) Ensuring that maintenance technicians and repairmen are trained in the applicable FAR, company operations manual, and maintenance procedures manual (if applicable).
 - (4) Ensuring that specialized training (nondestructive testing, avionics, painting, electrical, etc.) is made available and the technician and repairman have received recurrent training within the preceding 12 months.
 - (5) Ensuring records of formal and on-the-job training are to be kept on file and current. As a minimum, the records should include the following:
 - i. Employee's name and license number;
 - ii. Assignment date;
 - iii. Employee's maintenance specialty;
 - iv. Types of aircraft, propellers, engines, and/or systems on which the employee is qualified to work;
 - v. Factory or formal training, and date;
 - vi. Duty time;
 - vii. Recurrent training due date; and
 - viii. Drug testing, including the last test date and results.

C.2 Qualifications/Responsibilities

The aviation manager, who has responsibility for DOE-Federal aircraft, should ensure that the organization has qualified maintenance personnel and that they are adequately trained.

C.3 Commercial Aviation Service (CAS)

CAS (Chartered, rented, and/or leased aircraft) operations should adhere to the applicable parts and sections of 14 CFR and the operations specifications issued by the FAA.

C.4 DOE-Federal Aircraft

- (a) DOE-Federal aircraft maintenance programs approved under 14 CFR Part 135.411(a)(1) should have the following procedures incorporated into their programs.
 - (1) Tool calibration, serviceability, and inventory tracking procedures;
 - (2) Parts acceptance and rejection procedure;

- (3) Inspection authorities and procedures for maintenance work accomplished by maintenance technicians and repairmen;
- (4) Methods of disseminating, approving, and submitting changes to the maintenance/inspection program;
- (5) Computerized tracking procedures for retirement life parts, overhauls, inspections, airworthiness directives, and service bulletins;
- (6) Aircraft parts procurement and procedures for vendor audits for other than original equipment manufactured parts;
- (7) Inoperative Instruments, Equipment, and Minimum Equipment List (MEL); and
- (8) DOE-Federal aircraft maintenance/inspection programs managers should address the requirements of 14 CFR Parts 91.213, 121.628, and 135.179, as applicable.

C.5 Quality Control Processes

Each Field element that operates DOE-Federal aircraft should establish Quality Control processes that implement DOE O 440.2B, Section 4, paragraph h. (a) 7.

C.6 Standardized Cost Accounting

Each Field element that operates DOE-Federal aircraft should establish a standardized cost accounting system for the reporting of maintenance cost and expenditures.

- (a) The cost accounting system should use the cost definitions established in the GSA Cost Accounting Guide.
- (b) The maintenance cost and expenditures should be reported to the GSA Federal Aviation Interactive Reporting System (FAIRS).

C.7 Performance Indicators

Each Field element that operates DOE-Federal aircraft should establish information systems that implement the guidance found in DOE G 440.2 -1, "Performance Indicators" for the maintenance and supply (Logistics) processes.

C.8 Life Cycle Cost

Each Field element should establish a method for Life Cycle Cost Analysis based on the standardized cost accounting system that enables the Field element to determine the cost effectiveness of the aircraft the element operates. This program should be utilized as a tool for managers to decide when an aging aircraft needs replacement or refurbishment.

D. APPLICABLE STANDARDS

- Title 14 CFR Parts 21, 43, 65, 91, 121, 125, 133, 135, and 145
- Title 49 CFR Parts 172, 175, and 830
- Special Federal Aviation Regulations (SFAR) 13, 23, 36-6, 38-2, 62, and 64, as amended and until revoked
- DOE Order 440.2B

E. SUPPLEMENTAL GUIDANCE

- FAA Advisory Circular (AC) 00-1.1 Government Aircraft Operations
- FAA AC 120-16C Continuous Airworthiness Maintenance Programs
- FAA AC 120-17A Maintenance Control by Reliability Methods
- FAA AC 120-72 Maintenance Resource Management Training
- FAA AC 121-16 Maintenance Certification Procedures
- FAA AC 135-7 FAR 135: Additional Maintenance Requirements for Aircraft Type Certificated for Nine or less Passenger Seats
- FAA AC 135-10A Subject: Approved Aircraft Inspection Program
- DOE G 440.2B, Chapter 25

CHAPTER XVI AVIATION MANUALS**A. PURPOSE**

The purpose of the Chapter is to state the basic recommendations for developing, communicating, and standardizing aviation procedures and policies of the Field elements.

B. APPLICABILITY

This Chapter contains recommendations acceptable to DOE/NNSA elements that operate government aircraft or Federal aircraft, other than other Federal agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, are not required to meet these standards.

C. GENERAL INFORMATION

- (a) Each DOE Field element and contractor conducting DOE aviation operations involving DOE-Federal aircraft should have aviation procedures manuals formatted and similar to operations and airworthiness manuals required by 14 CFR 121, 125, 133, and/or 135. In accordance with the requirements section of DOE Order 440.2B, the manuals will include as a minimum the methods and procedures for complying with the requirements of DOE Order 440.2B.
- (b) Aviation manuals addressing 14 CFR Part 121, 125, or 135 operations and maintenance as a minimum should contain the sections required by 14 CFR Parts 121 Subpart G, 121.369, 125 Subpart C, 125.249, 133.47, 135.21, and 135.427, as appropriate. If the aviation operation involves aircraft under ten (10) passengers then the manual should include the requirements established in 135.21 and should have separate sections for "Operations," "Training," "Security," and "Maintenance."
- (c) Title 14 CFR Part 139.205 should be used as a guide for the preparation of airport operations and maintenance manuals.
- (d) Elements conducting special types of operations, described in 14 CFR Parts 133 and 137 should refer to Chapters X and XI of this guide, respectively.
- (e) For DOE Field elements with operations similar to FAA certified Part 145 maintenance repair facilities should comply with applicable sections of the FAR.
- (f) DOE-Federal aircraft operators may choose to provide in the operation procedure manuals the following documents and analyses as appendices:
 - (1) Documentation demonstrating compliance with 14 CFR Parts 91, 121, 125, 133, 135, 137, 139, or 145, as applicable;
 - (2) Documentation supporting exemptions referenced in a Compliance Statement; and
 - (3) Documentation supporting exemptions from DOE O 440.2B but not related to 14 CFR Parts 91, 121, 133, 135, 137, 139, or 145.
- (g) The Heads of the DOE Field elements and the Power Marketing Administrations (PMA), or their designees, should endorse the aviation manual(s), subsequent changes to the manual(s),

and document such endorsement. Any changes to FAA approved or accepted manuals must be coordinated with the FAA.

C.1 Flight Operations Manuals

It is recommended that DOE-Federal aircraft Flight Operations Manuals should contain the following elements, if applicable:

- A. Record Of Revisions
- B. Introduction
- C. General
 - C.1 Purpose of the Flight Program
 - C.2 Authorization
 - C.3 Regulatory Authority
 - C.4 Area of Operation
- D. Aviation Operations Manual
 - D.1 Purpose of the Manual
 - D.2 Responsibilities
 - D.3 Implementation
 - D.4 Revision System
 - D.5 Revision and Change Process
- E. Management
 - E.1 Management Qualifications and Duties
 - E.1.1 Aviation Manager
 - E.1.2 Director of Operations
 - E.1.3 Chief Pilot
 - E.1.4 Director Of Maintenance
 - E.1.5 Safety Officer
 - E.1.6 Aircraft Quality Assurance Administrator
 - E.2 Crewmember Qualifications and Duties
 - E.2.1 Pilot-In-Command
 - E.2.1.1 Qualifications
 - E.2.1.2 Duties and Responsibilities
 - E.2.2 Second-In-Command
 - E.2.2.1 Qualifications
 - E.2.2.2 Duties and Responsibilities
 - E.2.3 Instructor Pilot
 - E.2.3.1 Qualifications
 - E.2.3.2 Duties and Responsibilities
 - E.2.4 Aircraft Mechanic
 - E.2.4.1 Qualifications
 - E.2.4.2 Duties and Responsibilities
 - E.2.5 Crewmembers (Qualified Non-crewmembers) Other Than Pilots
 - E.2.5.1 Qualifications
 - E.2.5.2 Duties and Responsibilities
 - E.2.6 Qualified Non-crewmembers
 - E.2.7 Parts/Supply Clerk

E.2.8 Administrative Assistant

- F. Personnel Policies and Procedures
 - F.1 General
 - F.2 Definition
 - F.3 Personal Health and Limitations
 - F.4 Smoking Policy
 - F.5 Flight Restrictions
 - F.6 Restrictions After Use of Drugs
 - F.7 Restrictions After Use of Alcohol
 - F.8 Restrictions After Blood Donation
 - F.9 Restrictions After Dives or Chamber Runs
 - F.10 Crewmember Rules
 - F.11 Access to Pilot Compartment
 - F.12 Crewmember Personal Protective Equipment (PPE) and Appearance

- G. Flight Operations Procedures
 - G.1 Policy
 - G.2 General
 - G.3 Operational Control
 - G.4 Flight Following
 - G.5 Restricted Activities and Maneuvers
 - G.6 Severe Weather Actions
 - G.7 Emergency Reporting
 - G.8 Headset And Helmet Procedures
 - G.9 Cellular Telephone Procedures
 - G.10 Mission and Resource Assignments
 - G.11 Mission Assignment
 - G.12 Aircraft Assignment
 - G.13 Crew Assignment
 - G.14 Preflight Actions
 - G.14.1 Flight Planing
 - G.14.2 Weather Minimums
 - G.14.3 Fuel Planning
 - G.14.4 Visual Check
 - G.14.5 Removal Of Ice On Aircraft
 - G.15 Passenger Rules
 - G.15.1 Briefing Of Passengers/Crewmembers
 - G.16 Checklists and Documents
 - G.17 Personnel Manifests
 - G.18 Ground Operations
 - G.18.1 Engine Starting Procedure
 - G.18.2 Crewmember Vigilance
 - G.18.3 Taxiing
 - G.18.4 Before Takeoff Procedures
 - G.19 Takeoff and Climb
 - G.19.1 Takeoff Performance And Limits
 - G.19.2 Engine Failure Procedures
 - G.19.3 Climb Restrictions
 - G.19.4 Altitude Actions
 - G.20 Level Flight/Cruise

- G.20.1 Oxygen Mask Fit
 - G.20.2 Oxygen Mask Use
 - G.21 Descent
 - G.21.1 Special Considerations
 - G.21.2 Required Call
 - G.22 Approach And Landing
 - G.22.1 Crewmember Vigilance
 - G.22.2 After Landing Checks
 - G.23 Taxiing And Parking
 - G.23.1 Taxiing Precautions
 - G.23.2 Parking
 - G.24 Installing and Removing Mission Equipment
 - G.25 Non-Routine Flights
- H. International and Extended Overwater Flight
- H.1 General
 - H.2 Definitions
 - H.3 Pilot-in-command Responsibilities
 - H.4 Flight Rules
 - H.5 Planning
 - H.6 International Operations
 - H.7 Flight Planning and Information Sources
 - H.8 Precautions
 - H.9 Notifications, Approvals, and Fees
 - H.10 Regulations
 - H.11 Documentation
 - H.12 Fuel
 - H.13 Aircraft Maintenance
 - H.14 Security Considerations
 - H.15 General Help
 - H.16 Extended Overwater Operations
 - H.17 Emergency Actions
 - H.18 Ditching And Emergency (Survival) Equipment
- I. Weight and Balance
- I.1 Definitions
 - I.1.1 Aircraft Empty Weight
 - I.1.2 Basic Operating Weight (Bow)
 - I.1.3 Landing Weight
 - I.1.4 Record of Aircraft Weighing
 - I.1.5 Takeoff Weight
 - I.1.6 Weight and Balance Record
 - I.2 Responsibilities
 - I.2.1 Director of Maintenance
 - I.2.2 Pilot-in-command
 - I.2.3 Quality Administrator
 - I.2.4 Personnel Installing Mission Equipment in the Aircraft
 - I.3 Record of Aircraft Weighing
 - I.3.1 Adjustments Without Weighing the Aircraft
 - I.3.2 Weighing the Aircraft Every 36 Months
 - I.3.3 Weighing the Aircraft When Deemed Necessary

- I.4 Information for Computing Takeoff Weight and Balance
 - I.4.1 Use Most Accurate Method
 - I.4.2 Method of Weight Verification
- I.5 Verification of Computer Computation

- J. Flight Locating
 - J.1 Responsibilities
 - J.2 Pilot-in-command
 - J.3 Individual Designated to Flight Follow (Field element)
 - J.4 Mission Task Leader

- K. Emergency Procedures
 - K.1 General Procedures
 - K.2 In-Flight Emergency
 - K.3 General
 - K.4 Emergency Crew Assignments
 - K.5 Distress Urgency Communications
 - K.6 Obtaining Emergency Assistance
 - K.7 Communication Failure
 - K.8 Engine Failure Notification
 - K.9 Continuing Flight in Unsafe Conditions
 - K.10 Hijack Procedure
 - K.11 Bomb Threat Procedure

- L. Accident / Incident Procedures
 - L.1 Purpose
 - L.2 General Procedures
 - L.3 Notification Procedures
 - L.4 Investigations
 - L.5 Accident/Incident Scene Security

- M. Maintenance
 - M.1 General Maintenance Practices
 - M.2 Maintenance Criteria
 - M.3 Foreign Object Damage (FOD) Prevention Program
 - M.4 Maintenance Records
 - M.5 Maintenance of Aircraft
 - M.6 Returning Aircraft to Service
 - M.7 Minimum Equipment List
 - M.8 General
 - M.9 Inspection
 - M.10 Inspection System
 - M.11 Quality Control Program
 - M.12 Scheduled Inspections
 - M.13 Special Inspections
 - M.14 Spot Inspections
 - M.15 Test and Post Maintenance Flights
 - M.16 Pilot-In-Command Responsibilities
 - M.17 Reporting Aircraft Discrepancies

- N. Aircraft Servicing Procedures
 - N.1 General
 - N.2 Servicing of Aircraft
 - N.3 Fueling/Defueling
 - N.4 Company Stored Fuel
 - N.5 Fuel Sampling Requirements
 - N.6 Oil and Oxygen Servicing
 - N.7 Payment of Services

- O. Flight/Duty Time Limits and Rest Requirements
 - O.1 General
 - O.2 Definitions
 - O.3 Flight Time Limits
 - O.4 Duty Time Limits
 - O.5 Crew Rest Requirements

- P. Scheduling
 - P.1 Scheduling Procedures
 - P.2 General
 - P.3 Mission/Survey/Patrol/ Etc. Schedule
 - P.4 Annual Flying Hour Program
 - P.5 Weekly Flight and Standby Schedule
 - P.6 Aviation Services Section Daily Operations Report
 - P.7 Mission Plans
 - P.7.1 General
 - P.7.2 Format
 - P.8 Aviation Resource Scheduling
 - P.8.1 General
 - P.8.2 Technical Coordinator
 - P.8.3 Director of Operations Responsibilities
 - P.8.4 Chief Pilot Responsibilities
 - P.8.5 Chief of Maintenance Responsibilities
 - P.8.6 Crewmember Responsibilities
 - P.8.7 Secretary Responsibilities

- Q. Hazardous Materials
 - Q.1 General Information
 - Q.2 Objective
 - Q.3 Policy
 - Q.4 Applicability
 - Q.5 Cargo Aircraft Only
 - Q.6 Hazardous Materials Accident or Incident
 - Q.7 Pilot-in-command Responsibilities
 - Q.8 Identifying Hazardous Materials
 - Q.9 Hazardous Material Table
 - Q.10 General Safety Requirements
 - Q.10.1 Limiting Exposures
 - Q.11 Exceptions for Packaging
 - Q.11.1 Batteries/Battery Fluids
 - Q.11.2 General Information
 - Q.11.3 Requirements

- Q.11.4 Compressed Gas
- Q.11.5 Liquid Helium and Nitrogen
- Q.11.6 Gasoline

Q.12 Shipping Papers

Q.13 Accepting and Inspecting Shipments

Q.14 Reporting Requirements For Accidents, Incidents, and In-Flight Emergencies

Q.15 Training

R. Flight Safety Program

R.1 Management Responsibilities

R.1.1 Aviation Safety Officer

R.1.2 Director of Flight Operations, Chief Pilot, and Chief of Maintenance

R.2 Flight Safety Climate - General

R.3 Integrated Safety Management

R.3.1 Aviation Safety Officer

R.3.2 Director of Flight Operations, Chief Pilot, and Chief of Maintenance

R.3.3 Aviation Manager

R.4 Safety Awards Program

R.5 Hazard Investigation and Elimination

R.6 Aviation Safety Reporting Program

R.7 Hazard Alerts

R.8 Safety Education and Awareness

R.9 Safety Training

R.10 Safety Briefings

D. APPLICABLE STANDARDS

- Title 14 Code of Federal Regulations
- Title 41 Code of Federal Regulations
- DOE Order 440.2B
- DOE P 411.1
- DOE M 411.1-1B
- HAI Safety Manual

CHAPTER XVII USE OF GOVERNMENT AIRCRAFT FOR OTHER OFFICIAL TRAVEL

A. PURPOSE

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes for the justification, approval and use of Government aircraft for official travel, that is not mission travel, and to prevent the abuse of DOE Federal aircraft.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

Only authorized persons should travel onboard Government aircraft. For required-use, other official and space available travel, all travelers need a determination by the travel approving official that such travel is necessary and that funds are available. The traveler is then responsible for comparing all travel options for each trip, to include Government aircraft, if plausible (i.e. single traveler versus multiple travelers). The Headquarters (HQ) or Local Office of Aviation Management (OAM) will provide the most cost-effective government aircraft option based on the traveler's travel requirements. If Government aircraft is chosen as the most effective travel option by the traveler and approved by the travel approving official, the traveler will then prepare a memo to the General Counsel (GC) or Chief Counsel (CC) for final approval. See Appendix D for workflow process of approving travel on Government aircraft.

D. RESPONSIBILITIES

D.1 Single Traveler

- (a) Identify the need to travel and obtain approval from the travel approving official.
- (b) Contact the DOE travel agent for the costs of available commercial travel options.
- (c) Choose most cost-effective commercial travel option.
- (d) Receive concurrence from travel approving authority and travel.

D.2 Multiple Travelers

- (a) Identify the need to travel and obtain approval from the travel approving official(s).
- (b) Establish a point of contact to contact the DOE travel agent for the costs of available commercial travel options.
- (c) Contact HQ or Local OAM to provide trip details for Government aircraft option costs.
- (d) Conduct cost analysis to determine most cost-effective method of travel based on the available options to meet your travel requirements.
- (e) If commercial option is most cost-effective method of travel, provide travel approving authority with analysis and method of travel selected for approval. Receive approval and travel.
- (f) If government aircraft option is most cost-effective method of travel, contact HQ or Local OAM to make tentative travel arrangements.
- (g) Create General Counsel (GC) or Local Chief Counsel (CC) memo to travel aboard a Government aircraft. According to OMB Circular A-126 and DOE O 440.2B, senior Federal

- officials and non-Executive branch employees aboard government aircraft need approval in writing from the Office of the General Counsel on a trip-by-trip basis. All other Executive branch employees need approval from the Local Chief Counsel in writing on a trip-by-trip basis. See Appendices C, D, and E for template GC and CC memos.
- (h) Send memo with cost analysis attached to travel approving authority for review and signature, if applicable (based on which template memo was used).
 - (i) Receive final travel arrangements for HQ or Local OAM after concurrence and GC or CC approval.

D.3 Travel Approving Authority

- (a) Review and approve traveler(s) travel request.
- (b) Concur with cost analysis and approved method of travel selected.
- (c) If commercial option was selected, send traveler approval to travel on selected method and archive all travel information for 2 years.
- (d) If Government aircraft option selected, receive GC or CC memo from traveler for review and signature.
- (e) Forward memo with cost analysis attached to HQ or Local OAM for concurrence and signature.
- (f) Notify traveler of GC or CC decision.
- (g) Archive all travel documentation for 2 years.

D.4 HQ or Local Office of Aviation Management

- (a) Receive details of trip and evaluate validity.
- (b) Obtain at least 3 quotes from CAS vendors or providers and fleet operators.
- (c) Determine most cost-effective Government aircraft option.
- (d) Send traveler(s) cost analysis with the most cost-effective option determined.
- (e) If Government aircraft option method of travel selected, receive traveler's request to book flight.
- (f) Make tentative flight arrangements.
- (g) Receive GC or CC memo to concur and forward to GC or CC.
- (h) Receive GC or CC approved or disapproved memo.
- (i) Notify travel approving authority or Local OAM of GC or CC decision.
- (j) If travel approved, implement final travel arrangements and archive memo and all travel information for 2 years.
- (k) If travel disapproved, cancel flight arrangements and archive memo and all travel documentation for 2 years.

D.5 General Counsel or Local Chief Counsel

- (a) Reviews memo for compliance to OMB Circular A-126 and DOE 0440.20, Section 4, Paragraphs O-R.
- (b) Reviews the validity of the travel request:
 - (1) Is this trip reasonable?
 - (2) Is the persons and number of persons traveling reasonable?
 - (3) Is use of an aircraft even necessary for this trip?
 - (4) Have all aviation options been considered?
- (c) Reviews special requests, such as invitational travel, space available travel, use of private or corporate aircraft, etc.
- (d) Approves or disapproves memo and returns memo to HQ or Local OAM.

(e) Archives memo and all trip documentation for 2 years.

E. APPLICABLE STANDARDS

- OMB Circular A-126
- Federal Travel Regulations, Chapter 301
- DOE O 440.2B, Sections 4(o) - 4(r)

F. SUPPLEMENTAL GUIDANCE DOCUMENTS

- Energy On-line Learning Center – Aviation Training on OMB Circular A-126
- General Counsel/Chief Counsel Memo Templates (Appendix A, B, and C)
- Travel on Government Aircraft Workflow Process (Appendix D)
- DOE G 440.2B, Chapter 25

CHAPTER XVIII USE OF MILITARY AIRCRAFT**A. PURPOSE**

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes for the use of military aircraft. To ensure the DOE program needs are met with a cost effective, safe, secure and efficient fleet of aircraft.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL**C.1 Military Aviation Organizations Operating Under DOE Operational Control**

Responsible Departmental Field element managers should submit operating plans, maintenance plans, aviation safety documents, and other pertinent information with each request for approval to operate military aircraft under DOE operational control to the OAM Director not less than thirty days prior to an anticipated flight.

C.2 Military Aircraft Operations Under DOE Operational Control

- (a) Military aircraft must have a FAA accepted maintenance program under 14 CFR Part 91.409 (e) prior to operation.
- (b) The use of bailed, loaned, or surplused military aircraft should be permitted only when an equivalent level of safety can be assured relative to civilian aircraft performing the same or similar function.

C.3 Military Aviation Organizations Operating Under Military Operational Control

- (a) Military aviation organizations operating on DOE property or with DOE personnel on board their aircraft should coordinate their activities with the DOE Field element's ASO.
- (b) Responsibility for the safety of aviation missions under military operational control rests solely with the military organization conducting the aviation activity.

D. APPLICABLE STANDARDS

- DOE O 440.2B

CHAPTER XIX USE OF FOREIGN OPERATORS

A. PURPOSE

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes for the use of foreign operated aircraft. To ensure the DOE program needs are met with a cost effective, safe, secure and efficient aircraft.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

The use of foreign air carriers; foreign manufactured, certified, maintained, or operated aircraft; or the use of foreign government or military aircraft may sometimes be necessary for accomplishment of the mission of the Department. Persons intending to use foreign aviation assets should use every reasonable effort to assure an equivalent level of safety with United States operations of similar nature.

Officials should contact the Field element's Aviation Manager, Aviation Safety Officer or the Office of Aviation Management when acquiring foreign charter services to assess the safety program and standards of the foreign operator and assure that such services meet or exceed the International Standards for Airworthiness of Aircraft, Annex 8, and the International Standards and Recommended Practices for Operation of Aircraft, Annex 6, of "The Convention on International Civil Aviation."

The chartering of foreign air services must be accepted by the OAM Director prior to operations. Officials planning the use of foreign air services should submit their request and appropriate supporting documents to the OAM Director not less than 30 days prior to the start of the services.

D. APPLICABLE STANDARDS

- International Standards for Airworthiness of Aircraft, Annex 8, of "The Convention on International Civil Aviation"
- International Standards and Recommended Practices for Operation of Aircraft, Annex 6, of "The Convention on International Civil Aviation"
- DOE O 440.2B

CHAPTER XX COMMERCIAL AVIATION SERVICES**A. PURPOSE**

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes for the use of Commercial Aviation Service providers. To ensure the DOE program needs are met with a cost effective, safe, secure and efficient aircraft.

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

- (a) CAS aircraft that are acquired by DOE or its contractors in support of DOE missions and functions are considered public aircraft by the FAA and are subject to comply only with 14 CFR Part 91 Subpart B, "Flight Rules." CAS providers are not required by law to operate in accordance with their civil operating certificates while flying as a "public" aircraft, but can be required to do so by DOE contractual provisions. Therefore, to ensure the safety of Departmental CAS aircraft activities, program managers should establish minimum requirements for CAS, state these requirements in written contracts, and perform oversight to ensure the safety of these operations.
- (b) The Head of each Field element using CAS aircraft should appoint an individual, competent in site specific CAS operations, to be responsible for reporting (See Chapter XXV) and oversight (See Chapter XXII).
- (c) At Headquarters, CAS operations are monitored and assessed by the Office of Aviation Management. OAM should assist program and Field elements, coordinate the pre-award evaluation (for acceptance) of proposed CAS vendors or providers and rely on OAM procedures for overseeing the performance of selected CAS vendors and providers.
- (d) CAS providers should hold an Air Carrier, Commercial Operator, or other appropriate certificates under 14 CFR Parts 121, 125, 127, 133, 135, 137, or 145, as applicable for the types of operations being conducted. In addition, the CAS provider is required to comply with all operating and maintenance requirements of the certificates while in service to the Department, in accordance with DOE O 440.2B.
- (e) Contracts for aircraft that carry DOE or contractor personnel should specify requirements for CAS vendors or providers. For example:
 - (1) Operating in accordance with the requirements of their certificate, even while operating as a public aircraft for the Department;
 - (2) Designating the specific aircraft and pilots that will be used for DOE missions;
 - (3) Specifying special equipment required for the particular operation, including shoulder harnesses for helicopter passengers or wire strike protection systems for helicopters; and
 - (4) Specifying operating procedures that are to be followed.

- (f) DOE and contractor CAS providers, except those involved in pipeline and powerline patrols, that conduct operations less than 500 feet above ground level (AGL), should have hazard maps that depict current hazards to air navigation. The maps should indicate height AGL of all existing obstacles to flight on (1) the DOE site on which they operate; or (2) along commonly used flight paths, if the aircraft's enroute altitude is less than 500 feet AGL.
- (g) DOE and contractor organizations that acquire CAS aircraft to conduct pipeline and powerline patrols operating at less than 500 feet AGL should use a system of warning signs and marker balls, supplemented with a current VFR sectional map, to alert pilots to hazards within powerline or pipeline rights-of-way. Refer to Chapter XIII.
- (h) Multiengine turbine-engine-propeller or turbine-jet aircraft certified for instrument flight and operated by two qualified and current, instrument rated pilots under 14 CFR Part 135 should be used by DOE and contractor CAS providers during passenger flights. The aircraft should have dual flight controls, and instrumentation appropriate for a two-pilot crew. An IFR FAA flight plan should be filed.

D. APPLICABLE STANDARDS

- 14 CFR Parts 119, 121, 125, 133, 137 and 135
- DOE O 440.2B
- Federal Acquisition Regulations
- DOE Acquisition Regulations

CHAPTER XXI AVIATION SAFETY DOCUMENTATION

A. PURPOSE

The purpose of the Chapter is to state the basic recommendations for developing and standardizing Aviation Safety Documents.

B. APPLICABILITY

This Chapter contains recommendations acceptable to DOE/NNSA elements that operate government aircraft that can not comply with 14 CFR Chapter 1 or DOE O 440.2B requirements.

C. GENERAL INFORMATION

Aviation Safety Documentation (ASD) shall be developed by each organization for missions that have risks not normally accepted by the public, and submitted to OAM for review. The ASD shall contain a description of the aviation mission; an analysis of the hazards; a description of deviations from the 14 CFR Chapter 1 or 49 CFR Subchapter C and the reasons for the deviations. The Aviation Manager shall ensure the ASD is verified and the responsible government official of the operation is cognizant of the risks incurred and that those risks are accepted by the program official. If a generic ASD is developed for a continuing mission and other missions are identified with identical or similar characteristics, then supplements to the generic ASD may be added to address the specifics of the additional mission. All ASDs should be reviewed by the Aviation Manager or Aviation Safety Officer, on a periodic basis, to determine their relevancy to current operational conditions and to revalidate the analysis that was originally conducted.

C.1 Identification

Each ASD should have a unique identification. Supplements to generic documentation should be acceptable, if they present only nuances to the generic documentation. The ASD should be signed by the individuals who prepared, reviewed, and approved the ASD. The introduction to the ASD should state the program's background, the type of review (initial or supplemental), and the expected time period to be covered by the operations. The aviation mission should be described in sufficient detail to establish the boundary of the significant parameters to be encountered during the accomplishment of the mission. The objective of the mission should be stated. The transportation of cargo, personnel, test equipment, or other items should be noted. The following discussion expands on these points.

C.2 Takeoff and Landing

The ASD should include an evaluation of the aircraft takeoff and landing capability, area of operation (runway length(s), takeoff and landing zone(s), elevation), flight endurance, and cruise speed. Conditions that require changes from a normal flight envelope should be noted, and the consequences of the changes identified. The following items should be addressed:

- (a) Flight and qualified non-crewmembers qualifications.
- (b) Base of operations for the project/mission.
- (c) Flight following system, procedures, and communications.
- (d) Flight time of day.
- (e) Flight altitude(s)--normal and restrictions.
- (f) Destination and routing.

C.3 Certification Authority

The ASD should include and state the certification authority and category of the aircraft, specific operating limitations and restrictions should include:

- (a) Altitude (if altitude is a function of type of fuel, the relationships must be included).
- (b) Airspeed.
- (c) Takeoff, landing, and enroute temperatures.
- (d) Weight and balance.
- (e) Certificate of Airworthiness (Standard, Restricted, Experimental, etc.).
- (f) Category of aircraft (Normal, Transport, Utility, etc.).
- (g) Takeoff and landing weather minimums.
- (h) Cross-wind and wind-gust limitations.

C.4 Other Items to Consider

The following items should be considered:

- (a) Mission geographic location.
- (b) Terrain (elevation, vegetation, man-made structures).
- (c) Weather (temperatures, moisture, cloud cover, wind, thunderstorms, other adverse conditions).

C.5 Mission Hazards

- (a) Mission hazards (include the type and extent of hazard and the method(s) to reduce the hazard) such as, but not limited to the following shall be evaluated:
 - (1) Flight path obstacle hazards;
 - (2) Mid-air collision hazards;
 - (3) Terrain collision hazards;
 - (4) Radiation, Biological, or Chemical contamination hazards;
 - (5) Installation of special equipment in or on the aircraft (e.g., in the slipstream of the aircraft);
 - (6) Electrical fire caused by equipment; and
 - (7) Inclement weather.
- (b) Operational hazards should be evaluated (include general risks associated with the aircraft and unique risks because of the type of mission). The worst case scenario and the highest property damage cost in dollar terms should be included. Hazards include:
 - (1) Single/multi-engine failure.
 - (2) Damage to ground facilities or personnel injury because of a crash.
 - (3) Survival in remote areas.
 - (4) Operations over water.
- (c) The position and composition of the flight crew and other essential crew, as appropriate, should be stated. Emergency exits and drills shall be conducted in order to evaluate their effectiveness.
- (d) The special equipment configurations and weights required to conduct the mission should be identified.
- (e) The need for survival equipment should be evaluated.

- (f) The certification of installations using approved data acceptable to the Administrator or a FAA report from a Designated Airworthiness or Engineer Representative shall be included.
- (g) Once the FAA approvals have been obtained, they shall be included in the documentation.
- (h) If deviations from Federal, State, FAA regulations, or regulations of other governments have been taken, the specifics of the deviations, the reasons there for, and the consequences should be stated.
- (i) Consistent with Objective statement in DOE O 440.2B, DOE has elected to apply the operation, pilot qualification and maintenance standards contained in the applicable sections of 14 CFR Chapter 1, Parts 21, 43, 61, and 91 as the minimum safety standards for Departmental aircraft operations. This is the Department's choice since by definition DOE-Federal aircraft operations are considered public aircraft and not subject to FAA oversight or enforcement, except for certain rules governing the operation of aircraft within the National Airspace System. However, Field elements may, and should, adopt more stringent safety standards as warranted through a safety and risk management review process (ISM).

D. APPLICABLE STANDARDS

- Title 14 Code of Federal Regulations
- Title 41 Code of Federal Regulations
- DOE Order 440.2B

CHAPTER XXII AVIATION SAFETY

A. PURPOSE

The purpose of this section is to ensure that an adequate safety program exists for an effective, efficient, secure and safe aviation operation.

B. APPLICABILITY

This Chapter is applicable to all DOE/NNSA elements operating DOE-Federal and/or Commercial Aviation Services aircraft. This Chapter does not apply to those aircraft of the Department of Defense (DOD) that are not under DOE operational control.

C. GENERAL

The DOE aviation safety program is focused on the management of risks associated with the use of DOE-Federal aircraft, CAS, and military aircraft not under the operational control of DoD. Managers, supervisors, employees and contractors involved in the aviation program should share in the establishment of an aviation safety culture and successful implementation of the aviation safety program. Aviation safety program procedures issued by DOE/NNSA elements should be consistent with this Guide and with the provisions of DOE O 440.2B and DOE policies on Integrated Safety Management, DOE P 450.4.

C.1 Management Responsibility

DOE's goal is to provide the safest possible aviation services by: (1) employing sound management and operational procedures; (2) having a safe and healthful workplace and mitigating all recognized hazards for its employees and the employees of Departmental contractors; (3) protecting Government property against accidental loss and damage, and; (4) protecting the environment and the health and safety of the public. In pursuing this goal, the Department maintains an active aviation safety program based on the philosophy that proper risk management of unnecessary risks, of identified hazards is the responsibility of all the members involved. Accident, incident, and mishap prevention are inherent functions of management, which promotes a safety culture within their organizations. All Departmental and contractor personnel involved in aviation activities should participate in the aviation safety program and should take an active role in the identification, reduction, and mitigation of hazards based on risk management methodology.

C.2 Program Management

The OAM Director is responsible for establishing policies and guidance for the DOE aviation safety program, aviation risk management methodology, promoting an aviation safety culture, and revising programs as necessary. At DOE senior management levels, appropriate heads of DOE Headquarters and its Field elements, and PMAs are responsible for aircraft accident, incident and mishap prevention and promoting an aviation safety culture. Managers and supervisors at other administrative levels share in the responsibility for implementation of their respective aviation safety program.

C.3 Program Elements

The following six categories are essential to aviation safety programs at all administrative levels within DOE. Some programs may include other subjects, depending on the aviation activities implemented to help accomplish specific DOE missions.

- (a) Aviation Safety Program Responsibilities
- (b) Integrated Safety Management Program and Risk Management
- (c) Aviation Appraisal Program (internal and external)
- (d) Aviation Safety Awards Program
- (e) Aircraft Accident Investigation
- (f) Aviation Safety Education and Training

C.4 Staffing

- (a) Headquarters and Field elements that operate DOE-Federal or CAS aircraft must designate individuals as Aviation Managers and/or Aviation Safety Officers, in accordance with DOE O 440.2B, Section 5, paragraph f. (5). DOE/NNSA elements should provide Aviation Managers and Aviation Safety Officers with aviation safety training to ensure an effective aviation safety program.
- (b) The DOE Headquarter's ASO position(s) should be located within the Office of Aviation Management. The individual(s) should be responsible for developing, coordinating, and implementing the DOE aviation safety program, along with the administration of the Department's safety awards program, reporting, analysis, and the GSA's Aircraft Accident Incident Reporting System (AAIRS).
- (c) An Aviation Manager (AM), if assigned to a DOE Field element where DOE-Federal or CAS aircraft activities occur, should be responsible for the management and safety of the local aviation program with full authority to carry out and act upon the assigned responsibilities. This position may be full-time equivalent or collateral duty based on the assessment of needs by management. The incumbent should be competent in all parts of the DOE aviation program and arrange for organizational self-assessments.
- (d) An Aviation Safety Officer (ASO) should be assigned to a DOE Field element at which DOE-Federal and/or CAS aircraft activities occur. The ASO should be responsible with full authority to carry out and act upon the assigned responsibilities for the local aviation safety program, including elements such as self-assessment, risk management, reporting, education and training, safety awards, and updating AAIRS when necessary. This position may be full-time equivalent or collateral duty based on the assessment of needs by management.
- (e) Any individual responsible for aviation safety at DOE Field elements other than those noted in (c) and (d) above.

C.5 Qualifications and Training Aviation Safety Personnel

The personnel identified in (b) thru (d) above should meet qualifications listed below; the recommendations of Chapter V; and complete the training recommended in Chapter VI of this document.

C.6 Roles and Responsibilities

- (a) General. Primary management of the aviation safety program rests with the OAM Director (Senior Aviation Management Official (SAMO)) and the designated field AM's and ASO's.
- (b) OAM Director (SAMO). The OAM Director should:
 - (1) Establish, promote, and maintain the Department's aviation safety program;
 - (2) Designate the ASO(s) within the office;

- (3) Perform aviation safety oversight, if requested, and conduct and participate in functional aviation safety appraisals through agreements with Headquarters and field elements;
 - (4) Monitor and/or participate in DOE Type A and B aviation accident investigations; and
 - (5) Concur with respect to aviation safety matters in the purchase and lease of DOE aircraft in accordance with DOE policy.
- (c) Headquarter's ASO(s). The Headquarter's ASO(s) should:
- (1) Develop Departmental aviation safety policy statements for inclusion in appropriate DOE documents, which include:
 - i. Aviation safety publications;
 - ii. Integrated Safety Management methodology;
 - iii. Identification of operational considerations for accident prevention efforts;
 - iv. Maintaining relationships with aircraft and equipment manufacturers, vendors, and airport and heliport owners and operators; and
 - v. Liaison activities with government and non-government organizations for purposes of promoting aviation safety and DOE safety culture.
 - (2) Identify, develop, and coordinate aviation safety and aircraft accident prevention education and training activities;
 - (3) Administer the DOE Aviation Safety Awards Program;
 - (4) Provide technical assistance and advice to DOE Headquarters and Field elements in developing and implementing their aviation safety program and accident prevention efforts;
 - (5) Review DOE aviation safety publications and initiate appropriate recommendations;
 - (6) Include appropriate "lessons learned" information in aviation safety documents disseminated to the DOE aviation community;
 - (7) Represent DOE regarding aviation safety matters with other Government agencies and non-government organizations;
 - (8) Administer the Department's aviation incident reporting system; and
 - (9) Develop and maintain an aviation safety training program to indoctrinate all new DOE and contractor management and safety officer personnel into the DOE aviation safety program. This training may be incorporated into existing indoctrination programs or be given separately by the Headquarters ASO or a field aviation safety individual. The program should cover DOE aviation missions and activities; Federal regulations; DOE policies; individuals responsible for aviation safety; and other appropriate personnel.
- (d) Heads of Field elements and Administrators of PMAs. Each head of a Field element or administrator of a PMA whose organization utilizes aviation operations should:
- (1) Publish an aviation safety policy to implement the policies and procedures contained in this document, in DOE O 440.2B, and in other Departmental documents.
 - (2) Designate a full-time or collateral duty individual to be responsible for aviation safety.
- (e) DOE Field element ASOs. Each DOE Field element ASO should:
- (1) Arrange for Aviation Safety Notices and Aviation Safety Alerts to be: (a) presented and discussed in preflight briefings and flight safety meetings and; (b) posted on aviation safety bulletin boards and in flight activity areas where aviation personnel can readily see them for a minimum of fourteen (14) days.
 - (2) Establish and maintain a functional aviation safety file which should include:
 - i. Aviation Safety Notices;

- ii. Aviation Safety Alerts;
 - iii. Preliminary and final reports of aircraft accidents;
 - iv. Aviation safety program appraisal reports; and
 - v. Minutes of aviation safety meetings.
- (3) Establish Flight Readiness Review Boards as necessary to meet program needs.
 - (4) Oversee and conduct audits of aviation program to ensure the Integrated Safety Management is implemented.

C.7 Aviation Safety Appraisal Program

Appraisal programs are an integral part of ISM by providing feedback and information to improve the safety program. The goal of all DOE personnel conducting aviation safety appraisals should be the same—to determine and document the adherence to safety requirements and policies, safety performance, and the effectiveness of an activity according to predetermined requirements and industry recommended practices. In addition, appraisals should identify alternate methods of conducting activities that enhance the safety of the program.

- (a) Office of Independent Oversight and Performance Assurance (OA). The Director, OA has the responsibility for conducting independent evaluations of the safety of the aviation program of the Department. Aviation safety appraisals accomplished by OA should be conducted on all DOE/NNSA elements engaged in aviation activities. These appraisals are conducted by the Office of Assurance.
- (b) Heads of Field elements and Administrators of PMAs. Heads of Field elements and Administrators of PMAs should ensure internal aviation safety management and functional appraisals and audits are conducted. Because of their proximity to their respective operations, field ASOs are responsible for conducting the appraisals and audits on a more frequent basis than that conducted by Headquarters. The appraisals and oversight audits should be of sufficient scope and frequency to ensure the effectiveness of their aviation safety program. The assistance of a Headquarter's ASO(s) may be requested.

C.8 Program Promotion

Headquarter's Program Offices and Field elements should ensure resources are available for education and training. Attendance should be encouraged at aviation safety management training sessions and aviation safety seminars sponsored by government, commercial, or military organizations, and academic institutions.

C.9 Reporting of Accidents, Incidents and Hazards

The Department is subject to many different reporting requirements. Regardless of the reporting requirement, no Field element or contractor report should go to an agency outside the DOE without also being reported to the OAM. This section will address aviation safety reporting specific to the aviation program. For guidance on the DOE Occurrence Reporting and Processing System (ORPS) refer to DOE-STD-1045-93; Guide to Good Practices for Notifications and Investigation of Abnormal Events and DOE O 232.1A, Occurrence Reporting and Processing Information. ASOs should refer to Title 49 CFR Part 830, National Transportation Safety Board (NTSB) Reporting of Aircraft Accidents and Incidents for those requirements. The following paragraphs will address reporting of aircraft damage, injury to personnel, damage to DOE aviation property resulting from Government operations and missions, safety concerns, and aviation hazards by DOE/NNSA elements or contractors according to DOE policies and

NTSB regulations. A key element of an Integrated Safety Management program is feedback and improvement processes.

C.9.1 Aviation Mishap and Hazard Notification

These procedures are applicable to all DOE and DOE contractor personnel involved with DOE-Federal aircraft and CAS aircraft operations or procurement. Responsibilities:

- (a) Field ASOs. Field ASOs should report any mishaps, incidents, accidents, safety hazards, or concerns to the DOE OAM as soon as possible. In addition, Field ASOs should participate in the GSA's Aircraft Accident and Incident Reporting System notification of aviation mishaps. Subsequently, additional information on an aviation mishap should be obtained by an Field element or Headquarters ASO for inclusion in the GSA's AAIRS from the DOE Occurrence Reporting and Processing System (ORPS).
- (b) DOE and Contractor Employees. It should be the responsibility of all DOE and contractor employees to report all aircraft accidents, incidents, safety concerns, aviation hazards, and maintenance deficiencies known to them to the Field elements ASO. In addition, the Field elements and contractors should develop internal processes that allow for anonymity from the reporter to promote the reporting of safety information.

C.9.2 GSA's AAIRS Mishap and Hazard Reporting

A person directly associated with DOE aviation activities may submit an AAIRS Report to the Headquarters or Field ASO, including contractors and government personnel in support of DOE aviation program activities. The identification of the originator is desirable, but not mandatory. However, the Field ASO or Headquarter's ASO will need to input the data into AAIRS. Accidents, incidents, hazardous conditions, etc., that do not pertain to aviation safety and aircraft accident prevention are not to be reported in an AAIRS Report. In addition to aircraft accidents and incidents defined by 49 CFR Part 830, report the following to AAIRS:

- (a) Breaking, bending, or denting any part of the aircraft while on the ground (being taxied, pushed, or mechanically maneuvered with a tug, tow bar, etc.) while landing, taking off, or in the air;
- (b) Blowout of any tire during landing;
- (c) Bird strike;
- (d) Failure of any gyro-driven instrument;
- (e) Alternator failure;
- (f) Fuel exhaustion;
- (g) Engine failure;
- (h) Hot starts requiring inspection per operating or engine maintenance manual;
- (i) Compressor stalls resulting in damage;
- (j) Failure of landing gear to extend;
- (k) Smoke in the cockpit;
- (l) Inadvertent IMC;
- (m) Overtorque (as defined by the aircraft manufacturer) requiring inspection;
- (n) Engine fire; and
- (o) Exercising emergency authority to deviate from a FAR rule.

C.9.3 Processing the AAIRS Reports

AAIRS Reports should be processed by the originator within the following time limits:

- (a) aircraft accidents, incidents, and mishaps [1 working day];
- (b) aviation hazards [5 working days]; or
- (c) maintenance deficiencies [5 working days].

C.9.4 "IMMINENT DANGER" Reporting

Conditions of "IMMINENT DANGER" should be reported immediately to appropriate supervisory personnel with an AAIRS Report follow-up as soon as practical.

NOTE: IMMINENT DANGER as defined in the Basic Program elements for Federal Employee Occupational Safety and Health Programs and Related Matters (29 CFR 1960.2), means "any condition or practice in any work place which is such that a danger exists which could reasonably be expected to cause death or serious physical harm immediately or before the imminence of such danger can be eliminated through normal procedures." Whenever an individual concludes that such unsafe acts, conditions or practices exist in aviation activities, they should immediately inform the individual in charge. This person should undertake immediate action to remove all personnel from the hazard. Such acts, conditions or practices should immediately be reported to the designated ASO or individual responsible for the aviation safety program.

C.9.5 Internal Feedback and Reporting Processes

Headquarters and each Field element should establish a reporting process for safety issues. The process or system should be used to improve processes, ensure the safety of activities, and used to conduct analysis and measure safety effectiveness. Any system or process may be established, as long as, it promotes the reporting of aviation safety information.

- (a) The process or system should include sources and methods of collecting information, information review and processing, and information dissemination. The Headquarters ASO should disseminate aircraft mishap and hazard information to Headquarters offices and to Field element ASOs and other personnel responsible for the aviation safety program within their DOE/NNSA element.
- (b) Each respective ASO should disseminate information to appropriate personnel in their organization who are involved in aviation activities. Disseminated publications should include the following: (a) Aviation Safety Notices; (b) Aviation Safety Alerts; (c) Aviation Safety Lessons Learned Publications; and (d) Aircraft Accident, Incident, Hazard, Deficiency Synopsis or Videos (of previous years' circumstances).
- (c) Definitions of Aviation Mishap: An aviation mishap is a deviation from normal operations and includes the following:
 - (1) Aircraft Accident. An occurrence associated with the operation of an aircraft, which takes place between the time any individual boards the aircraft with the intention of flight and any such individuals have disembarked, and in which any individual suffers death or serious injury or the aircraft receives substantial damage, as described in 49 CFR Part 830. When two or more aircraft are involved in an accident, the aircraft

with the most substantial damage should be used to determine the accident classification.

- (2) Aircraft Incident. An occurrence other than an accident that could affect the safety of operations. Examples of incidents are:
 - i. Personnel - An injury reportable under OSHA regulations requiring first aid or medical attention.
 - ii. Damage to Aircraft - Any damage less than substantial with engines/rotors turning and there is an intent to fly.
 - iii. Forced Landing - A landing necessitated by failure of engines, systems or components which makes continued flight impossible; and which may or may not result in damage.
 - iv. Precautionary Landing - A landing necessitated by apparent impending failure of engines, systems, or components which makes continued flight inadvisable.
 - v. Aircraft Ground Event - A mishap in which there is no intent to fly; however, damage incurred requiring replacement or repair of rotors, propellers, wheels, tires, wing tips, flaps, etc.; or an injury reportable under OSHA regulations is incurred requiring first aid or medical attention.
 - vi. Near Mid-Air Collision - An unplanned incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft or a report is received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft.
 - vii. Aviation Hazard. An aviation hazard is any condition, act, or set of circumstances, including maintenance conditions or circumstances, that compromises the safety of personnel or resources engaged in aviation activities. These hazards may include inadequacies, deficiencies, or unsafe practices pertaining to all aspects of aviation operations activities.
 - viii. Maintenance Deficiency. A serious defect or failure causing mechanical difficulties encountered in aircraft operations, not specifically identified as an incident, or aviation hazard. DOE O 440.2B also requires maintenance deficiencies to be reported to the FAA Service Difficulty Reporting system.

C.9.6 NTSB Reporting

C.9.6.1 Initial Notification of Aircraft Accidents, Incidents, and Overdue Aircraft. The ASO at a DOE site operating an aircraft should immediately, and by the most expeditious means available, notify, or ensure that, the nearest NTSB field office is notified when an aircraft accident or any of the following incidents occur:

- Flight control system malfunction or failure;
- Inability of any required flight crew member to perform normal flight duties as a result of injury or illness;
- Failure of structural components of a turbine engine excluding compressor and turbine blades and vanes;
- In-flight fire;
- Aircraft collide in flight;
- Damage to property, other than the aircraft, estimated to exceed \$25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less;
- For large multiengine aircraft (more than 12,500 pounds maximum certificated takeoff weight):

- In-flight failure of electrical systems which requires the sustained use of an emergency bus powered by a back-up source such as a battery, auxiliary power unit, or air-driven generator to retain flight control or essential instruments;
 - In-flight failure of hydraulic systems that results in sustained reliance on the sole remaining hydraulic or mechanical system for movement of flight control surfaces;
 - Sustained loss of the power or thrust produced by two or more engines; and
 - An evacuation of an aircraft in which an emergency egress system is utilized; or
- An aircraft is overdue and is believed to have been involved in an accident.

C.9.6.2 Reporting of Public Aircraft Accidents and Incidents. The ASO at a DOE site operating a public aircraft other than an aircraft of the Armed Forces or Intelligence Agencies should ensure that a report is filed to the NTSB on NTSB Form 6120.1 (OMB No. 3147-001) within 10 days after an accident or incident listed above. The Form is obtainable from the Board field offices noted below, the NTSB, Washington, D.C. 20594, and the FAA, Flight Standards District Office. The report should be filed with the field office of the Board nearest the accident or incident. NTSB field offices are listed under U.S. Government in the telephone directories in the following cities: Anchorage, Alaska; Atlanta, Georgia; Chicago, Illinois; Denver, Colorado; Fort Worth, Texas; Miami, Florida; New York, New York; Seattle, Washington; and Washington, DC. In addition, the Field ASO or Headquarter's ASO may be required to submit information to the DOE ORPS.

C.10 Aircraft Accident Prevention Program

C.10.1 Purpose

The purpose of the Aircraft Accident Prevention Program is to minimize the occurrence of aircraft accidents and incidents and eliminate unnecessary risks in DOE aviation operations.

C.10.2 Aircraft Accident Prevention Plan

Each DOE/NNSA element that uses government aircraft should have a formal written aircraft accident prevention plan consistent with Departmental policy. The plan should include goals, personnel responsibilities, implementation guidelines, and methods utilized to monitor the success of the program. Heads of DOE/NNSA elements should ensure that their plan includes the critical elements presented below at appropriate levels of their aviation activity.

C.10.3 Risk Assessment

Risk assessment is the subjective analysis of physical hazards and operational procedures to arrive at a GO/NO-GO decision. The pilot-in-command retains final authority for a GO/NO-GO decision. (See the Aviation Safety Documentation section of this Guide.)

C.10.4 Education and Training

Heads of DOE/NNSA elements should assure that employees involved in the use or control of aviation resources receive appropriate aviation safety training. The guidance provided in this section should be considered the minimum necessary for developing operational and management skills. Additional needs unique to specific DOE missions should be included when appropriate.

C.10.5 Mission Planning

Aviation operations should be planned with adequate consideration given to accident prevention. Flights should be conducted as planned and in accordance with Departmental policy and procedures. Deviations from an approved mission profile should not be permitted except for deviations normally accepted by the public and for safety of flight considerations. The following items should be included in mission planning:

- (a) Define the work, task, mission, and flight profile.
- (b) Flight routes and altitudes (domestic, international). A thorough map reconnaissance of the route to be flown should be accomplished for preplanned low-level flights.
- (c) Hazard identification (e.g.; takeoff or landing weight, landing areas, hazards to aerial navigation).
- (d) Weather conditions.
- (e) Risk assessment of the mission and of a project.
- (f) Controls established (e.g. weather minimums, only standard category aircraft, only pilots with ATP, etc.)
- (g) Management approval of other than routine use activities.
- (h) Time of year.
- (i) Wire Strike Prevention.
- (j) When DOE missions dictate that flights are to be conducted in proximity to ground wires, special consideration should be given to the flight environment. All helicopters should conform to the wire strike protection equipment requirements in the "DOE-Federal Helicopters–Minimum Equipment" section of this Guide. Risk assessments to reduce wire strike potential should be conducted prior to flight. Low-level flight hazard maps should be developed for the local operational areas, and assessed frequently to ensure the accuracy of the information.

C.10.6 Operational Environment Considerations

Pilots should be cognizant of environmental conditions. A GO/NO-GO decision should be made with regard to operating safely in environmental conditions. For example, flying into forecasted severe turbulence is a potential mishap contributing factor; the decision to do so is a mishap causal factor.

C.10.7 Aviation Life Support Equipment

The pilot-in-command should ensure that appropriate aviation life support equipment is on board the aircraft or being worn by appropriate individuals based on DOE requirements, guidelines, project needs, seasonal variations, the requirements of other countries, and other requirements.

C.10.8 Flight Following

Each DOE/NNSA element should include a flight-following requirement in its aircraft accident prevention plan. As a minimum, the flight-following requirements should meet the requirements of the "Aviation Operations" section of this Guide. The plan should specify the method or procedure to be utilized which will accommodate communications from mission personnel or the pilot to the flight-following facility at predetermined intervals.

C.10.9 Load Calculations

Proper consideration and planning should be given to the aircraft weight and balance computation and subsequent loading for each takeoff and landing for all aircraft. The weight of personnel and/or cargo should be considered relative to environmental and aircraft performance capabilities.

Adequate documentation of load calculations should be determined by the DOE/NNSA element conducting the aviation operation.

C.10.10 Maintenance and Inspection Program

Proper consideration and planning should be given to the aircraft and mission equipment maintenance and inspection programs to ensure operational environment does not require additional maintenance or inspection of airframe, engine, rotors, appliances and components.

C.10.11 Post Mission Analysis

At the completion of each day's mission conduct post mission and debriefing. Determine if original hazard analysis was correct, identify any additional controls that are necessary, and report changes as required to Aviation Management.

C.11 Aviation Safety Analysis

The Headquarters ASO(s) should maintain an aviation safety analysis system using data from DOE and other accident and incident reports, hazard reports, and the EH Technical Information System. The system should include the organization of numerical data for the purposes of measuring performance trends, solving problems, and for determining cause resolution (**REFER TO DOE G 440.2B-1, AVIATION PERFORMANCE INDICATORS**). The analytical efforts should be conducted frequently to ensure that the results are relevant to current DOE aviation operations. The results should be disseminated as a part of the aviation safety information program.

C.11.1 Aviation Safety Trend Analysis

Each field ASO should maintain an aviation safety trend analysis system which covers the type of aircraft used in the aviation operations of his/her DOE site. The system should include sources of data on the site aircraft such as NTSB accident reports, FAA mechanical interruption summaries, service difficulty reports, AAIRS data and other government and commercial organization reports pertinent to the type of aircraft used and the type of aviation operations conducted at his/her site. This data should be used to monitor potential airworthiness and operational concerns for the aircraft type of mission and enhance the safety of DOE operations.

C.11.2 Organization of Numerical Data

Numerical data descriptive of DOE aviation activities should be processed and portrayed in terms of rates, e.g., the number of incidents per departure, to account for differences in exposure. In addition,

such data should be presented in absolute terms, e.g., the number of mechanical failures of a particular part. Presentation in both formats is desirable because of the widely varying types of aviation missions of DOE. Careful consideration should be given to the type of DOE mission when comparative data (among aircraft type, use, government versus commercial sector) is used in an analysis.

C.11.3 Portrayal of Numerical Data

Numerical data should be portrayed as monthly rates, cumulative rates, moving average rates, or other rates appropriate to the type of data used in an analysis. Each type of rate has advantages and disadvantages depending on the perspective of the user. The analyst should use those rates which accurately and relevantly depict Government aircraft use. Processed data should be displayed as tables, figures, pie charts, bar charts, and trend charts, or in other ways which clearly and concisely show the results and trends.

C.11.4 Specific Purpose Analysis Techniques

Analyses focused on specific questions should be conducted when the outcome is seen as beneficial to DOE aviation activities. For example, a risk analysis, hazard analysis, cost-benefit analysis, opinion survey, or accident causation model should be completed when the results are deemed necessary to DOE aviation safety. DOE procedures and guidelines should be used in conducting such efforts (REFER TO DOE O 210.1 Chg 2, Performance Indicator and Analysis of Operations Information)

C.12 Distribution of Aviation Safety Information

C.12.1 DOE-Wide Distribution

The Headquarters ASO(s) should be responsible for obtaining and distributing pertinent DOE-wide aviation safety information to the field. The Headquarters ASO(s) should publish "Aviation Safety Alerts" and "Aviation Safety Notices" when appropriate. When items of DOE-wide significance are paramount, special meetings should be called by the Headquarters ASO(s). These meetings should have a formal agenda and schedule. If appropriate, a draft publication should be prepared and distributed prior to a meeting.

C.12.2 Field-Level Distribution

At the field level, the individual responsible for aviation safety should obtain and distribute pertinent aviation safety information within his/her respective organization in addition to that distributed by the Headquarters ASO(s). For those elements that have DOE-Federal aircraft, mechanisms such as briefings and flight crew reading files should be used for the distribution of safety information. At both Headquarters and field levels, memoranda, video, and audio tapes should be used.

C.13 Aviation Safety Committees

C.13.1 Purpose

The purpose of an aviation safety committee is to provide a forum for identifying and solving aviation safety problems or issues. Participation in an aviation safety committee gives personnel other than the ASO a personal interest in the aviation safety program and enhances the effectiveness of the program.

C.13.2 Committee Level and Structure

There should be a joint committee at the Headquarters level consisting of Headquarters and Field element personnel as well as a field committee comprised of respective personnel at each DOE/NNSA element that operates DOE-Federal aircraft. The Headquarters aviation safety committee should be chaired by a Headquarters ASO(s). Committee members should be representatives of the Office of Aviation Management, the Office of Security Affairs, and other offices selected by the Headquarters ASO(s). Each DOE/NNSA element aviation safety committee should be chaired by that organization's ASO(s). Committee members should be representatives of DOE and contractor aviation operations, maintenance, and ground support units. Each committee should have five to seven members (the size should be dependent on the extent of the aviation activities). Headquarters and DOE Field element committees should meet at least annually and at the call of the chairperson.

C.13.3 Responsibilities

In general, committees should concentrate on issues where information is needed from several different sources and the support and concurrence of several different managers is needed for resolution. Issues of a very routine or trivial nature that are the responsibility of a single manager should not be reviewed. The responsibilities of a committee should include:

- (a) Reviewing selected incident and hazard reports and recommending corrective actions;
- (b) Reviewing selected aviation safety problems and recommending solutions; and
- (c) Reviewing the effectiveness of aviation safety program elements and recommending improvements.

C.13.4 Committee Management

Management of each aviation safety committee should be the responsibility of the chairperson. The following guidelines on committee management should be considered:

C.13.5 Schedule

Meetings should be scheduled as regular events, not as unscheduled happenings.

C.13.6 Agenda

The agenda should be based on solicitations from committee members and others. The agenda should be published early and the meeting should be cancelled if there are no agenda items. The agenda and related materials should be distributed prior to a meeting. At the meeting, the agenda should be revised if necessary.

C.13.7 Draft Minutes

Draft minutes of a meeting should be distributed for factual accuracy comments within two weeks of the meeting.

C.13.8 Final Minutes

Final minutes of a meeting should contain the signature of the chairperson, serve as an action document, and be distributed two weeks after the due date for comments on the draft minutes.

C.13.9 Follow Up

Members should be informed at the next meeting on the status of action items.

C.13.10 Chairing a Meeting

The chairperson should keep the group moving steadily toward the objective; obtain the best possible contributions from the group; and assure that the minutes accurately reflect the group's opinions and conclusions.

C.14 Aviation Safety Awards

The Aviation Safety Awards Program may be found in Chapter XXVIII.

D. APPLICABLE STANDARDS

- Title 14 CFR Parts 119, 121, 125, 133, and 135
- Title 49 CFR Parts 172, 175, AND 830
- DOE Order 440.2B
- DOE Policy 411
- DOE M 411.1-1B

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- HAI Safety Manual

CHAPTER XXIII FLIGHT READINESS REVIEW BOARDS**A. PURPOSE**

The purpose of this section is to ensure that adequate guidance exists for the formation and administration of the Flight Readiness Review Board (FRRB).

B. APPLICABILITY

This section contains operational procedures and systems acceptable for Departmental aviation services. The operation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

A Flight Readiness Review Board (FRRB) is a body of experts that advises Departmental managers on the hazards of a proposed aviation operation. The Board assists in the evaluation of the Aviation Safety Documentation for such an operation. An FRRB should be established for research and development projects involving aviation, but may be established to assist managers in determining the hazards associated with other proposed aviation operations. The objective of the Board is to provide technical and operational expertise in identifying, evaluating, and quantifying the level of risk for a proposed aviation operation such that managers can decide on the net value of the operation. The cognizant line manager should not approve an aviation operation if an FRRB determines that the risk level of the operation is too high.

D. DISCUSSION

The OAM or a Headquarter's Program manager, Field element's aviation manager or aviation safety officer can establish a FRRB if there is a research and development program or other type of operation that has a known or possible risk level that is greater than that normally incurred in commercial aviation operations. (Such as an aircraft operation that requires waivers or deviations from FAA regulations, DOE aviation policy, or a Field element's established policy or procedure.) If the aviation manager has been delegated authority from the DOE Field element manager, he/she may approve an aviation operation that FRRB has determined to have a low or medium risk level risk. The Field element's aviation manager or aviation safety officer should be qualified and have aviation experience to chair a FRRB.

The DOE site ASO should identify the need for establishing a FRRB. The ASO should act as the chairperson or assign a chairperson, select the membership, and publish the documentation of the Board, including the risk level determination. The chairperson should ensure that deficiencies identified by the Board are satisfactorily resolved and that corrective actions are incorporated into the Aviation Safety Documentation for the aviation operation being reviewed.

The DOE contract project managers have responsibility for providing technical assistance and information required by a FRRB and for correcting the Aviation Safety Documentation for deficiencies found by the Board.

The responsibilities of the Flight Readiness Review Board include reviewing all technical information and the Aviation Safety Documentation for the aviation operation. The Board should determine the level of risk associated with the aviation operation and provide recommendations for mitigating identified aviation hazards.

The responsibilities of the chairperson include assigning areas of responsibility to Board members, acting as liaison between the Board and external entities, voting on issues presented to the Board, providing written dissenting opinions, and preparing the final report of the Board.

D.1 Procedures

- (a) Flight Readiness Review Board members should be individuals with experience as flight or test pilots, aviation operations managers, ASOs, aviation maintenance personnel, aviation accident investigators, or in an engineering discipline of value to the Board. They should be individuals who do not have programmatic responsibility for the aviation operation being evaluated.
- (b) The Flight Readiness Review Board should operate on a consensus basis. If a dissenting opinion exists that cannot be resolved, the chairperson should be given a written dissenting opinion to include in the final report.
- (c) Observers to a Flight Readiness Review Board may include DOE programmatic personnel, program sponsor representatives, and representatives of M&O contractors and subcontractors. Information from observers to the Board should be taken into consideration; however, to maintain the independence of the Board, observer opinions need not be included in the report. Contractors and subcontractors should not be allowed to attend a closed caucus.
- (d) The chairperson should begin the process by calling the Board to order. A briefing on the type of mission and aircraft involved should be provided by the project manager. The chairperson assigns tasks and schedules meetings as necessary. The Board should review all documentation and interview personnel involved with the program. Upon completion of the reviews and interviews, the Board should have thorough discussions and assign a risk level through a vote of the members. All information should be documented and a report provided to the project ASO. This information should be used for final disposition by management at the DOE Field element responsible for the project.

E. APPLICABLE STANDARDS

- Title 14 CFR
- Title 49 CFR

F. SUPPLEMENTAL GUIDANCE DOCUMENTS

- Defense Logistic Agency (DLAM 8210.1) "Contractor's Flight and Ground Operations" Volume 1
- HAI Safety Manual

CHAPTER XXIV AVIATION ACCIDENT INVESTIGATION**A. PURPOSE**

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes during an aircraft accident or incident investigation. Nothing in this chapter should be construed or change any requirements contained in any Department of Energy (DOE) directive.

B. APPLICABILITY

This section contains accident investigation procedures and processes acceptable for Departmental aviation services. The accident investigation of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

Accidents involving Departmental aircraft should be investigated according to the instructions given in DOE O 225.1A, "Accident Investigation," the associated implementation guidance, DOE O 440.2B, 49 CFR Part 830, and Federal Management Regulation Subpart 102-33.445 Aircraft Accident and Incident Reporting and Investigation and successor regulations.

C.1 Notification

DOE/NNSA elements should immediately notify the NTSB, FAA, DOE and the OAM of any aircraft accidents or incidents that are required to be reported by 49 CFR Part 830. In accordance with the passage of Public Law 103-411 (April 23, 1995), the NTSB is charged with investigating all public aircraft accidents which include DOE aviation accidents.

C.2 Requirements

Federal Management Regulation Subpart 102-33-Aircraft Accident and Incident Reporting and Investigation states that Federal agencies should:

- (a) Develop an agency specific aircraft accident and incident response plan;
- (b) Request designation as "party" to the NTSB investigation in accordance with (NTSB) 49 CFR 831.11 and assist the NTSB to the maximum extent possible;
- (c) Be prepared to participate in NTSB investigations of agency aircraft;
- (d) Conduct a parallel investigation of an aviation accident/incident;
- (e) Report any condition which has potential to cause an aviation related mishap;
- (f) Provide training to your agency personnel who may be asked to participate in an NTSB investigation;
- (g) Assure the agency reporting requirements are in compliance with the NTSB definitions contained in 49 CFR 830.2; and
- (h) Refer to 49 CFR Part 830 for further details when required to report an aircraft accident, incident, or overdue aircraft to the NTSB.

Note: Unless a deviation is approved, the NTSB will determine and publish the probable cause of the aircraft accident.

C.3 DOE Guidance

- (a) Refer to DOE G 225.1A-1, Accident Investigations for specific requirements.
- (b) DOE Accident Investigation Boards (AIBs) should coordinate their investigations with the NTSB and incorporate the final NTSB report into the final DOE AIB report. You may or may not be able to participate in the NTSB's determination of the probable cause of the accident.
- (c) Request designation as "party" to the NTSB investigation in accordance with (NTSB) 49 CFR 831.11 and assist the NTSB to the maximum extent possible.
- (d) The DOE and NTSB investigations should be done in parallel on a non-interference basis.
- (e) Communication between the DOE AIB and the NTSB investigator are essential and should be made a priority.

C.4 DOE Aviation Procedures

- (a) An ASO from OAM should monitor the accident investigation.
- (b) An OAM ASO should be present at the geographic location of the accident and assist in the early stages of the investigation.
- (c) An OAM ASO should function as a resource for the AIB Chairman and provide advice and assistance as requested by the AIB Chairman.
- (d) Every effort should be made to ensure that AIB members have some basic knowledge of aviation operations prior to their assignment to the AIB. A basic knowledge of aviation is particularly important in the selection of an AIB chairperson.
- (e) AIBs are encouraged to seek advise from aviation technical experts. Technical experts that may be able to contribute to the investigation include DOE aviation experts, manufacturer's technical representatives, the FAA, the military, and private consultants which are subject matter experts.
- (f) For guidance for the investigation of remotely operated aircraft (ROA) contact OAM.

C.5 DOE Aviation Accident Investigator Qualifications and Experience

- (a) The Accident Investigator should have completed at a minimum of one or more of the following:
 - (1) NTSB Accident Investigation Training; or
 - (2) Technical Safety Institute Accident Investigation Training; or
 - (3) University Southern California Safety Institute Accident Investigation Course; or
 - (4) DoD Services (U.S. Army, Air Force, Navy or Marine Aircraft Accident Investigation).
- (b) The Accident Investigator should:
 - (1) Be certified as an ICAP Safety Officer;
 - (2) Have completed the Aviation Manager or Aviation Safety Officer Technical Qualification Program; and
 - (3) Completed the DOE Accident Investigator Course.
- (c) The assigned Aviation Accident Investigator should:
 - (1) Be knowledgeable in the type of aircraft involved in the accident;
 - (2) Have participated on a Type-A or -B accident investigation; and
 - (3) Have five (5) years experience in civil or Federal government aviation operations.

D. APPLICABLE STANDARDS

- DOE O 225.1A “Accident Investigation”
- DOE O 440.2B
- Public Law 103-411 (The Independent Safety Board Act of 1994)
- Title 49 Part 830 “Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records”

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- DOE G 225.1A-1 “Accident Investigation”
- HAI Safety Manual
- NTSB Accident Investigation Handbook

CHAPTER XXV AVIATION REPORTING REQUIREMENTS

A. PURPOSE

The purpose of this section is to ensure that Field elements file all required reports in a timely manner.

B. APPLICABILITY

This section contains reporting procedures and systems acceptable for Departmental aviation services. The reporting procedures of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

Aviation organizations should comply with the reporting requirements listed in Requirements Section 4n. of DOE O 440.2B, Aviation Management and Safety, 41 CFR 101-37, 41 CFR 102-33 or successor regulations promulgated by GSA. Department Field element managers may establish additional reporting criteria as required. The OAM Director is the DOE Senior Aviation Management Official (SAMO) and shall receive and distribute reports external to the Department. The reporting schedules in 41 CFR 101-37 and 41 CFR 102 33 are based on the due dates to the General Services Administration (GSA), Federal Aviation Administration (FAA), and the National Transportation Safety Board (NTSB). OAM will provide earlier reporting schedules if applicable to allow time for the OAM Director to verify, review, and consolidate reports from the Department Field elements before transmitting the final report to the appropriate external organization.

- (a) Field elements shall submit semi-annual reports for the periods October 1 through March 31, and April 1 through September 30 to OAM for all non-mission travel by Senior Federal Officials, members of their families, and non-Federal travelers and all non-mission and mission travel by Senior Executive Branch Officials onboard Government aircraft under the operational control of the Department in accordance with 41 CFR 101-37, 41 CFR 102-33 or successor regulations promulgated by GSA. The terms "Senior Federal Official" and "Senior Executive Branch Official" are defined in 41 CFR 101-37 and in thi guide, Attachment 3.
- (b) Organizations exercising operational control of Departmental aircraft should report aircraft accidents, incidents or hazards in accordance with 49 CFR Part 830; DOE O 225.1A, Accident Investigation; and DOE O 232.1A, Occurrence Reporting and Processing of Operations Information. A copy of the report should be sent to the OAM Director. In addition, organizations should report NTSB reportable aircraft accidents and incidents, plus other incidents to the Web-based ICAP Aviation Accident and Incident Reporting System (AAIRS), within the days specified in Chapter XXII Paragraph C.9.3 after the occurrence. The GSA and the ICAP will use the collected accident and incident AAIRS information in conjunction with flying hours, departures, and mission data to calculate safety statistics for the Federal aviation community and to share safety lessons learned.
- (c) Organizations conducting Departmental aviation operations certified under 14 CFR Parts 121, 135, or 125 are compelled by these requirements to report service difficulties, defects and unairworthy conditions to the FAA. In addition, a significant maintenance default or difficulty report should be made to the OAM Director for accident prevention purposes when similar aircraft are in service at other DOE locations. The report made to the OAM Director should be in the format and in the time frame deemed appropriate by the

- Departmental element owning, leasing, chartering, and operating the aircraft or air service involved in the accident.
- (d) OMB Circular A-76 contains the requirements for analyzing and reporting aircraft procurements. These requirements are interrelated to those in OMB Circular A-126 and are applicable to a decision to conduct aviation operations with DOE-Federal aircraft or with aircraft services purchased from a non-Government or other Government organization. DOE/NNSA elements should conform to OMB Circular A-76 requirements prior to the acquisition, replacement or the completion of a contract of 90 days or more.
 - (e) DOE Aircraft Coordination and Scheduling Database information should be filed at least quarterly for Research and Development activities as required by DOE O 440.2B. In addition, other mission and official travel needs should be filed as soon as possible.
 - (f) DOE Aircraft Charter Database information should be filed to the database as soon as the information is obtained by the Field element.
 - (g) DOE/NNSA elements should report costs and flight hours for Federal and CAS aircraft on a quarterly basis and changes in your Federal aircraft inventory within 14 calendar days to the Federal Aviation Interactive Reporting System (FAIRS). FAIRS is a management information system operated by GSA to collect, maintain, analyze, and report information on Federal aircraft inventories and cost and usage of Federal and CAS aircraft. Users access FAIRS through a highly-secure Web site. The FAIRS "User's Manual" contains the business rules for using the system and is available from OAM or GSA.
 - (h) Aviation performance indicator data should be maintained and reported in accordance with field elements policies.

D. APPLICABLE STANDARDS

- Federal Property Management Regulations, 41 CFR 101-37 or successor Federal Management Regulation 41 CFR 102-33
- Department of Energy Property Management Regulations, 41 CFR 109-37
- 14 CFR Parts 121, 125, and 135
- Federal Transportation Regulations, 49 CFR Part 830
- OMB A-76
- OMB A-126
- DOE O 440.2B
- DOE O 225.1
- DOE O 232.1A

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- FAIRS User Manual

CHAPTER XXVI AVIATION SECURITY PROGRAMS

A. PURPOSE

The purpose of this chapter is to ensure that an adequate framework exists for establishing an aviation security program and to prevent the loss, damage, destruction, hijacking or theft of DOE-Federal aircraft.

B. APPLICABILITY

This can be applied to all Federal aircraft operations and sets forth the recommendations for a basic aviation security program.

C. GENERAL

DOE-Federal aircraft operations are diverse in their operations and working environments, therefore, no single program can address all of the circumstances faced by the Aviation Managers and Aviation Safety Officers in the field. At the current time DOE-Federal aircraft are not subject to TSA security rules, nor were DOE-Federal aircraft in the past subject to FAA security rules. However, certain guidance and elements of an aviation security program can be implemented based on the following rules governing aircraft and airport security - 14 CFR part 108 (2001); superceded by 14 CFR part 108, published at 66 FR 37330 (July 17, 2001), effective November 14, 2001; and the Transportation Security Administration (TSA) rules that superceded them - 49 CFR part 1544, published at 67 FR 8340 (February 22, 2002), effective February 17, 2002.

D. DISCUSSION

DOE flights would be considered, at most, to be private charter flights. The FAA rules did not, and the TSA rules do not currently, impose security requirements on private charter flights unless they are enplaning passengers from, or deplaning passengers into, a sterile area. Because DOE did not and does not do so, the aviation security rules did not and do not currently apply to DOE operations. DOE-Federal aircraft operations are public aircraft flights, but for this purpose it does not matter. If they are either public aircraft or private charter flights, the aviation security rules did not and do not apply. Thus, they are not and were not subject to Security Directive (SD)-108-01-03. However, DOE believes that the TSA rules provide a basis for establishing internal guidelines for the establishment of an Aviation Security Plan, until or when, the TSA regulatory authority is changed to govern public and private aircraft operations.

D.1 Responsibilities

D.1.1 Field element's Aviation Manager (AM)

- (1) The Aviation Manager is responsible for ensuring an effective aviation security program is implemented.
- (2) The Aviation Manager should assume the responsibilities of Aviation Security Coordinator or assign the duties to someone within the Field element's organization as appropriate.

D.1.2 Aviation Security Coordinators (ASC). The ASC and any alternates must be appointed by the AM and must serve as the Field element's primary contact for aviation security related activities and communications. Either the ASC, or an alternate ASC, must be readily available 24 hours a day or as applicable to the Field element's operation.

- (1) Is responsible for coordinating with the Field element's Security and Safeguards program official, if applicable or other appropriate security personnel to ensure:
 - i. An aviation security plan is integrated with any site security program, if applicable;
 - ii. Applicable processes are implemented to ensure the protection of Federal aircraft from sabotage, destruction, theft, or hijacking;
 - iii. The aviation security program addresses Federal aircraft away from the base station or parked in remote sites; and
 - iv. The security program addresses procedures during normal and heightened alert status.
- (2) Reports to the Aviation Manager and/or Aviation Safety Officer and the Field element's Site Security official any breach of aviation security processes.
- (3) Keeps current on relevant TSA and DOE issued security directives and regulations.
- (4) Reviews all security-related functions for which the Federal operator is responsible, for effectiveness and compliance with their procedures and program or the Field element's Site Security and Safeguards plan, and applicable Security Directives issued by the TSA.
- (5) Provides immediate initiation of corrective action for each instance of noncompliance, with the procedures and security plan or the Field element's Site Security and Safeguards plan and applicable TSA Security Directives. At foreign airports where such security measures are provided by an agency or contractor of a host government, the DOE-Federal aircraft operator must notify TSA for assistance in resolving noncompliance issues.

D.1.3 In-flight Security Coordinator

DOE-Federal aircraft operators should designate or use the pilot-in-command as the In-flight Security Coordinator for each domestic and international flight to perform duties specified in the Field element's security plan or the Field element's Site Security and Safeguards plan.

D.2 Recommended Program Elements

D.2.1 Personnel with Direct Access to DOE-Federal Aircraft

- (1) Criminal background checks should be accomplished on all personnel assigned to DOE facilities that have direct access to DOE-Federal aircraft; or
- (2) Hold appropriate security clearances issued by the DOE.

D.2.2 Personnel with Direct Access to Aircraft employed by Contract Maintenance Facilities

- (1) DOE/NNSA elements that hire domestic contract maintenance facilities to perform maintenance on the Federal aircraft should:
 - i. Use only reputable and licensed repair stations;
 - ii. Ensure employees are United States citizens; and
 - iii. Ensure adequate quality control processes are implemented to detect tampering or intentional sabotage of government property.
- (2) DOE/NNSA elements that hire foreign contract maintenance facilities to perform maintenance on the Federal aircraft should:
 - i. Use only reputable and licensed repair stations; and

- ii. Ensure adequate quality control processes are implemented to detect tampering or intentional sabotage of government property.

D.2.3 Acceptance and Screening of Individuals and Accessible Property

- (a) Preventing or deterring the carriage of any unauthorized explosive, incendiary, or deadly or dangerous weapon is the primary reason for screening personnel and accessible property. DOE-Federal aircraft operators must use measures to prevent or deter the carriage of any unauthorized weapon, explosive, or incendiary on or about each individual's person or accessible property before boarding an aircraft or entering an aircraft boarding area or any TSA sterile area.
- (b) Operators of DOE-Federal aircraft must ensure that each individual entering an aircraft boarding area or TSA sterile area at each preboard screening checkpoint for which DOE is responsible, and all accessible property under that individual's control, are inspected for unauthorized weapons, explosives, and incendiaries.
- (c) Refusal to transport.
 - (1) Operators of DOE-Federal aircraft must deny entry into an aircraft boarding area or any TSA sterile area and must refuse to transport:
 - i. Any individual who does not consent to a search or inspection of his or her person; and
 - ii. Any property of any individual or other person who does not consent to a search or inspection of that property.
- (d) Prohibitions on carrying a weapon, explosive, or incendiary.
 - (1) Except as provided in the following paragraph, the DOE-Federal aircraft operator may not permit any individual to have a weapon, explosive, or incendiary, on or about the individual's person or accessible property when onboard an aircraft.
 - (2) The provisions in the above paragraph with respect to accessible weapons, do not apply to a law enforcement officer (LEO) aboard a flight for which screening is required if the requirements of this paragraph are met. (This paragraph does not apply to a Federal Air Marshal on duty status. DOE Federal agents on duty, or when State Law requires the carriage of weapon on board the aircraft for survival purpose.) When State Law requires the carriage of a weapon for survival purposes, then the Field element must establish a process or procedure to ensure the weapon is secure and cannot be readily used by an unauthorized person.
 - (3) Unless otherwise authorized by Field element's Aviation Manager or Aviation Security Coordinator, the armed LEO must meet the following requirements:
 - i. Be a Federal law enforcement officer or a full-time municipal, county, or state law enforcement officer who is a direct employee of a government agency.
 - ii. Be sworn and commissioned to enforce criminal statutes or immigration statutes.
 - iii. Be authorized by the DOE or employing agency to have the weapon in connection with assigned duties; and
 - iv. Completed the training program "Law Enforcement Officers Flying Armed."
 - (4) In addition to the requirements of paragraph (3), i- iii, the armed LEO must have a

weapon

need to have the weapon accessible from the time he or she would otherwise check the weapon until the time it would be claimed after deplaning. The need to have the

accessible must be determined by the DOE Aviation Manager or Aviation Security Coordinator and be based on one of the following:

- a. The provision of protective duty, for instance, assigned to a principal or advance team, or on travel required to be prepared to engage in a protective function;
 - b. The conduct of a hazardous surveillance operation;
 - c. On official travel required to report to another location, armed and prepared for duty; or
 - d. Employed as a DOE Federal LEO, whether or not on official travel, and armed in accordance with DOE policies governing travel established by the DOE by directive or policy statement.
- (e) Staffing. The operator of a DOE-Federal aircraft must staff its aircraft boarding areas or security screening checkpoints with supervisory and non-supervisory personnel in accordance with the standards specified in the Field element's Site Security and Safeguards site plan or establish procedures for flight crewmembers to check personnel.
- (f) Acceptance and screening of stowed (checked) baggage.
- (1) The operator of a DOE-Federal aircraft must establish and use the procedures, facilities, and equipment described in the Field element's Site Security and Safeguards plan to prevent or deter the carriage of any unauthorized explosive or incendiary onboard aircraft in stowed (checked) baggage.
 - (2) Acceptance. Operators of DOE-Federal aircraft must ensure that stowed (checked) baggage carried in the aircraft is received by its authorized aircraft operator representative.
 - (3) Screening of stowed (checked) baggage. Except as provided in a Field element's Site Security and Safeguards plan, operators of DOE-Federal aircraft must ensure that all stowed baggage is inspected for explosives and incendiaries before loading it on DOE-Federal aircraft.
 - (4) Firearms, explosives or incendiary devices in stowed (checked) baggage. Operators of DOE-Federal aircraft may not knowingly permit any person, other than an LEO, to transport in checked baggage:
 - i. Any loaded firearm(s); or
 - ii. Any unloaded firearm(s) unless:
 - a. The person declares to the aircraft operator, either orally or in writing before checking the baggage that any firearm carried in the baggage is unloaded;
 - b. The firearm is carried in a hard-sided or other accepted container;
 - c. The container in which it is carried is locked, secured or wrapped to identify if any tampering with the container has occurred after inspection; and
 - d. The stowed (checked) baggage containing the firearm is carried in an area that is inaccessible to passengers, and is not carried in the flightcrew compartment.
 - iii. Any unauthorized explosive or incendiary.

- (5) Ammunition, explosive or incendiary. This section does not prohibit the carriage of ammunition, explosive or incendiary in stowed (checked) baggage or in the same container as a firearm. Title 49 CFR part 175 provides additional requirements governing carriage of ammunition, explosive or incendiary on aircraft.
 - i. Control. Operators of DOE-Federal aircraft must use the procedures in the Field element's Site Security and Safeguards plan to control stowed (checked) baggage that it accepts for transport on an aircraft, in a manner that:
 - a. Prevents the unauthorized carriage of any explosive or incendiary aboard the aircraft.
 - b. Prevents access by persons other than an aircraft operator employee or its agent.
 - ii. Refusal to transport. An operator of a DOE-Federal aircraft must refuse to transport any individual's stowed (checked) baggage or property if the individual does not consent to a search or inspection of that stowed (checked) baggage or property.
- (h) Acceptance and screening of cargo.
 - (1) General requirements. Operators of DOE-Federal aircraft must use the procedures, facilities, and equipment described in the Field element's Site Security and Safeguards plan to prevent or deter the carriage of unauthorized explosives or incendiaries in cargo onboard a DOE-Federal aircraft.
 - (2) Screening of cargo. Operators of DOE-Federal aircraft must ensure that, as required in the Field element's Site Security and Safeguards plan, cargo is inspected for unauthorized explosives and incendiaries before loading it on DOE-Federal aircraft.
 - (3) Control. Operators of DOE-Federal aircraft must use the procedures in the Field element's Site Security and Safeguards plan to control cargo that it accepts for transport on DOE-Federal aircraft in a manner that:
 - i. Prevents the carriage of any unauthorized explosive or incendiary aboard the aircraft.
 - ii. Prevents access by persons other than an aircraft operator employee or its agent.
 - (4) Refusal to transport. DOE-Federal aircraft operators must refuse to transport any cargo if the shipper does not consent to a search or inspection of that cargo.
- (i) Escorting personnel. Operators of DOE-Federal aircraft should develop and implement procedures for escorting and accompanying personnel in facilities that house, store, or where access could be gained to DOE-Federal aircraft.

D.2.4 Remote (off-airport) Operations

Operations within DOE often require deployment to small unfenced and unsecured airports or places that have no airport facilities at all. These operations pose a particular problem in implementing specific security plans or processes. The Field elements should evaluate the operational environment and potential risks to determine appropriate security measures.

- Store aircraft in a locked or guarded hanger or facility (switching station)
- Use devices as anti-tampering tape on doors, windows, ports, inspection plates and so on.
- Change aircraft manufacturer's locks to high quality, professionally installed locks.

- All avionics and removable items in the aircraft should be marked for positive identification. (To ensure original item was not switched)
- Consider installing anti-theft devices or alarms or removable wheel locks.
- Preflight inspection should include efforts to detect foreign objects and evidence of tampering.
- Ensure all personnel are positively identified that approach or work around the aircraft.

Sites that do not have an established Site Security and Safeguards Plan.

- Operators of DOE-Federal aircraft should conduct a risk analysis to determine the exposure the organization has to unauthorized access to Federal aircraft.
- Protection programs should be tailored to address specific site characteristics and requirements, ongoing programs, and operational needs, to achieve acceptable protection levels that reduce inherent risks on a cost-effective basis.
- Develop and implement a Site Plan to mitigate identified risk and exposure.
- The Field element should refer to DOE Order 470.1, SAFEGUARDS AND SECURITY PROGRAM, Chapter 1 as guide to developing a site plan or contact the Office of Safeguards And Security for assistance.
- All security plans should include security measures for different levels of security conditions (SeCON, Levels 1 -5). Increased measures of security should be implemented as the security condition or threat increases.

E. APPLICABLE STANDARDS

- 49 CFR Chapter XII
- DOE O 440.2B
- DOE O 470.1

CHAPTER XXVII ACQUISITION AND DISPOSAL OF AIRCRAFT

A. PURPOSE

The purpose of this chapter is to ensure that an adequate framework exists for establishing processes for the justification, cost analysis, and approval for the fleet modernization of DOE-Federal aircraft. In addition, to ensure the DOE program needs are met with a cost effective and efficient fleet of aircraft.

B. APPLICABILITY

This section contains procedures and systems acceptable for Departmental aviation services. The procedures of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

In 1999 the Secretary of Energy established the Office of Aviation Management to provide recommendations to the Secretary of Energy for the safe, efficient, and reliable management of aircraft used by DOE. The Director of the Office was the designated DOE Senior Aviation Management Official (SAMO), who should chair an Aviation Board of Directors and provides for the final approval for the acquisition and disposal of DOE aviation assets.

C.1 Regulations

- (a) The DOE aviation property management regulations are stated in 41 CFR 109-37. DOE/NNSA element managers with the authority to buy, lease, or charter, aircraft and aviation services should ensure that they are cognizant of these requirements.
- (b) The authority for aircraft acquisition is enacted by the Congress in accordance with 32 USC 1343(d) and is found in the annual appropriation act for DOE.

C.2 Accountability

- (a) DOE-Federal aircraft are the property of the DOE program and Field element that is responsible for the accountability, operations, and maintenance of the aircraft.
- (b) Each DOE-Federal aircraft acquisition whether by purchase, lease, transfer or forfeiture, with or without monetary costs, shall be justified by a cost comparison study conducted and documented in accordance with the requirements of OMB Circulars A-76 and A-126.
- (c) Each contract for Commercial Aviation Services (CAS) in excess of ninety (90) or more days through an exclusive use contract, shall be justified by an approved cost comparison, conducted and documented in accordance with the requirements of OMB Circulars A-76 and A-126, as applicable.
- (d) Replacement of a current DOE-Federal aircraft will be treated as an acquisition in accordance with the guidance in paragraphs C.2, (b) and (c).

C.3 Responsibilities

- (a) Field elements and contractors:
 - i. Provide funding estimates related to DOE-Federal aircraft and CAS acquisitions in a form and manner prescribed by the DOE Chief Financial Officer.
 - ii. Submit a copy of the funding estimates to the Director, OAM.
- (b) Field element Contracting Officers and DOE Aviation Managers: Review approved cost comparison documentation and recommendations and forward to the OAM.
- (c) Senior Aviation Management Official, Office of Aviation Management (ME-2.4):
 - i. Review and approve the cost comparison studies for any acquisitions of Federal aircraft or CAS in excess of ninety (90) days.
 - ii. Provide recommendations on Federal aircraft acquisitions or CAS in excess of ninety (90) days, as required by OMB Circulars A-76 and A-126, as applicable.

C.4 Excess

Aircraft that become excess to the needs of one DOE program or Field element may be reassigned within the Department with the concurrence of the DOE program official and the Director, Office of Aviation Management. Aircraft that are excess to the Department will be disposed of in accordance with DOE and Federal Property Management Regulations or successor regulations.

C.5 Controls

The DOE/NNSA element managers with assigned aircraft should ensure that internal controls are in place to prevent misappropriation, abuse or uneconomical use of aircraft. A copy of the internal control plan should be filed with the Field element's Procurement Office and be available for review by the Director, Office of Aviation Management.

C.6 Program Plans

DOE program and Field elements should prepare five (5) year plans to evaluate:

- (a) Program goals effectiveness over previous five years;
- (b) Current mission requirements versus future mission requirements;
- (c) Mission requirements versus current aircraft capabilities;
- (d) Current utilization versus future utilization;
- (e) Cost effectiveness of current aircraft; and
- (f) Cost benefit of acquiring newer or replacement aircraft.

C.7 Cost Analysis

DOE/NNSA program and Field elements should prepare and submit OMB Circular A-76, Life Cycle Cost analysis, and Cost Benefit analysis for review and concurrence by the OAM Director prior to submitting budget request for congressional approval for any new aircraft acquisitions, leases, transfers, or purchases.

D. APPLICABLE STANDARDS

- Title 41 CFR 101-37
- Title 41 CFR 101-46

- Title 41 CFR 109-37
- Title 41 CFR 109-38
- OMB Circular A-126
- OMB Circular A-76
- DOE O 440.2B

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- GSA Personal Property Utilization and Disposal Guide
- Conklin and deDecker Life Cycle Cost Analyzer

CHAPTER XXVIII AVIATION SAFETY AND MANAGEMENT AWARD PROGRAMS**A. PURPOSE**

The purpose of the Aviation Safety and Management Award Programs are to promote aviation safety and the effective management of DOE aviation programs by appropriate recognition of exceptional safety and management by individuals and groups.

B. APPLICABILITY

The Aviation Safety and Management Award Programs apply to all DOE employees and selected contractor personnel directly involved in aviation operations support to DOE.

C. GENERAL

DOE should recognize individuals and organizations for exceptional acts or service in support of safety, accident prevention, and management in the aviation program of the Department.

C.1 Safety Awards Presented

The following awards may be presented:

1. Award for In-Flight Actions;
1. Award for Accident-Free Flying;
2. Award for Significant Contributions in Aviation Safety; and
3. Secretary's Award for Outstanding Contributions in Aviation Safety.

C.2 Safety Award Responsibilities

- (a) The OAM Director. The OAM Director will develop and administer the DOE Aviation Safety Awards Program and establish a DOE Aviation Safety Awards Committee.
- (b) OAM ASO(s). The OAM ASO(s) should promote the program, develop and implement procedures for executing the program, and chair the DOE Aviation Safety Awards Committee.
- (c) DOE/NNSA element ASO. Each DOE/NNSA element ASO should administer the Awards program within his/her DOE/NNSA element. Each ASO should promote the program and implement procedures to assist in the collection and verification of documentation submitted on behalf of nominees.

C.3 Safety Award Administration

- (a) The OAM Director will administer the Award for In-Flight Actions; the Director OAM Award of Honor for Pilots and Aircrew Members within the category of the Award for Accident-Free Flying; the Award for Significant Contributions in Aviation Safety; and should provide technical and administrative support for processing the Secretary's Award for Outstanding Contributions in Aviation Safety.
- (b) The Head of each DOE/NNSA element should administer the Award of Merit, the Award of Distinction, the Award of Excellence, and the Award of Honor for Pilots and Aircrew

Members within the category of the Award for Accident-Free Flying for his/her DOE/NNSA element.

- (c) Each Field element ASO should administer the Award for Accident-Free Flying for his/her Field element according to procedures which he/she establishes for each respective organization.

C.4 DOE Aviation Safety Awards Committee

The Awards Committee should consist of an OAM ASO as chairperson, and not less than four other individuals - at least two of whom should be current DOE or contractor pilots, and one current DOE or contractor maintenance inspector. The chairman should have the authority to call other individuals with particular expertise to assist the committee in nominee considerations. The duties of the Awards Committee shall be to verify the accuracy of information regarding the nominations for Award for In-Flight Actions, Award for Significant Contributions in Aviation Safety, Director OAM Award of Honor for Pilots and Aircrew Members within the category of the Award for Accident-Free Flying, and Secretary's Award for Outstanding Contributions in Aviation Safety. In addition, the Safety Awards Committee will assure the Director, OAM that the nominee(s) meet all of the requirements for the selected award.

C.5 Procedures for Aviation Safety Awards

Nominations for the Award for In-Flight Actions, the Award for Significant Contributions in Aviation Safety, and the Secretary's Award for Outstanding Contributions to Aviation Safety should be submitted to the Chair, DOE Aviation Safety Awards Committee at the end of each calendar year. Nominations should be processed through the DOE Field element ASO for data verification, and reviewed for concurrence/non-concurrence by the appropriate supervisor. Nominations not properly processed and favorably endorsed should not be considered by the Awards Committee.

The chairman should convene the Awards Committee as required to review and forward recommendations to the OAM Director. The Committee should meet on call of the chairman, but not more often than once per calendar quarter.

The OAM Director should select awardees based on the Awards Committee's recommendations. The OAM Director will have the final authority for selecting recipients for the awards for In-Flight Actions, and Significant Contributions in Aviation Safety. The OAM Director will review the qualifications of the nominees for the Secretary's Award for Outstanding Contributions in Aviation Safety.

C.6 Safety Award for In-Flight Actions

This award is established to recognize onboard crew members and personnel who, through outstanding airmanship, courage or other action, materially contribute to the successful recovery from an emergency, or who minimize or prevent aircraft damage or injury to personnel during an emergency situation. To be eligible for consideration, the circumstances of the occurrence should be documented to clearly show the skill, knowledge, judgment, technique, or courage demonstrated was of extraordinary or exemplary nature. This award is available to Federal and non-Federal individuals. The award is a gold colored wing lapel pin and appropriate certificate or wall plaque. The procedures to be followed:

- (a) Any person aware of outstanding performance by on-board personnel during an emergency situation may nominate one or more individual for an appropriate award. The nomination should contain a description of the event to include:

- (1) Full name and duty (e.g., pilot, co-pilot, flight attendant, mechanic) of the individual being nominated, as well as other on-board personnel (e.g., passengers) who are being nominated.
 - (2) Name, address and telephone number(s) of other individuals having knowledge of the event.
 - (3) Date, time and location of the occurrence.
 - (4) Make, model and registration number of the aircraft involved.
 - (5) Project or mission being conducted at the time.
 - (6) Phase of flight when the emergency occurred, e.g.; hover, takeoff, climb, cruise, descent, approach to landing, autorotation.
 - (7) Kind of terrain over which the emergency occurred, e.g.; hills, trees, open water, rivers, mountains, tundra, etc.
 - (8) Description of the emergency landing area (if applicable) and of obstructions, and dimensions and photographs if possible.
 - (9) Environmental conditions; visibility, wind direction and speed, snow, rain, etc.
 - (10) Concise narrative description of the emergency from onset to termination.
 - (11) Action taken by the nominee(s) to cope with the emergency or minimize damage or injury. The circumstances surrounding the occurrence must be documented to show the skill, knowledge, judgment, and technique required and used in recovering from the emergency.
- (b) An individual should not be considered for the award under the following conditions:
- (1) When it is self-induced;
 - (2) When it actually occurs during a simulated emergency requiring no added skill to land the aircraft successfully, e.g., an engine intentionally shut down on a multi-engine aircraft to practice single-engine procedures;
 - (3) When it occurs because of noncompliance with published regulations, procedures or policy guidance, e.g., deviation from a preplanned and approved non-special use activity to a low-level flight which results in a wire strike and emergency landing; engine failure due to fuel starvation as a result of poor preflight planning and fuel management, etc.;
 - (4) When it is determined that no emergency actually existed; and
 - (5) When, in the committee's opinion, a lack of discipline or individual judgment may have induced the emergency.

C.7 Award for Accident-Free Flying

This award should be established to recognize DOE pilots and aircrew members and DOE-contractor pilots and aircrew members who have distinguished themselves by flying accident-free for the period considered.

- (a) Safety Award for Accident-Free Flying Standards.
- (1) If an individual has been involved in an aircraft accident where pilot error or negligence was a causal or contributing factor, that individual should be ineligible for consideration for any years prior to the accident.
 - (2) All dates of computation for these awards should begin on the day the employee was placed on status as a pilot or as an aircrew member or the day after an aircraft accident, whichever is the most recent. A copy of this authorization or other substantive documentation should be submitted with the nomination.

(b) Safety Award for Accident-Free Flying Criteria

- (1) Professional, dual function, incidental pilot, or professional aircrew member or qualified non-crewmember as determined by employment status.
- (2) Only flight crewmember flight hours or all flight hours logged while serving as an aircrew member or qualified non-crewmember as determined by employment status should be considered for this award.
- (3) Aviation managers include managers at sites with DOE-Federal aircraft and those sites that only use Commercial Aviation Services.
- (4) Dates of consideration need not be consecutive. However, dates should not be omitted to avoid identification of a chargeable accident.

C.8 Safety Award Categories

C.8.1 Award Categories for Pilots

- (1) Award of Merit - Five years or 1,500 hours of accident-free flying.
- (2) Award of Distinction - Ten years or 3,000 hours of accident-free flying.
- (3) Award of Excellence - Fifteen years or 5,000 hours of accident-free flying.
- (4) Award of Honor - Twenty years or 7,500 hours of accident-free flying.
- (5) The OAM Director Award of Honor - More than 25 years or more than 10,000 hours of accident-free flying. (Presented by the OAM Director)

C.8.2 Award Categories for Aircrew Members and Qualified Non-crewmembers

- (1) Award of Merit - Five years of accident-free flying.
- (2) Award of Distinction - Ten years of accident-free flying.
- (3) Award of Excellence - Fifteen years of accident-free flying.
- (4) Award of Honor - Twenty years of accident-free flying.
- (5) The OAM Director Award of Honor - More than 25 years of accident-free flying. (Presented by the Director, OAM)

C.8.3 Award Categories for Aviation Managers

- (1) Award of Merit - Five years of accident-free flight activities for the unit managed.
- (2) Award of Distinction - Ten years of accident-free flight activities for the unit managed.
- (3) Award of Excellence - Fifteen years of accident-free flight activities for the unit managed.
- (4) Award of Honor - Twenty years of accident-free flight activities for the unit managed.
- (5) The OAM Director Award of Honor - More than 25 years of accident-free flight activities for the unit managed. (Presented by the Director, OAM)

C.8.4 Procedures

Each DOE/NNSA element should nominate its own pilots or aircrew members for consideration. Each nomination should include:

- (1) A statement of verification of eligibility by the DOE/NNSA element ASO.
- (2) Full name, Social Security Number and FAA Airman's Certificate Number or employee identification number.
- (3) Pilot status (e.g., GS-2181 professional pilot, dual function or incidental) or aircrew member or qualified non-crewmember status. If the pilot's status is "incidental", a Letter of Authorization for the years being considered should be included.

- (4) Period of consideration and total number of accident-free flying hours attained.

C.8.5 Exceptions

For the purpose of this award, any incident where (1) pilot, aircrew member or qualified non-crewmember error or (2) pilot, aircrew member or qualified non-crewmember negligence resulted in damage to an aircraft or injury to personnel, or an aviation hazard where any careless or reckless operation by the pilot, aircrew member or qualified non-crewmember has been verified should be cause for non-selection.

An accident occurring as a result of a material failure or other such circumstances where it is clearly established and documented that the pilot, aircrew member or qualified non-crewmember was non-contributing should be considered an exception. For nominations which include an exception, the circumstances should be fully documented as an enclosure to the nomination. Decisions made relative to exceptions should be final.

C.9 Award for Significant Contributions in Aviation Safety

This award is established by the OAM Director to recognize an individual, group or organization for outstanding contribution in aviation safety or aircraft accident prevention within DOE. This award should be available to Federal and non-Federal individuals, groups or organizations.

C.9.1 Standard

Any individual having knowledge of the significant contribution may submit a nomination to the Director, OAM.

C.9.2 Criteria

- (1) The circumstances being presented should clearly demonstrate a significant contribution to aviation safety or aircraft accident prevention effort within the DOE.
- (2) The circumstances being considered should be verified and attested to for the substance and accuracy of the proposal by individual(s) other than those being considered for the award.
- (3) The basis for final selection for issuance of this award rests with the recommendations of the Awards Committee to the Director, OAM for final approval.

C.9.3 Awards

Individuals, groups, or organizations should be recognized by the presentation of a certificate and an appropriate memento from the Director, OAM.

C.9.4 Procedures

- (1) Nominations for this award should be in narrative form, clearly identifying in detail, the act or service to be considered and why the act or service is deserving of recognition.
- (2) Nominations should be submitted through the appropriate DOE/NNSA element ASO for data verification and for endorsement prior to being forwarded to the Director, OAM.
- (3) The Awards Committee will evaluate the nominations for eligibility against stated criteria and, where possible, verify the justification provided. Each nomination should be forwarded to the OAM Director for final review and action, with recommendations from the Committee.

- (4) Awards presentation should be determined by the Director, OAM.

C.10 Secretary's Award for Outstanding Contributions in Aviation Safety

This award is established to recognize an individual or group for outstanding contribution in aviation safety or aircraft accident prevention within DOE. This award is available to DOE and non-Federal individuals, groups, or elements. Only one such award should be available annually.

C.10.1 Standard

- (1) Individual or group contribution did not occur during an in-flight emergency (see section entitled "Award for In-Flight Action").
- (2) Any individual having sufficient knowledge of the contribution may submit a nomination.

C.10.2 Criteria

- (1) The circumstances being considered should clearly demonstrate an outstanding contribution in aviation safety or aircraft accident prevention within DOE.
- (2) The circumstances being considered should be verified and attested to for the substance and accuracy of the proposal by individual(s) other than those being considered for recognition.

C.10.3 Awards

- (1) Individual(s). Individuals should be recognized by presentation of a certificate signed by the Secretary of Energy, and an appropriate memento.
- (2) Group(s). Groups should be recognized by presentation of a certificate signed by the Secretary of Energy, and an appropriate memento to the group. Individual awards should not be presented to members of a group.

C.10.4 Procedures

- (1) Nominations for this award should be in narrative form, clearly identifying in detail, the act or service to be considered and why the act or service is deserving of recognition.
- (2) Nominations should be submitted through the appropriate ASO for review and endorsement prior to being forwarded to the Director, OAM.
- (3) The DOE Aviation Safety Awards Committee should evaluate the nominations for eligibility against stated criteria and, where possible, verify the justification provided. Each nomination should be forwarded to the OAM Director for review with recommendations from the Committee.
- (4) The OAM Director should review each nomination, consider the recommendations of the Awards Committee and make a recommendation to the Secretary of Energy for selection. Non-selected nominations should be returned to the DOE/NNSA element ASO for consideration for presentation as a DOE organizational award.
- (5) The Director, OAM should apprise the Secretary of Energy of the selectee for recognition and arrange for the presentation by the Secretary.

C.11 DOE Organizational Aviation Safety Awards

Heads of DOE/NNSA elements are encouraged to establish an awards program for recognizing individuals or groups for their contribution to their organization's aviation safety and aircraft accident prevention effort. The awards should be in addition to those described herein.

C.12 Aviation Management Awards Program

- (1) The Office of Aviation Management (ME-2.4) annually sponsors two agency-wide Aviation Excellence awards; the Aviation Program Award, and the Aviation Management Professional Award. The program goal is to promote continuous improvement of DOE aviation management by publicly recognizing and rewarding our best organizations and individuals. The improved contributions of our aviation assets will, in turn, enhance the efficiency and effectiveness with which the entire Department accomplishes its missions.
- (2) Nominations should describe how excellence in Aviation Management has contributed to the success of Department missions. The Field element should describe outstanding management practices in any/all areas, to include: administration, operations, maintenance, training, and safety.
- (3) These awards can promote continuous improvement in DOE aviation management, but success will depend on your participation. OAM must receive the Field element's nominations, by the first week of April for activities during the preceding calendar year.
- (4) Awards: All DOE/NNSA elements that own or hire aircraft to perform their missions may submit nominations for the following aviation excellence awards. Neither the Office of Aviation Management, nor any of its assigned members, may be eligible for these awards.

C.12.1 Aviation Program Award

- (1) The Department will annually present this award, and a "traveling" trophy, to the best overall Aviation Program. The winning organization may display the trophy until its return to OAM for the award ceremony the following year. As permanent non-monetary awards, DOE will also present individual plaques to each member of the winning team. Judges may also award an Honorable Mention award, when and where appropriate.
- (2) To specifically recognize organizations that directly manage aviation programs, this will be a field-level award. Headquarters-level personnel may be recognized as part of the winning team, but the award will go to the field organization. The winning program will be selected as described in the Nomination Criteria section below.

C.12.2 Aviation Management Professional Award

The Department will annually present a trophy and a cash award, the amount to be determined by the Senior Aviation Management Official, to its best aviation management professional. Anyone may nominate any Field-level Federal employee whose primary duties support a flight program. Nominations should be forwarded through the Field element's Aviation Manager with endorsement as appropriate. In addition to the cash award and a personal trophy, the winner's name will also be engraved on a permanent trophy that may also be displayed by the winner's organization until the award ceremony for the following year.

C.12.3 Process (How to Submit Nominations)

- (1) Submit a nomination form for each award category, signed by an authorizing official. The authorizing official for an Aviation Management Program Award, will be the Federal official one supervisory level above the aviation program, if applicable. The immediate supervisor of

any field-level Federal employee whose primary duties support a flight program will be the authorizing official for the DOE Aviation Management Professional Award.

- (2) Please attach a one-to-four page narrative to each nomination, describing how your program or professional meets the criteria. Annually submit nominations by mail, email, or facsimile by the first week of April for activities in the preceding calendar year to the following addresses:

By email: David.Lopez@hq.doe.gov

By facsimile: (202) 586-6008

By Mail: Attn: David N. Lopez, ME-2.4, Rm GH-063
Senior Aviation Policy Officer
Office of Aviation Management
Phone: (202) 586-6177

C.12.4 Criteria

- (a) An independent panel will judge the entries, and DOE will present awards in each category. OAM will also submit the winners as the DOE candidates for the General Services Administration (GSA) Federal Aviation Program and Federal Aviation Professional awards.
- (b) The Aviation Management Program Award Winner—will demonstrate the most outstanding achievements in the categories below. Although the judges will be looking for the best overall program, a program that is truly exceptional in only one (or a few) categories will still be considered.
- (c) The Aviation Management Professional Award Winner—will be the individual judged to have contributed in the most outstanding manner to the safety, efficiency, and effectiveness of one or more aspects of a Federal flight program (see official categories below).
- (d) The judges may also award Honorable Mention (with no monetary awards attached) in both award categories, if appropriate.

(Note: Under each category below are some questions for a person to think about when preparing a nomination. A person does not have to answer all these questions in each nomination.)

C.12.5 Areas to Address in the Nomination

- (a) **MANAGEMENT and ADMINISTRATION:** Activities related to general management and leadership of an aviation program, which include managing an organization and its personnel; acquiring, managing, and disposing of aircraft and related parts, equipment, and facilities; budgeting and financial management; contracting; developing and enforcing policy/standards; implementing and enforcing compliance with headquarters-level directives; and developing and administering tracking and reporting systems.
- (1) What are your performance measures for program management? Have you met or exceeded them? Have you streamlined your program? Have you taken administrative actions that have saved money, time, and energy? What new business practices have you instituted to improve the safety, effectiveness, and efficiency of your program? Have you done something exceptional in property management (i.e., exchange/sale, excess)? Have you developed or improved an information management system? Have you done fleet planning/A-76 studies? Have you set up contracts to acquire new

aircraft? Have you adopted innovative safety standards or guidelines and implemented standards and a program to enforce them? How have your achievements in management/administration improved your agency's mission-effectiveness?

- (b) **OPERATIONS:** Activities related to flight operations, which include scheduling; dispatch; piloting; crewmember duties; responsibility for emergency procedures and equipment; and other responsibilities related to an aircraft in flight.
- (1) What are your performance measures for operations? Have you met or exceeded them? Did your pilots and crewmembers accomplish anything extraordinary in the calendar year? Has your program done anything innovative in the areas of scheduling and dispatch? What significant improvements did you make in your flight operations last year? How have your achievements in flight operations improved your agency's mission effectiveness?
- (c) **MAINTENANCE:** Activities related to maintaining aircraft and related parts and equipment, which include scheduled and unscheduled maintenance; modifications; repair and rework (organizational level, intermediate level, or depot level); parts acquisition and management; and facilities management.
- (1) What are your performance measures for maintenance? Have you met or exceeded them? Have you recently established a new, money or timesaving method for maintenance? Have any of your maintenance personnel gone "above and beyond" in carrying out their duties? Have you instituted improvements in inventory control management of parts/equipment? How have your achievements in maintenance improved your agency's mission effectiveness?
- (d) **TRAINING:** Activities related to training for all aviation program personnel, which include initial and recurrent training for management and administrative personnel, operational personnel (such as pilots and crew members), maintenance personnel, aviation safety officers, and functional personnel who do their jobs while flying but are not necessarily aviators.
- (1) What are your performance measures for training? Have you met or exceeded them? Have you established a new program or reorganized an old one? Did training enable your personnel to perform in an exceptional manner? How have your achievements in training improved your agency's mission effectiveness?
- (e) **SAFETY:** Activities related to ensuring safety throughout your aviation program, on the ground, in the air, and in training, which include programs for risk analysis and risk management; internal and external assessments/inspections and enforcement of safety standards (including Aviation Resource Management Surveys (ARMS)); systems for tracking, reporting, and communicating hazards, incidents, accidents, and accident prevention information; and safety awards programs.
- (1) What are your safety performance measures? Have you met or exceeded them? Have you maintained an outstanding safety record under high risk and challenging circumstances? What enabled this achievement? Have you learned from an accident? How are you putting into practice what you've learned? How have your achievements in ensuring safety improved your agency's mission effectiveness?

These criteria apply to both owned (Federal) and hired Commercial Aviation Services (CAS) aircraft.

In your nomination narratives, please address each of the applicable categories above, using specific examples and quantitative measures. In each area, describe how the nominee's policies, practices, and accomplishments contributed to improved safety, more efficient management, and better mission effectiveness. Nominations for the Aviation Program Award should include a listing of the program team's personnel and a brief description of the program number of aircraft owned or hired, mission, maintenance strategy, etc.. Nominations for the Aviation Management Professional Award should include brief biographical information.

C.12.6 The Awards Ceremony

The Secretary of Energy, or his designated representative, will recognize all winners and present all awards at the Annual Aviation Operations and Safety Workshop following the nomination cycle, or at the time and place designated by the Director, Office of Aviation Management.

Nomination Forms: Go to the DOE Aviation homepage at <http://ma.mbe.doe.gov/me24/index.html> to retrieve a nomination form. Once the nomination form has been downloaded, type your information. Use a separate form for each nomination. **The Director ME-2.4 must receive entries not later than the first week of April.** Please attach to each form up to four pages of justification discussing the above criteria.

D. APPLICABLE STANDARDS

- Title 41 CFR 109-37
- DOE O 440.2B

E. SUPPLEMENTAL GUIDANCE DOCUMENTS

- ICAP Management and Professional Award Program

CHAPTER XXIX AVIATION PERFORMANCE INDICATORS**A. PURPOSE**

The purpose of this Chapter is to refer personnel to DOE G-440.2B-1, Aviation Performance Indicators.

B. APPLICABILITY

This section contains reporting procedures and systems acceptable for Departmental aviation services. The reporting procedures of other Government agency aircraft, including those of the Department of Defense (DOD) that are not under DOE operational control, is the responsibility of the respective agency.

C. GENERAL

Refer to DOE G-440.2B-1, Aviation Performance Indicator for guidance on the implementation of APIs required by DOE O-440.2B.

ATTACHMENT 1 — DOE Form 1300-3

ATTACHMENT 2 — ACRONYMS

ADs	Airworthiness Directives
AGL	Above Ground Level
AIB	Accident Investigation Board
AAIRS	Aviation Accident and Incident Reporting System
ASD	Aviation Safety Document
ASO	Aviation Safety Officer
ATC	Air Traffic Control
CAS	Commercial Aviation Service
CFR	Code of Federal Regulations
CSO	Cognizant Secretarial Offices
DLAM	Defense Logistic Agency Manual
DOE	Department of Energy
ETA	Estimated Time of Arrival
ETE	Estimated Time Enroute
FAA	Federal Aviation Administration
FAIRS	Federal Aviation Interactive Reporting System
FAR	Federal Aviation Regulation
FSDO	Flight Standards District Office
GSA	General Services Administration
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
LPSO	Lead Program Secretarial Office
MEA	Minimum Enroute Altitude
MEL	Minimum Equipment List
MOPS	Minimum Operational Performance Standards
MSA	Minimum Safe Altitudes
NAS	National Airspace System
NTSB	National Transportation Safety Board
NVG	Night Vision Goggles
OAM	Office of Aviation Management
OPM	Office of Personnel Management
OMB	Office of Management and Budget
ORPS	(DOE) Occurrence Reporting and Processing System
OSHA	Occupational Safety and Health Administration
PIC	Pilot-in-command
PMA	Power Marketing Administration
PSO	Program Secretarial Officer
ROA	Remotely Operated Aircraft
RTCA	Radio Technical Commission for Aeronautics
SFAR	Special Federal Aviation Regulation
SIC	Second-in-Command
SID	Standard Instrument Departure
VFR	Visual Flight Rules

ATTACHMENT 3— DEFINITIONS

Aerial Applications. The dispensing of nonpoisonous cargo during flight from a Government aircraft to accomplish a specific purpose on the ground, e.g., to extinguish a forest fire, fertilizing, seeding.

Abandoned Aircraft. An aircraft located in a remote area where recovery is impossible or impractical (such as an aircraft lost at sea).

Aerial Patrol Crew. The pilot and one qualified non-crewmember. An additional qualified non-crewmember may be carried for a valid mission need with the approval from the designated person in that organization and the pilot. The passenger should be required to wear the appropriate protective equipment. The aircraft must be within weight and balance limitations with the additional passenger.

Aircraft. A device that is used or intended to be used for flight in the air.

Aircraft Accident. An occurrence associated with the operation of an aircraft that takes place between the time any individual boards the aircraft with the intention of flight and when all such individuals have disembarked and when any individual suffers death or serious injury or the aircraft receives substantial damage as described in 49 CFR Part 830. When two or more aircraft are involved in an accident, the aircraft with the most substantial damage should be used to determine the accident classification.

Aircraft Mishap. An aircraft accident or incident.

Article. An airframe, powerplant, propeller, instrument, radio, or accessory.

Aviation Concern. A concern is any act or set of circumstances that is perceived by an individual as having a serious potential for compromising safety that may lead to an aircraft accident or incident. Because aviation concerns involve perceptions, it is the responsibility of the aviation safety staff to determine the validity of the concern.

Aircraft Incident. An occurrence other than an accident associated with the operation of an aircraft that could affect the safety of operations, as described in 49 CFR Part 830. Examples of incidents are:

An injury reportable under OSHA regulations requiring first aid or medical attention;

Any damage less than substantial when engines/rotors are turning and there is an intent to fly;

Forced Landing: A landing necessitated by failure of engines, systems or components that makes continued flight impossible and which may or may not result in damage;

Precautionary Landing: A landing necessitated by apparent impending failure of engines, systems or components that makes continued flight inadvisable;

Aircraft Ground Event: A mishap in which there is no intent to fly; however, the damage incurred requires replacement or repair of rotors, propellers, wheels, tires, wing tips, flaps, etc.; or an injury reportable under OSHA regulations is incurred requiring first aid or medical attention; or

Near Mid-Air Collision: An unplanned incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft; or a report is received from a pilot or flight crewmember stating that a collision hazard existed between two or more aircraft.

Accepted Commercial Aviation Services. A commercial aircraft service provider that has been reviewed by representatives of the Department and found to meet the safety and operational standards established by the Department for aviation operations. A list of accepted commercial aircraft service providers may be found in the “Aircraft Charter Database” maintained by OAM. DOE-Federal aircraft are included in this database; however, regularly scheduled domestic airlines are not reviewed by the Department and are not included in the database.

Approving Official. An individual delegated the authority to approve planned official travel within an office or division and who determines that the travel is necessary and that funds are available.

Aviation Hazard. A condition, act, or set of circumstances that compromises the safety of personnel or resources engaged in aviation activities. Such conditions include inadequacies, deficiencies, and unsafe practices pertaining to all aspects of aviation operations activities.

Aviation implementation plan (AIP). A written document prepared to identify the programs, management roles, responsibilities, authorities, practices, procedures, and other actions necessary to implement aviation operations in compliance with all applicable laws, regulations, orders, and requirements and in a manner commensurate with the hazards associated with the particular workplace, including the schedules for implementing such actions to achieve compliance, if necessary. The AIP may be in any form that is logical in its presentation, such as an aircraft operations manual, field notice, policy, order, etc..

(Aircraft) Incident. An occurrence associated with the operation of an aircraft, other than an accident, that affects or could affect the safety of operations.

Catastrophic Failure. Any failure that leads to loss of the ROA and endangers people and/or property.

Component. A part of a product or article.

Conditional Life Parts. Components that may continue in service as long as they meet the inspection limits of the original design established by the manufacturer and are accepted by the FAA. The tests to determine if a component will continue in service include precision measurements and/or nondestructive testing.

Configuration. The airframe and installations that comprise the aircraft at the start of flight including the powerplant, propeller, landing gear, airframe, navigation, flight control systems, mission equipment, subsystems or parts.

Critical Failure. Any failure that leads to ROA flight interruption or termination.

Critical System. A system or systems which if malfunctioned would lead to a critical failure.

Charter Aircraft. An aircraft operated and maintained by a commercial aviation service provider that is hired by an executive Agency under a contractual agreement specifying performance and a one-time exclusive use.

Commercial Aviation Services. Include the following:

- (1) aircraft leased;
- (2) aircraft chartered or rented for exclusive use;
- (3) full services (i.e., aircraft maintenance providers, aircraft, and related aviation services for exclusive use) contracted for or obtained through an inter-service support agreement (ISSA), regardless of the length of the contract or agreement; or

- (4) aviation services (i.e., services but not aircraft) obtained by commercial contract or ISSA, except those services acquired to support a fleet aircraft.

Crewmember. As used in the guide a crewmember can be either a person assigned to operate or assist in operating a Government aircraft during flight time. Crewmembers perform duties directly related to the operation of the aircraft (e.g., as pilots, co-pilots, flight engineers, navigators) or duties assisting in the operation of the aircraft (e.g., as cabin safety specialists, crew chiefs). However, generally within industry crewmember means a cabin safety specialist or flight attendant.

DOE/NNSA element. Any of the following: Program Secretarial Offices, Power Marketing Administrations, National Nuclear Security Administration, Operations Offices, Special Projects Offices, National Laboratories, etc., that are part of the United States Department of Energy. As used in the Guide this term is commonly used to reference both the Headquarters and Field elements.

DOE/NNSA Field element. Any of the following: Operations Offices, Site Offices, Service Centers, Power Marketing Administrations, Special Projects Offices, National Laboratories, etc., that are part of the United States Department of Energy. As used in the Guide this term is commonly used in reference to an organization other than a Headquarters element.

DOE-Federal aircraft. An aircraft that is owned by DOE.

Endorse. Accept, approve, review, or comment.

Federal Aircraft. An aircraft that an executive Agency— owns, bails, or borrows from an Executive Agency for any length of time.

Flight Crewmember. A pilot, flight engineer, flight navigator or cabin safety personnel assigned to duty in an aircraft during flight time.

Flight Readiness Review Board. A body of experts that advises Departmental managers on the hazards of a proposed aviation operation.

Government Aircraft. Any DOE-Federal aircraft or Commercial Aviation Service aircraft leased, chartered, or rented by of an executive Agency other than a branch of the Armed Forces or an intelligence agency.

Incidental Pilot. A full-time Federal employee of DOE that is responsible for managing and operating DOE Federal aircraft; is assigned as an aviation management or safety professional that is responsible for the direct management or oversight of DOE Federal aircraft with a position description other than a GS-2181, Pilot; and is qualified and proficient to act as a flight crewmember performing flight crew member duties.

Mission Personnel. Are either flight crew members, crew members or qualified non-crew members, see definitions.

Mission Requirements. In relation to use of Government aircraft at the Department of Energy, means activities that constitute the discharge of the Department's official responsibilities. Examples of Mission requirements include, but are not limited to: Aerial Survey, such as atmospheric sampling, biological surveys, radiological surveys, natural resource management, oceanic, atmospheric, and geological research, etc.; Aerial Photography, for consequence management, decommissioning of facilities, construction, law enforcement, etc.; Aerial Patrols, such as law enforcement and intelligence activities, power line patrols, pipeline patrols, security, search and rescue, etc.; Transportation, such as transportation of prisoners, detainees, illegal aliens, mission personnel, fire fighting, rescue operations,

cargo, etc.; Research and Development such as aeronautical and space research, aerial sensor development, etc.; Rotorcraft External Load operations such as fire fighting, agriculture management, construction, etc.; Training such as flight or mission crew training.

Maintenance Deficiency. A serious defect or failure causing mechanical difficulties encountered in aircraft maintenance or flight operations, not specifically identified as an incident, or aviation hazard.

Medical Attention. An injury, less than serious, for which a physician prescribes medical treatment and makes a charge for this service.

Missing Aircraft. An aircraft not accounted for when its fuel duration as reported on its request for flight following or on its flight plan has been exceeded and the location of the aircraft is unknown.

Operational Control. With respect to flight, the exercise of authority over initiating, conducting, or terminating a flight.

Overhaul. The complete disassembly, cleaning, inspection, necessary replacement or repair of components, reassembly, adjustment, and testing of an article or product in accordance with the manufacturer recommended maintenance procedures and/or FAA approved continuous airworthiness maintenance program. Once a component or article is overhauled, it is returned to service as zero time since overhaul and the next overhaul cycle starts.

Official Travel. Means (i) travel to meet mission requirements, (ii) required use travel, and (iii) other travel for the conduct of agency business.

Passenger. Any individual on-board an aircraft who is not a flight crewmember, crewmember, or qualified non-crewmember.

Product. An aircraft, airframe, aircraft engine, propeller, or appliance.

Propulsion System. A system comprised of those components necessary to ensure the safe propulsion of the aircraft.

Qualified non-crewmember. A person flying onboard a Government aircraft whose skills, duties or expertise are essential to performing or associated with performing the (non-travel related) Governmental mission requirement for which the aircraft was dispatched. Qualified non-crew members may be researchers, flight directors, electronics technicians, system operators, photographers, law enforcement agents, fire fighters, agricultural engineers, emergency medical personnel, biologists, etc.

Required Use Travel. Travel of an executive agency officer or employee for which the use of Government aircraft is required to meet bona fide communications or security needs of the Agency or exceptional scheduling requirements. An example of a bona fide communications requirement is having to maintain continuous 24-hour secure communications with the traveler. Bona fide security requirements include, but are not limited to, life threatening circumstances. Exceptional scheduling requirements include emergencies and other operational considerations which make commercial transportation unacceptable.

Remotely Operated Aircraft (ROA). An ROA is a powered aircraft; with a 61-knot or less V_{so} stall speed as defined in Title 14 CFR Chapter 1, Part 23, Sec. 23.49; or is a rotorcraft with a 6-pound per square foot main rotor disc loading limitation, under sea level standard day conditions; has a vehicle gross weight of 500 pounds to 12,500 pounds; is capable of flight beyond visual line of sight under remote or autonomous control for civil (non-Department of Defense) purposes. An ROA is not operated for sport or hobby and does not transport passengers or crew.

Repair. The restoration of a component or article of a product to a serviceable condition after fault detection. Note: A repair does not constitute an overhaul; a component or article may be repaired but it does not necessarily start the overhaul cycle over.

Retirement Life Parts. Life-limited components that a manufacturer and the FAA have determined to be life limited either by cycles (frequency), flight hours or calendar time. Such a component may fatigue or fail if not removed from service at the designated life limit. Life-limited components are described and listed in the Type Certificate Data Sheet or by Airworthiness Directive.

Scheduled maintenance. Maintenance activity, including parts and labor, that is scheduled based on accumulated flight hours, cycles, and/or calendar event, including reoccurring airworthiness directives or manufacturer mandatory service bulletins that require maintenance by accumulating flight hours, cycles, or calendar time.

Senior Federal Official. Are persons:

- (1) employed at a rate of pay specified in or fixed according to subchapter II of chapter 53 of title 5 of the U.S. Code;
- (2) employed in a position in an Executive Agency, including any independent agency, at a rate of pay payable for level I of the Executive Schedule or employed in the Executive Office of the President at a rate of pay payable for level II of the Executive Schedule;
- (3) employed in a position in an Executive Agency that is not referred to in clause (i) (other than a position that is subject to pay adjustment under Section 1009 of Title 37 of the U.S. Code) and for which the basic rate of pay, exclusive of any locality-based pay adjustment under Section 5304 of title 5 of the U.S. Code (or any comparable adjustment pursuant to interim authority of the President), is equal to or greater than the rate of basic pay payable for the Senior Executive Service under Section 5382 of title 5 of the U.S. Code; or
- (4) appointed by the President to a position under Section 105(a)(2)(A), (B), or (C) of title 3 of the U.S. Code or by the Vice President to a position under Section 106(a) (1) (A), (B), or (C) of title 3 of the U.S. Code.

Generally, these are persons employed by the White House and executive agencies, including independent agencies, at a rate of pay equal to or greater than the minimum rate of basic pay for the Senior Executive Service. Exempted from this definition, for purposes of this Order, are active duty military officers.

Serious Injury. An injury that when determined by a physician causes death or:

- 1) Requires hospitalization for more than 48 hours
- 2) Results in a fracture of any bone (except simple fractures of fingers, toes, or nose).
- 3) Involves lacerations that cause severe hemorrhages, or nerve, muscle, or tendon damage.
- 4) Involves injury to any internal organ; or involves second or third degree burns, or any burns affecting more than 5% of the body surface.

Substantial Damage. Any damage or structural failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft and that would normally require major repair or replacement of the affected components. Examples of major components are:

- 1) Wing panels (exclusive of wing tips, flight control surfaces, high-lift devices, and aerodynamic braking devices).
- 2) Wing center sections (exclusive of flaps and aerodynamic braking devices).
- 3) Fuselages or major sections (exclusive of doors, hatches, windows, astrodomes, aerodynamic braking devices).
- 4) Vertical stabilizer (exclusive of rudder).
- 5) Horizontal stabilizer (exclusive of elevator).
- 6) Flying tail, slab tail, stabilator, or similar device.
- 7) Landing gear strut assemblies incurring structural airframe damage (exclusive of wheels, brakes, tires, outriggers, or protective gear, helicopter skids).
- 8) Main floats.
- 9) Helicopter main rotor heads and power train components (exclusive of main and tail rotor blades).
- 10) Tail booms or empennages (exclusive of tail rotor protective devices and tail rotor drive shaft covers).

Sponsoring Agency. A U.S. Government Agency with primary responsibility for the mission under which the travel was initiated.

Supplemental Pilot. A pilot that is not a permanent (full-time) employee of the DOE or the contractor responsible for managing and operating Federal aircraft, who is hired on a temporary basis to augment an organization's flight operations.

Unscheduled maintenance. Maintenance that is incurred because of the condition or premature failure of a part, component, and appliance associated with the airframe, engine, fuel system, flight control system, or avionic equipment. The failure can be precipitated by accumulated flight hours, cycles, calendar time or by an initial or one time airworthiness directive or manufacturer's mandatory service bulletin.

APPENDIX A

MEMO SAMPLE 1:
 Use when principal traveler
 is from DOE Headquarters.
 Travel will be coordinated
 through HQ OAM.

MEMORANDUM FOR: ERIC J. FYGI
 DEPUTY GENERAL COUNSEL
 OFFICE OF GENERAL COUNSEL

THROUGH: ROBERT G. JENKINS
 DIRECTOR AND SENIOR AVIATION OFFICIAL
 OFFICE OF AVIATION MANAGEMENT (OAM)

FROM: <INSERT NAME OF TRAVEL APPROVING AUTHORITY>
 <INSERT TITLE>
 <INSERT ORGANIZATION>

SUBJECT: Request for Official Travel on Government Aircraft, <Insert name of principal traveler and inclusive travel date(s)>

The individuals listed below are scheduled to use a <insert appropriate type Government-owned/chartered aircraft (e.g. DOE Lear 35)> for official travel, between <insert origin> and <insert destination> on <insert travel date(s)>. This travel will be for <insert detailed purpose, reason or explanation for travel (e.g. program-orientation flight)>.

<Insert all Traveler's Name(s), title or rank, and affiliation (e.g. Joe Aviation, Deputy Secretary, DOE)>

As travel-approving authority, I have determined <insert appropriate rationale (i.e. other modes of transportation, including scheduled commercial flights, will not meet the traveler's schedule, or are less cost-effective)>. Therefore, in accordance with OMB Circular A-126, paragraph 11, DOE Order 440.2A, and the attached cost analysis, <insert ONE of the following phrases: I hereby authorize payment of approximately \$<insert cost> to <insert aviation service provider> for use of their <insert type Government-owned/chartered aircraft> for this travel. OR I recommend <insert type aircraft (e.g. Government-owned/chartered aircraft)> for this travel.> Please contact <insert name and phone number> for further information.

RECOMMENDATION: DOE/Senior Aviation Official concur, DOE/GC approve, and DOE OAM implement travel on government aircraft for this event.

ROBERT G. JENKINS
 Senior Aviation Official

CONCUR: _____ NONCONCUR: _____
 Date: _____

ERIC J. FYGI
 Deputy General Counsel

APPROVE: _____ DISAPPROVE: _____
 Date: _____

Attachments:
 Cost Analysis
 Itinerary

cc: <insert applicable local organizations as required>
 GC-77
 ME-2.4

APPENDIX B

MEMO SAMPLE 2:
 Use when all passengers are
 DOE employees other than
 Senior Federal Officials or
 non-Federal employees.
 Travel is coordinated in the
 Local OAM

MEMORANDUM FOR: <INSERT NAME OF LOCAL CHIEF COUNSEL>
 <INSERT TITLE >
 <INSERT OFFICE>

THROUGH: <INSERT NAME OF LOCAL AVIATION MANAGER>
 <INSERT TITLE>
 <INSERT OFFICE>

FROM: <INSERT NAME OF TRAVEL APPROVING AUTHORITY>
 <INSERT TITLE>
 <INSERT ORGANIZATION>

SUBJECT: Request for Official Travel on Government Aircraft, <Insert name of principal traveler and inclusive travel date(s)>

The individuals listed below are scheduled to use a <insert appropriate type Government-owned/chartered aircraft (e.g. DOE Lear 35)> for official travel, between <insert origin> and <insert destination> on or about <insert travel date(s)>. This travel will be for <insert purpose, reason or explanation for travel (e.g. program-orientation flight)>.

<Insert all Traveler's Name(s), title or rank, and affiliation (e.g. Joe Aviation, Deputy Secretary, DOE)>

As travel-approving authority, I have determined <insert appropriate rationale (i.e. other modes of transportation, including scheduled commercial flights, will not meet the traveler's schedule, and/or are less cost-effective)>. Therefore, in accordance with OMB Circular A-126, paragraph 11, DOE Order 440.2B, and the attached cost analysis, <insert ONE of the following phrases: I hereby authorize payment of approximately \$<insert cost> to <insert aviation service provider> for use of their <insert type Government-owned/chartered aircraft> for this travel. OR I recommend <insert type aircraft (e.g. Government-owned/chartered aircraft)> for this travel.> Please contact <insert name and phone number> for further information.

RECOMMENDATION: Local Aviation Manager concur, Local Chief Counsel approve, and Local Office of Aviation Management implement travel on government aircraft for this event.

<Insert NAME of Local Aviation Manager> CONCUR: _____ NONCONCUR: _____
 <Insert Title of Local Aviation Manager> Date: _____

<Insert NAME of Local Chief Counsel> APPROVE: _____ DISAPPROVE: _____
 <Insert Title of Local Chief Counsel> Date: _____

Attachments:
 Cost Analysis
 Itinerary

cc: <insert applicable local organizations as required>
 Local OAM

APPENDIX C

MEMO SAMPLE 3:
Use when principal
traveler is a non-DOE
Headquarters Senior
Federal Official or Non-
Federal Employee.
Travel is coordinated in
the Local OAM.

MEMORANDUM FOR: ERIC J. FYGI
DEPUTY GENERAL COUNSEL
OFFICE OF GENERAL COUNSEL

THROUGH: ROBERT G. JENKINS
DIRECTOR AND SENIOR AVIATION OFFICIAL
OFFICE OF AVIATION MANAGEMENT (OAM)

THROUGH: <INSERT NAME OF LOCAL AVIATION MANAGER>
<INSERT TITLE>
<INSERT OFFICE>

FROM: <INSERT NAME OF TRAVEL APPROVING AUTHORITY>
<INSERT TITLE>
<INSERT OFFICE>

SUBJECT: Request for Official Travel on Government Aircraft, <Insert name of
principal traveler and inclusive travel date(s)>

The individuals listed below are scheduled to use a <insert appropriate type Government-owned/chartered aircraft (e.g. DOE Lear 35)> for official travel, between <insert origin> and <insert destination> on <insert travel date(s)>. This travel will be for <insert detailed purpose, reason or explanation for travel (e.g. program-orientation flight)>.

<Insert all Traveler's Name(s), title or rank, and affiliation (e.g. Joe Aviation, Deputy Secretary, DOE)>

Our travel-approving authority, <insert name>, has determined <insert appropriate rationale (i.e. other modes of transportation, including scheduled commercial flights, will not meet the traveler's schedule, or are less cost-effective)>. Therefore, in accordance with OMB Circular A-126, paragraph 11, DOE Order 440.2B, and the attached cost analysis, <insert ONE of the following phrases: authorization of payment has been approved for approximately \$<insert cost> to <insert aviation service provider> for use of their <insert type Government-owned/chartered aircraft> for this travel. OR I recommend <insert type aircraft (e.g. Government-owned/chartered aircraft)> for this travel.> Please contact <insert name and phone number> for further information.

RECOMMENDATION: DOE/Senior Aviation Official concur and DOE/General Counsel approve travel on government aircraft for this event.

<Insert NAME of Local Aviation Manager> CONCUR: _____ NONCONCUR: _____
<Insert Title of Local Aviation Manager> Date: _____

ROBERT G. JENKINS
Senior Aviation Official

CONCUR: _____ NONCONCUR: _____
Date: _____

ERIC J. FYGI
Deputy General Counsel

APPROVE: _____ DISAPPROVE: _____
Date: _____

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Attachments:
Cost Analysis
Itinerary

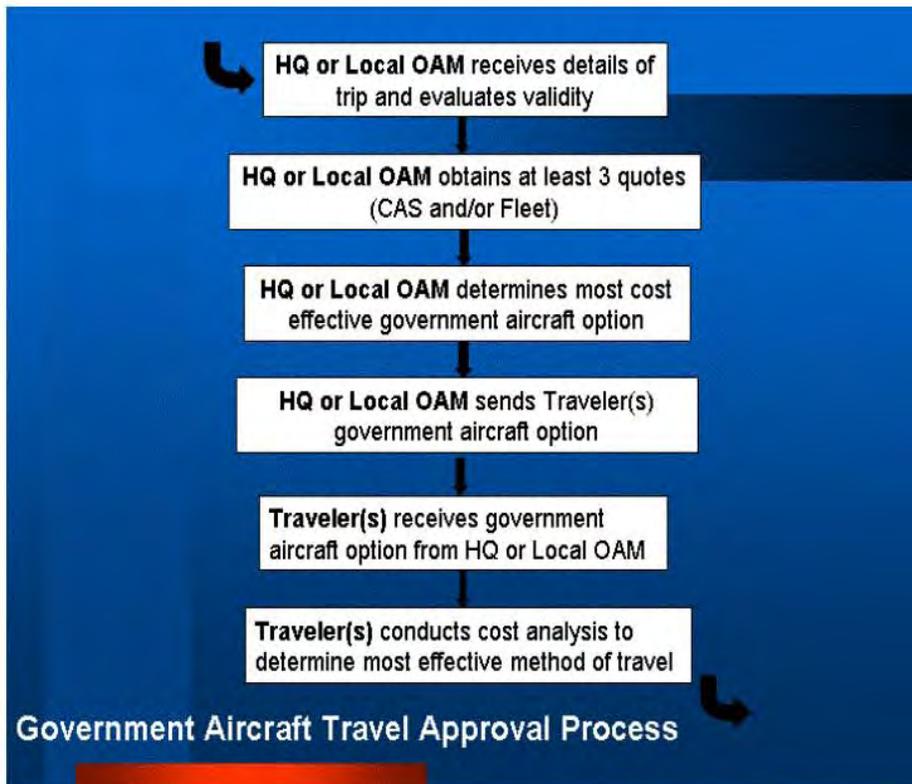
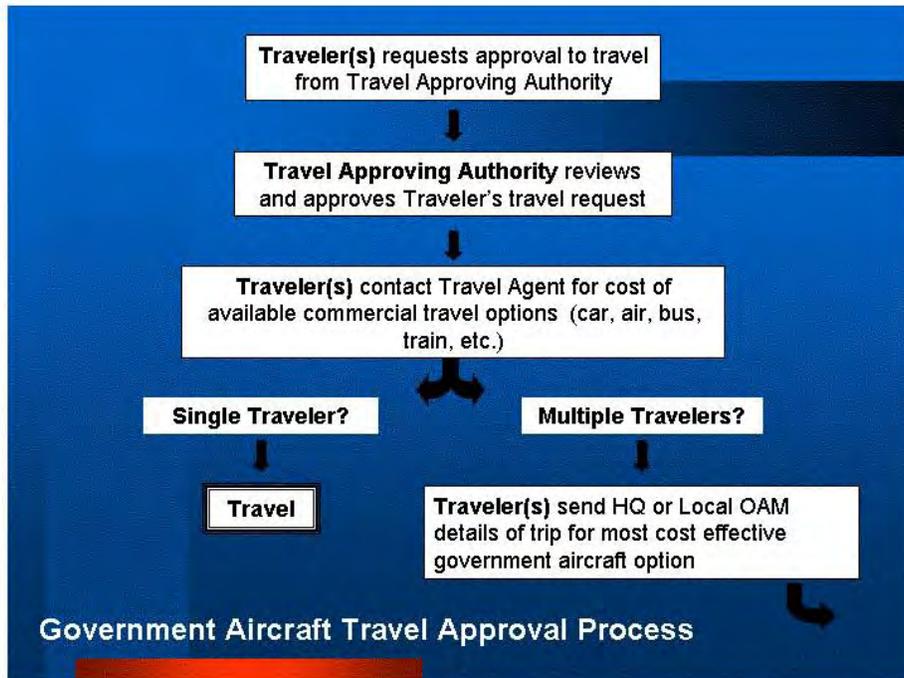
cc: <insert applicable local organizations as required>

GC-77

ME-2.4

Local OAM

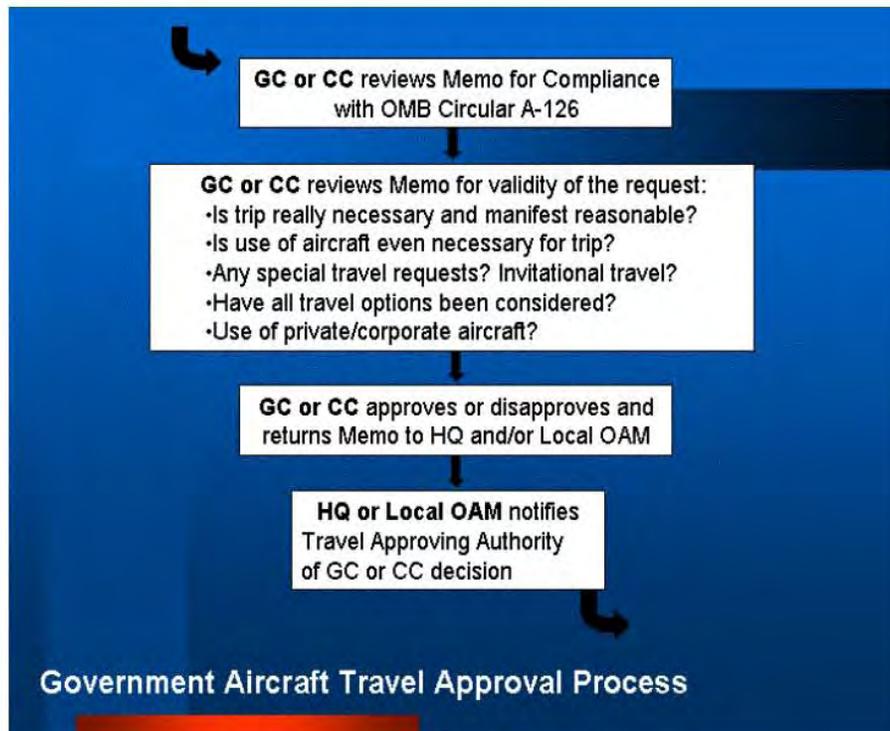
APPENDIX D



APPENDIX D, CONTINUED.



APPENDIX D, CONTINUED.



APPENDIX D, CONTINUED.

