

Aviation Safety Officer

Qualification Standard *Reference Guide*

MARCH 2010

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Acronyms	
AAIRS	Aircraft Accident Incident Reporting System
ABD	Aviation Board of Directors
Ads	airworthiness directives
AEC	Atomic Energy Commission
AIP	Aviation Implementation Plan
APM	aviation program manager
ASD	aviation safety documents
ASO	aviation safety officer
CAA	Civil Aeronautics Administration
C of A	Certificate of Airworthiness
CAB	Civil Aeronautics Board
CAP	corrective action plan
CAS	commercial aviation service
CFR	Code of Federal Regulations
CRD	contractor requirements document
DOE	Department of Energy
DOT	Department of Transportation
EH-1	Assistant Secretary for Environment, Safety and Health
EH-2	Deputy Assistant Secretary for Oversight
ES&H	environment, safety and health
FAA	Federal Aviation Administration
FAIRS	Federal Aviation Interactive Reporting Systems
FAQS	functional area qualification standard
FFRDC	Federally Funded Research and Development Centers
FSDO	FAA Office of Flight Standards
GAO	Government Accountability Office
GSA	General Services Administration
ICAP	Interagency Committee for Aviation Policy
IEEE	Institute of Electrical and Electronic Engineers, Inc.
ISM	Integrated Safety Management
ISMS	integrated safety management system
ISSA	inter-service support agreement
ISSM	integrated safeguards and security management
KSA	knowledge, skill, and ability
LPSO	lead program secretarial officer
MA-30	DOE Office of Aviation Management
ME-1	Office of Management, Budget, and Evaluation/CFO
N&S	necessary and sufficient
NNSA	National Nuclear Security Administration
NTSB	National Transportation Safety Board
OAM	Office of Aviation Management

OMB	Office of Management and Budget
ORPS	Occurrence Reporting and Processing System
PIC	pilot in command
PL	Public Law
PNNL	Pacific Northwest National Laboratory
SAMO	senior aviation management official
SO	safety officer
S/RIDs	standards/requirements identification documents
STC	supplemental type certificate
UA	unmanned aircraft
UCNI	unclassified controlled nuclear information
U.S.	United States
U.S.C.	United States Code
VFR/IFR	Visual Flight Rules/Instrument Flight Rules
WSS	work smart standards

PURPOSE

The purpose of this reference guide is to provide a document that contains the information required for a Department of Energy (DOE)/National Nuclear Security Administration (NNSA) technical employee to successfully complete the Aviation Manager Functional Area Qualification Standard (FAQS). Information essential to meeting the qualification requirements is provided; however, some competency statements require extensive knowledge or skill development. Reproducing all the required information for those statements in this document is not practical. In those instances, references are included to guide the candidate to additional resources.

SCOPE

This reference guide addresses the competency statements in the January 2010 edition of DOE-STD-1164-2003 Chg 1, *Aviation Safety Officer Functional Area Qualification Standard*. The qualification standard contains 22 competency statements.

Please direct your questions or comments related to this document to the NNSA Learning and Career Development Department.

PREFACE

Competency statements and supporting knowledge and/or skill statements from the qualification standard are shown in contrasting bold type, while the corresponding information associated with each statement is provided below it.

A comprehensive list of acronyms and abbreviations is found at the beginning of this document. It is recommended that the candidate review the list prior to proceeding with the competencies, as the acronyms and abbreviations may not be further defined within the text unless special emphasis is required.

The competencies and supporting knowledge, skill, and ability (KSA) statements are taken directly from the FAQS. Most corrections to spelling, punctuation, and grammar have been made without remark, and all document-related titles, which variously appear in roman or italic type or set within quotation marks, have been changed to plain text, also mostly without remark. Capitalized terms are found as such in the qualification standard and remain so in this reference guide. When they are needed for clarification, explanations are enclosed in brackets.

Every effort has been made to provide the most current information and references available as of March 2010. However, the candidate is advised to verify the applicability of the information provided. It is recognized that some personnel may oversee facilities that utilize predecessor documents to those identified. In those cases, such documents should be included in local qualification standards via the Technical Qualification Program.

In the cases where information about a FAQs topic in a competency or KSA statement is not available in the newest edition of a standard (consensus or industry), an older version is referenced. These references are noted in the text and in the bibliography.

Only significant corrections to errors in the technical content of the discussion text source material are identified. Editorial changes that do not affect the technical content (e.g., grammatical or spelling corrections, and changes to style) appear without remark.

TECHNICAL COMPETENCIES

1. Aviation Safety Officers must demonstrate the ability to analyze and trend aviation safety performance data to ensure the safety of the field aviation program.

a. Discuss the key processes used in the analysis and trending of aviation information.

The following is taken from DOE G 414.1-5.

Identified problem findings and associated causes outlined in the corrective action plan (CAP) should be trended to assist in identifying repeat occurrences, generic issues, and vulnerabilities at the lowest level before more significant problems result. Trending may include program categories (i.e., the Guiding Principles and Core Safety Management Functions for Integrated Safety Management (ISM) outlined in DOE P 450.4, *Safety Management System Policy*) responsible organizations, and specific activities or conditions. Other finding categories and functional areas applicable to the site/organization may also be feasible to trend.

Identified problem findings and their associated causes should also be analyzed to determine the existence of trends to identify the same or similar occurrences, generic problems, vulnerabilities, and cross functional weaknesses at the lowest level before significant problems result. Trending typically identifies problem categories, responsible organizations, and specific activities or conditions. Benefits of trending include the following:

- The ability to document historical data consistently in measurable, visible terms
- Identify changes in performance as they occur
- Develop leading indicators that identify degrading trends

A consistent trend coding system would assist in analyzing the problem findings. The trend data should be periodically reviewed, analyzed, and summarized in a report, and disseminated throughout the site/organization to assist in review and follow-up. A trending code system for the categories may be developed and disseminated to provide consistency using a standard set of codes and categories that are clearly defined. The information should also be credible, comprehensible, useful, adjustable, and flexible.

b. Discuss the key process to develop and implement performance indicators (measures), validate performance against performance measures, and analyze/trend data to establish a continuous improvement program.

The following is taken from DOE G 414.1-5.

The corrective action effectiveness review team should identify, review, analyze, and trend applicable performance indicator data that can help assess the performance of corrective actions to resolve findings and incidents that could be construed as a recurrence or the same or similar findings (i.e., unplanned radiation exposures, environmental releases, etc.) and other events.

Findings and their associated causes may be tracked and trended to identify repeat occurrences, generic issues, events, and vulnerabilities gathered from assessments, event investigations, and reportable observations, and to help assess the performance of completed corrective actions in effectively resolving reported findings and incidents. Trending can also analyze factors that result in better than expected performance.

The analysis and trending of information should focus on the causal factors of the findings. Sources of information that can be used to track, analyze, and trend may include a review of local and DOE-wide corrective action programs, incident reporting systems; internal and external assessment and investigation results, and other reportable observations and incidents.

c. Given DOE Order 210.2, *DOE Corporate Operating Experience Program*, discuss the key elements of the Order and how they are applied.

The following is taken from DOE O 210.2.

The objectives of DOE O 210.2 include the following:

- To institute a DOE-wide program for the management of operating experience to prevent adverse operating incidents and to expand the sharing of good work practices among DOE sites
- To provide the systematic review, identification, collection, screening, evaluation, and dissemination of operating experience from United States (U.S.) and foreign government agencies and industry, professional societies, trade associations, national academies, universities, and DOE and its contractors
- To reinforce the core functions and guiding principles of DOE's Integrated Safety Management System (ISMS) to enhance mission safety and reliability
- To provide mutual integration with the lessons learned requirements in other DOE directives

d. Given incident/occurrence report data for a specific period, analyze the information for contributing factors and safety trends.

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

2. Aviation Safety Officers must demonstrate a working level knowledge of the Department's philosophy and approach to implementing an Integrated Safety Management System (ISMS).

a. State the objective of Integrated Safety Management (ISM).

The following is taken from DOE M 450.4-1, volume 1.

The objective of ISM is to perform work in a safe and environmentally sound manner. More completely, as described in DOE P 450.4: "The Department and contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions

and activities becomes an integral part of mission accomplishment.” The desired result is that work is accomplished in a safe manner. Integrated safety management is applicable to all facility life-cycle phases including design, construction, operation, and decontamination and decommissioning. In ISM, the term safety is used synonymously with environment, safety and health (ES&H) to encompass protection of the public, the workers, and the environment.

b. Discuss the purpose, content, and application of DOE P 450.4, *Safety Management Systems Policy*.

The following is taken from DOE P 450.4.

DOE P 450.4 provides a formal, organized process whereby people plan, perform, assess, and improve the safe conduct of work. The safety management system is institutionalized through DOE directives and contracts to establish the Department-wide safety management objective, guiding principles, and functions. The system encompasses all levels of activities and documentation related to safety management through the DOE complex. Throughout this policy statement, the term safety is used synonymously with ES&H to encompass protection of the public, the workers, and the environment.

The Department is committed to conducting work efficiently and in a manner that ensures protection of workers, the public, and the environment. It is Department policy that safety management systems described herein shall be used to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. Direct involvement of workers during the development and implementation of safety management systems is essential for their success.

The DOE safety management system establishes a hierarchy of components to facilitate the orderly development and implementation of safety management throughout the DOE complex. The safety management system consists of six components: the objective, guiding principles, core functions, mechanisms, responsibilities, and implementation. The objective, guiding principles, and core functions of safety management identified below shall be used consistently in implementing safety management throughout the DOE complex. The mechanisms, responsibilities, and implementation components are established for all work and will vary based on the nature and hazard of the work being performed.

c. Describe how the seven Guiding Principles in the ISM Policy are used to implement an ISM philosophy.

The following is taken from DOE P 450.4.

The guiding principles are the fundamental policies that guide Department and contractor actions, from development of safety directives to performance of work:

- Line Management Responsibility for Safety. Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department’s Office of Environment, Safety, and Health provides safety policy, enforcement, and independent oversight functions.

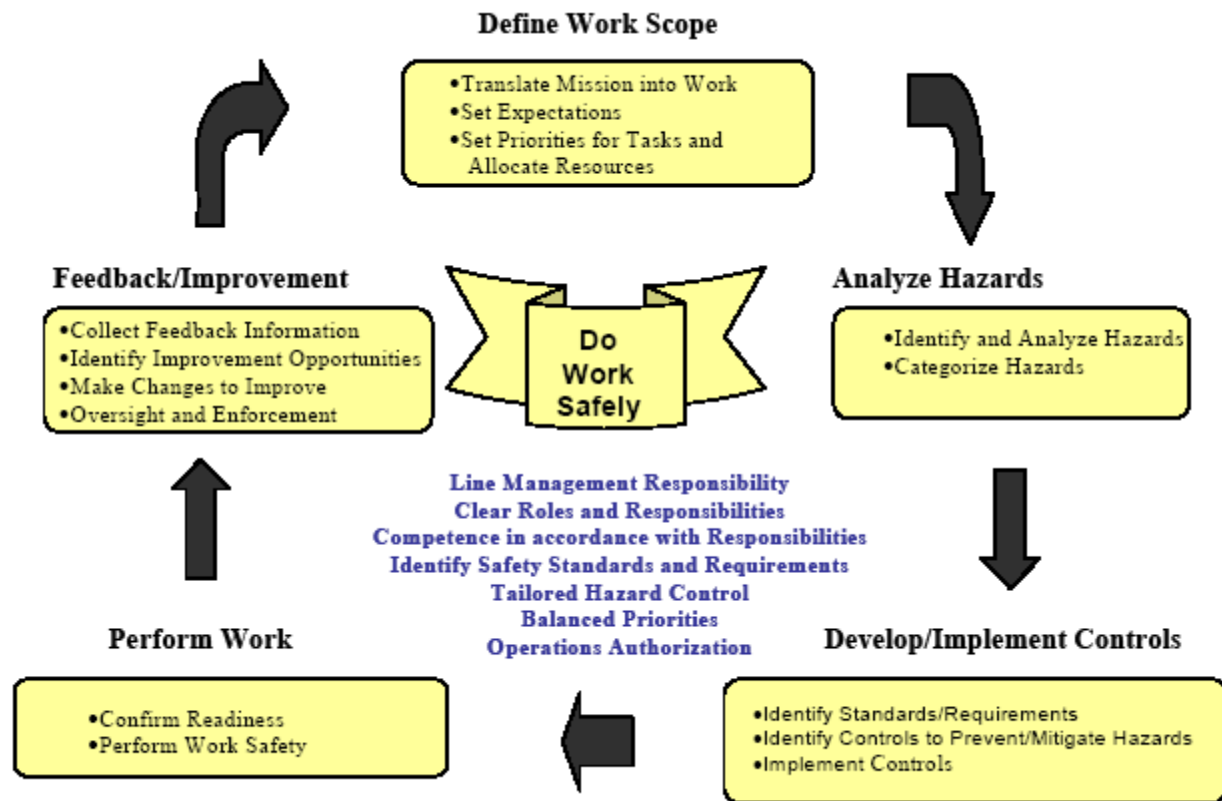
- Clear Roles and Responsibilities. Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.
- Competence Commensurate with Responsibilities. Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.
- Balanced Priorities. Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed.
- Identification of Safety Standards and Requirements. Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.
- Hazard Controls Tailored to Work Being Performed. Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards.
- Operations Authorization. The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.

d. Describe the five Core Safety Management Functions in the ISM Policy and discuss how they provide the necessary structure for work activities.

The following is taken from DOE P 450.4.

The five core safety management functions provide the necessary structure for any work activity that could potentially affect the public, the workers, and the environment. The functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazards involved.

- Define the Scope of Work. Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
- Analyze the Hazards. Hazards associated with the work are identified, analyzed, and categorized.
- Develop and Implement Hazard Controls. Applicable standards and requirements are identified and agreed upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.
- Perform Work Within Controls. Readiness is confirmed and work is performed safely.
- Provide Feedback and Continuous Improvement. Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary regulatory enforcement actions occur.



Source: DOE/EM-HQ, *Integrated Safety Management System Description*.

Figure 1. Work activities structure

- e. **Identify and discuss existing Department programs and initiatives that lead to successful implementation of ISM including the following:**
- **Standards/Requirements Identification Documents (S/RIDs), Work Smart Standards, and the Necessary and Sufficient Closure Process**
 - **Contract reform and performance-based contracting**

Standards/Requirements Identification Documents (S/RIDs)

The following is taken from DOE G 450.4-1B, volume 1.

An ISMS should include processes to establish the set of ES&H requirements for the work consistent with the requirements of the Department of Energy Acquisition Regulations (see attachment 4 to 10 CFR 830.120, “Quality Assurance”). The process for identifying ES&H requirements should be one of the existing, accepted approaches, or it should be consistent with the objectives and concepts of these existing, accepted approaches (chapter II, section 4.1). If a method/approach other than an existing, accepted one is proposed, the contractor should provide a description for DOE review and approval.

The use of applicable laws, statutes, Federal rules, national consensus standards, DOE directives, and DOE technical standards is described in chapter II, section 4.1.

Attributes:

- The contractor identifies, selects, and approves ES&H standards and requirements with a process that provides adequate protection to the public, the workers, and the environment.
- The identified ES&H standards and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.
- The identified ES&H standards conform to applicable laws, statutes, Federal rules, and DOE directives.
- DOE reviews, verifies, and approves the contractor's ES&H standards and requirements, as defined in S/RIDs, work smart standards (WSS), or other DOE-approved processes.

Work Smart Standards

The following is taken from DOE-HDBK-1148-2002.

A set of WSS is the product of the Necessary and Sufficient (N&S) Closure Process. DOE-HDBK-1148-2002, *Work Smart Standards (WSS) Users Handbook*, provides amplification, practical examples, and cross references to assist users in the application of the N&S Closure Process within the context of ISMS.

The following is taken from the update of David McGraw's WSS Letter (5/28/98).

The WSS set is composed of Federal, state, and local laws, as well as national and international consensus standards.

The Necessary and Sufficient Closure Process

The following is taken from DOE P 450.3.

The N&S Process has been developed by the Department standards committee as part of the ES&H standards program defined in the "Criteria for the Department's Standards Program" (DOE/EH/-0416). Carrying out the N&S Process with fidelity and effectively implementing the results will lead to adequate protection of the workers, the public, and the environment and will increase stakeholder trust and confidence.

Contract Reform and Performance-Based Contracting

The following is taken from GAO-03-032T, *Contract Reform: DOE's Policies and Practices in Competing Research Laboratory Contracts*.

The DOE's contracting activities are governed by Federal laws and regulations. Although Federal laws generally require Federal agencies to use competition in selecting a contractor, until the mid-1990s, DOE contracts for the management and operation of its sites generally fit within an exception that allowed for the use of noncompetitive procedures. Those contracts were subject to regulation that established noncompetitive extensions of contracts with incumbent contractors as the norm and permitted competition only when it appeared likely that the competition would result in improved cost or contractor performance and would not be contrary to the government's best interests. In the mid-1990s, DOE began a series of contracting reforms to improve its contractors' performance. A key factor of that initiative has been the increasing use of competition as a way to select management and

operating contractors for DOE sites. Although DOE initially focused the increased use of competition on its contracts with for-profit organizations, the laboratories operated by universities and other nonprofit organizations have not been completely insulated from these changes.

For over a decade, DOE's office of Inspector General, and others have criticized DOE's contracting practices, including its failure to hold its contractors accountable for results. The DOE's longstanding approach had been to develop a broadly defined statement of work, provide considerable direction to the contractor, and reimburse virtually all costs. This approach placed limited emphasis on cost control or accountability for results. Furthermore, poor contractor performance led to schedule delays and cost increases on many of the Department's major projects. Since 1990, such problems have led many to designate DOE contract management—defined broadly to include both contract administration and management of projects—as a high-risk area for fraud, waste, abuse, and mismanagement.

In 1994, DOE began its contract reform initiative to improve contractors' performance. Through this initiative DOE intended, among other things, to strengthen contracting practices, hold contractors more accountable for their performance, and demonstrate progress in achieving the agency's missions. The DOE implemented numerous changes, such as performance-based contracts with results-oriented measures and a greater use of competition in awarding contracts, including contracts to manage and operate its research laboratories known as Federally Funded Research and Development Centers (FFRDC). According to the Federal Acquisition Regulation, FFRDCs are entities that engage in activities sponsored by a government agency or agencies to conduct or manage basic or applied research and development. Contracts to operate such facilities differ from other contracts because the government contemplates a long-term relationship with the FFRDC contractor and the contractor has access to government data, employees, and facilities beyond that common in a normal contractual relationship.

f. Explain the basis upon which the safety management could differ from facility to facility.

The following is taken from DOE P 450.4.

Safety mechanisms define how the core safety management functions are performed. The mechanisms may vary from facility to facility and from activity to activity based on the hazards and the work being performed and may include the following:

- Departmental expectations expressed through directives (policy, rules, orders, notices, standards, and guidance) and contract clauses
- Directives on identifying and analyzing hazards and performing safety analyses
- Directives which establish processes to be used in setting safety standards
- Contractor policies, procedures, and documents (e.g., health and safety plans, safety analysis reports, chemical hygiene plans, process hazard analyses) established to implement safety management and fulfill commitments made to the Department

3. Aviation Safety Officers must demonstrate a working level knowledge of the Department's aviation history, organization, and missions.

a. Briefly describe the history of the Department's aviation program.

The following is taken from General Services Administration (GSA), *Federal Aircraft Report, Fiscal Year 2008*.

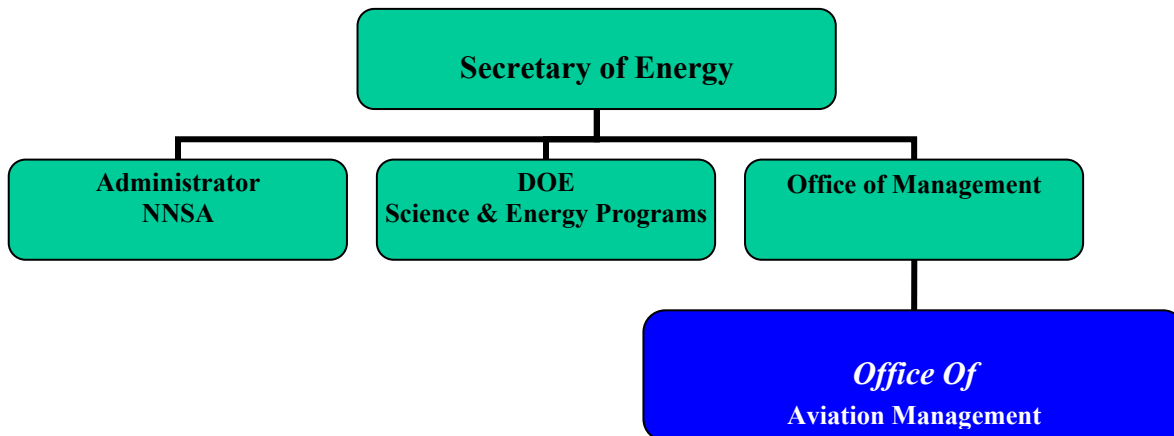
The average age of the Federal aircraft fleet is 28 years old. The oldest Federal aircraft is a Douglas DC-3, owned by the U.S. Forest Service. The aircraft was manufactured in 1944 and purchased in 1991. The number of operational aircraft owned by the Federal government has remained relatively consistent over time. The use of commercial aviation services (CAS) to supplement agency aircraft activities has fluctuated slightly since 2004. Fuel costs increased significantly in FY2008 and CAS costs and hours are less than FY2007 levels.

The acquisition cost of the Federal aircraft fleet is \$3,892,573,842. The market value of the Federal aircraft fleet is \$1,573,824,400 in FY2008. Depreciation totaled \$104,919,708.

The Federal aviation accident rate, the total number of accidents, and the number of fatalities experienced peaked in 1990 with 29 accidents, 27 fatalities in 1992, and an accident rate of 5.93 in 1996. Since then, Federal agencies have worked hard to reduce those numbers and the trend indicates declines across the board. For example, during the last 5 years (2004-2008) the total number of accidents per year is averaging 3.48. GSA and the Interagency Committee for Aviation Policy (ICAP) members are constantly working to reduce the number of accidents by instituting aviation safety procedures and programs designed to reduce accidents, injuries, and fatalities.

b. Describe the aviation program's current organizational structure including those of Headquarters and field elements.

The ICAP Aviation Safety Officer Workshop, *100 Years of Aviation Safety*, features the following diagram of DOE Aviation Management.



Source: ICAP Aviation Safety Officer Workshop, *100 Years of Aviation Safety*.

Figure 2. DOE Aviation program's current organizational structure

The following is taken from DOE G 440.2B-2 (archived).

The management structure of the DOE/NNSA aviation program is modeled after Federal Aviation Administration (FAA) certificated air carriers and most corporate aviation programs. The DOE and NNSA structure includes a designated senior aviation management official (SAMO), a board of directors, and aviation staff at DOE headquarters. In addition, the structure also includes designated Federal aviation program managers (APMs) and aviation safety officers (ASOs) in the field, who conduct and/or oversee the day-to-day aviation operations, whether the operation is federally operated or contracted.

c. Discuss the roles and responsibilities of the field aviation manager and the aviation safety officer.

The following is taken from DOE O 440.2B chg 1.

APM

The following is a list of roles and responsibilities for the APM:

- Establishes goals for the field aviation program based on the anticipated requirements of the Department, the field element, and other departmental organizations that may require aviation services.

- Implements DOE aviation management and safety policy and establishes the field element's standards for the aviation program that will ensure an effective, safe, secure, and cost-efficient operation according to DOE O 440.2B chg 1, *Aviation Management and Safety*.
- Develops the organization's Aviation Implementation Plan (AIP) and annually reviews the AIP to ensure that it is current.
- Provides direction to aviation contractors according to the contract statement of work and the contractor requirements document (CRD) attached to DOE O 440.2B chg 1, regarding required aviation services requirements. This includes the types of missions that are required and the regulations, policies, and standards that contractors are to follow.
- Reviews, evaluates, and monitors cost, performance, and technical competency of aviation contractors.
- May be appointed, or has collateral duties, as an ASO for the field element aviation program or provides direction to the ASO based on the needs of the program.
- Provides required reports and information to the Department regarding field element aviation activities, including reports required by Office of Management and Budget (OMB) Circulars A-11, Exhibit 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, A-76 (revised), *Performance of Commercial Activities*, and A-126, *Improving the Management and Use of Government Aircraft*; and reports required by section 4, paragraph n of DOE O 440.2B chg 1.
- Complies with Department, Federal, and state requirements concerning aviation activities.
- Acts as a voting member of the Department's Aviation Board of Directors (ABD).
- Implements an ISMS as required by DOE P 450.4, *Safety Management System Policy*.
- Conducts assessments of CAS providers and/or aviation support services to ensure the safety of aircraft operations.

ASO

The following is a list of roles and responsibilities for the ASO:

- Develops and implements a field aviation safety program appropriate to the scope of operations, including instituting safety goals and publicizing them with program participants.
- Gathers, trends, and analyzes aviation safety performance data to ensure the safety of the field aviation program.
- Implements an ISMS as required by DOE P 450.4.
- Conducts periodic assessments of aviation activities to ensure that requirements, policies, and procedures are implemented and followed. Conducts assessments of CAS providers and/or aviation support services to ensure the safety of aircraft operations.
- Prepares reports documenting assessment findings, concerns, and recommendations and tracks corrective actions to help prevent similar occurrences.
- Participates as directed in aviation accident or incident investigations. Provides assistance to accident investigation boards during their investigations.
- Identifies and reports safety concerns to the aviation manager and works to eliminate potential hazards.

- Reports safety concerns directly to the field element manager when he/she believes that the field element manager's intervention is required.
- Develops aviation safety documents (ASD) for aviation activities that are outside the scope of activities covered by established regulations and policy. ASDs will address potential hazards associated with the activity and methods to mitigate these hazards.
- Ensures that aviation personnel report mishaps, hazards, and concerns to the Occurrence Reporting and Processing System (ORPS) or the Aircraft Accident Incident Reporting System (AAIRS).
- Participates in the Department's Aviation Safety Awards Program to ensure that organizations and personnel are recognized for their contributions toward providing the Department with a safe aviation program.

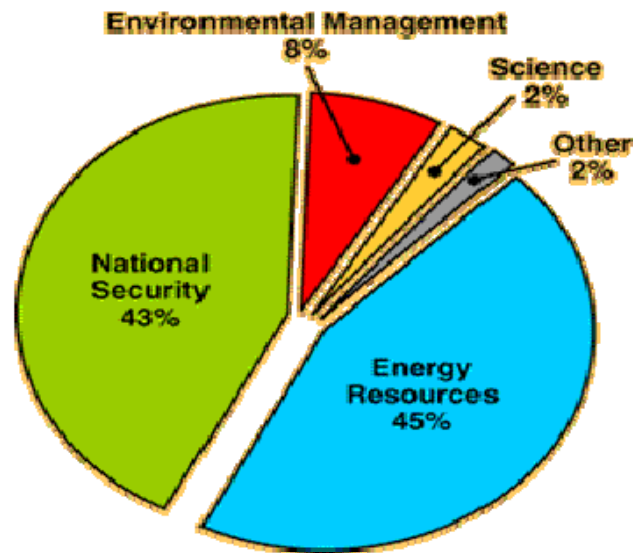
d. List the various aviation missions within the Department and explain their relevancy to your field element.

The following is taken from DOE G 440.2B-2A.

Government aircraft are used to support the four core programs: Energy Security, Nuclear Security, Scientific Discovery and Innovation, and Environmental Responsibility. The types of aircraft operations that support these programs are: cargo, hazardous materials, and personnel transportation; aerial patrol such as pipeline, power line, 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, surveys, or decommissioning activities. In addition, DOE owns, operates, or uses unmanned aircraft (UA) systems. Unmanned aircraft systems have formerly been referred to as unmanned air vehicles or remotely operated aircraft. Unmanned aircraft systems are used for atmospheric research, sensor development, or research and development for proof of operational concepts to support nuclear security and science programs. Additionally, a varying number of CAS (lease, contract, rental, and charter) aircraft are used by DOE.

To determine the relevancy of the missions listed above to your field element, refer to your specific field element AIP.

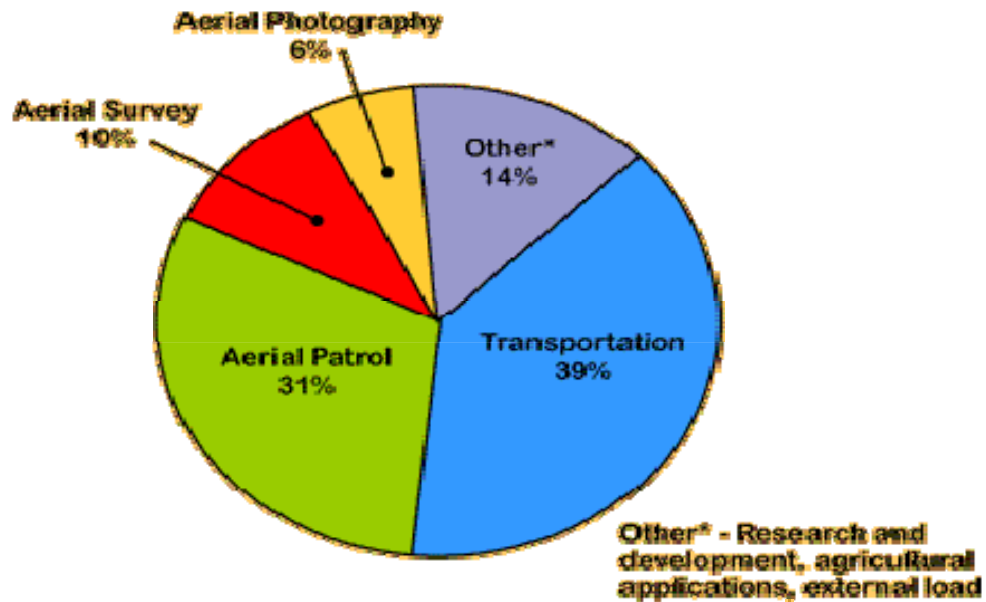
Figure 3 is a percentage breakdown of the programs that use DOE aircraft (in this chart, Environmental Quality = Environmental Management and the Other category shown covers the Strategic Petroleum Reserve Office and movement of senior departmental officials):



Source: DOE CAPs Phase I.

Figure 3. Percentage breakdown of DOE programs that use aircraft

Figure 4 identifies the percentage breakdown of the various missions conducted.



Source: DOE CAPs Phase I.

Figure 4. Percentage breakdown of various missions

4. Aviation Safety Officers must demonstrate a working level knowledge of DOE O 440.2B Chg 1, *Aviation Management and Safety*.

a. Describe the basic intent of the Order.

The following is taken from DOE O 440.2B chg 1.

The intent is to establish a framework for an efficient, effective, secure, and safe aviation program in DOE and its contractor aviation operations. Except for certain airspace rules that apply to all aircraft and certificates issued by the FAA, the FAA has no regulatory jurisdiction over “public aircraft” operations. Therefore, for federally owned or operated aircraft, DOE must be self-regulating [refer to 49 U.S. Code (U.S.C.) 40125, *Qualifications for Public Aircraft Status*, paragraph (a)37]. However, when a federally owned aircraft is carrying personnel not essential to the performance of a government function, for which the aircraft was dispatched or when an aircraft operation is conducted for compensation from outside of the Federal Treasury, then for that operation, the aircraft is considered a “civil” aircraft and is required to comply with applicable sections of the FAA regulations; 14 Code of Federal Regulations (CFR) 21, “Certification Procedures for Products and Parts;” 43, “Maintenance, Preventive Maintenance, Rebuilding and Alteration;” 61, “Certification: Pilots, Flight Instructors, and Ground Instructors;” 65, “Certification: Airmen Other Than Flight Crewmembers;” 91, “General Operating and Flight Rules;” and 119, “Certification: Air Carriers and Commercial Operators;” and DOE policy.

b. List the requirements that must be established for and must be included in a DOE aviation program.

All DOE aviation operations must comply with the applicable and appropriate parts of 14 CFR, which are the Federal Aviation Regulations.

The following is taken from DOE O 440.2B chg 1.

Field element managers of DOE aviation programs that operate Federal aircraft must establish comprehensive, integrated aviation safety programs. Field element managers must establish an AIP and:

- define the work (e.g., the type(s) of aircraft operations to be conducted, missions, area(s) of operations);
- establish risk analysis and risk management procedures to identify hazards, including associated potential event-initiated accidents and implement safety administrative and/or engineering controls to prevent or mitigate postulated hazards-related accidents in order to mitigate hazards and manage risk to an acceptable level;
- conduct work along with associated required operations within established controls;
- establish a system for providing internal feedback on safety issues; communicating and reporting hazards, incidents, and accidents; and disseminating safety/accident prevention and related information;
- participate in the DOE’s AAIRS and any other accident or incident reporting systems prescribed by DOE policy;
- participate in the Department’s Aviation Management and Safety Awards Program; and

- develop an accident response plan that includes:
 - procedures for notifying the National Transportation Safety Board (NTSB) and DOE of accidents and incidents defined by 49 CFR 830, “Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Presentation of Aircraft Wreckage, Mail, Cargo, and Records;” DOE O 225.1A, *Accident Investigation*; and DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information (archived)*, and
 - procedures that address a contractor’s support of DOE responsibilities established in the NTSB report number SPC-99-04, *Federal Plan for Aviation Accidents Involving Aircraft Operated by or Chartered by Federal Agencies*.

c. In general, describe the responsibilities of Lead Program Secretarial Officers, Heads of Department Elements, Heads of Power Marketing Administrations, and Heads of Field Elements that conduct aviation operations within their programs.

The following is taken from the *Aviation Board of Directors’ Bylaws and Protocols*.

Field elements and independent agencies of the Department are responsible for the day-to-day aviation operations, safety, security, and maintenance programs. Lead program secretarial officers (LPSOs) are responsible for broad program strategy, policy definition, evaluation, and oversight (those LPSOs who are also assigned responsibility for one or more field elements also have site-wide ISM, business management, and site service responsibilities).

The following is taken from DOE O 440.2B chg 1.

Any of the following are considered DOE elements: Program Secretarial Offices, Power Marketing Administrations, National Security Administration, Operations Offices, Special Project Offices, National Laboratories, etc., that are part of DOE.

Heads of departmental elements that conduct aviation operations or acquire CAS aircraft within their programs:

- develop and implement effective aviation operations, airworthiness, security, and safety programs that meet the requirements of DOE O 440.2B chg 1.
- identify the contracts to which the CRD applies.
- notify the contracting office to incorporate the CRD into the affected contracts via the laws, regulations, and DOE directives clauses of the contract.
- ensure the effectiveness of contractor aviation operations, airworthiness, and safety programs.
- appoint an APM or ASO or both, depending upon the scope of operations, number of aviation operations conducted or aircraft assigned.
- recommend a person to the Office of Aviation Management (OAM) for appointment to the ABD.
- ensure OMB A-11, exhibit 300, submissions for aircraft acquisitions or steady state programs are prepared and submitted annually.

d. Discuss the primary requirements that apply to CAS aircraft operations.

The following is taken from DOE O 440.2B chg 1.

Commercial aviation service (CAS) includes the following:

- Leased aircraft
- Aircraft chartered or rented for exclusive use
- 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
- Aviation services (i.e., services but not aircraft) obtained by commercial contract or ISSA, except those services acquired to support a Federal aircraft
- Aviation services (i.e., service but not aircraft) obtained by commercial contract or ISSA, except those services acquired to support a fleet aircraft

A CAS 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 is included on a list of accepted CAS providers found in the “Accepted Operator 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.

DOE elements involved in CAS operations must ensure that CAS providers are evaluated by the appropriate DOE organization or designee before the initiation of flight operations and, if a continuing need exists, evaluations must be conducted every 24 months thereafter.

e. Discuss the method used to help ensure that field aviation programs meet the intent of the Order and to provide uniformity throughout the program.

The following is taken from DOE O 440.2B chg 1.

The method used to help ensure that field aviation programs meet the intent of the Order and to provide uniformity throughout the program is the method of oversight. The Office of Independent Oversight coordinates with the OAM in developing and implementing an aviation safety and management audit and appraisal protocol process for independent aviation program oversight. The integrated aviation safety program will conduct internal assessments and oversight to verify that the standard elements required are implemented. And, each contractor must conduct independent, internal assessments and oversight to verify that the standard elements required by DOE O 440.2B chg 1 are met.

The Director of OAM is responsible for conducting aviation safety management oversight of DOE aviation programs, including those of the NNSA.

The following reporting requirements are established to ensure Federal aircraft and CAS are effectively used, program needs are met, and accurate information is obtained to report accountability to appropriate oversight entities.

5. Aviation Safety Officers must demonstrate a working level knowledge of the roles of the ABD, the Senior Aviation Management Official (SAMO), and the Office of Aviation Management (OAM).

a. Describe the roles and responsibilities of the ABD, the SAMO, and the OAM within the aviation program.

The following is taken from DOE O 440.2B chg 1.

ABD

The ABD recommends broad policy and procedures for the procurement, operations, safety, security, and disposal of Federal aircraft and aviation services to the OAM.

SAMO

The following is taken from 41 CFR 102-33.30.

The SAMO's duties are to:

- represent the agency's views to the ICAP and vote on behalf of the agency as needed; contribute technical and operational policy expertise to ICAP deliberations and activities; and serve as the designated approving official for Federal Aviation Interactive Reporting Systems (FAIRS) when the agency elects to have one person serve as both the SAMO and the designated official for FAIRS; and
- appoint representatives of the agency as members of ICAP subcommittee and working groups.

Director, Office of Aviation Management

The following is taken from DOE O 440.2B chg 1.

The following is a list of roles and responsibilities for the Director, OAM:

- Serves as the SAMO
- Provides recommendations to the Secretary of Energy and the Administrator, NNSA for the safe, efficient, and reliable management of aircraft used by DOE
- Chairs the DOE ABD
- Nominates candidates for board membership to the Director, Office of Management
- Develops and implements policies, systems, and practices to maintain the highest standards of aviation safety, effectiveness, and efficiency that provide for the highest professional standards of aircraft safety, operations, and airworthiness
- Defines the aviation mission requirements, in collaboration with DOE program offices and field activities
- Approves the selection of the types of aviation assets or services required to carry out the respective aviation missions for DOE elements and independent operating entities that are not part of the NNSA, based on OMB Circular A-11, exhibit 300 and OMB A-76 (revised), in collaboration with DOE program offices and field activities
- Reviews, in collaboration with cognizant DOE offices, the use of aviation assets to ensure the safe and efficient management of the Department's aviation services and resources
- Provides for the final approval for the acquisition and disposal of departmental aviation assets
- Assists the program offices and field elements with aviation budget preparation, developing, and verifying aviation requirements; conducts appropriate studies and reviews; assures timely and accurate reporting; and implements the highest safety standards and procedures

- Provides technical assistance and guidance, if available, and is the focal point for the collection, retention, evaluation, and dissemination of aviation information
- Represents the Department to other government agencies concerning aviation operations and reporting
- Approves AIPs for non-NNSA elements of DOE and makes recommendations to the Administrator for NNSA on the AIPs submitted by NNSA elements
- Reviews OMB A-11, exhibit 300 submissions and requirements documents for accuracy, completeness, and validation
- Is the approving authority for any deviations from, or waivers to or from, the requirements of DOE O 440.2B chg 1 for non-NNSA elements of DOE and makes recommendations regarding any deviations or waivers to the Administrator for NNSA for NNSA elements
- Is responsible for conducting aviation safety and management oversight of DOE aviation programs, including those of the NNSA, and:
 - coordinates resolution of applicable policy findings identified in the final audit/appraisal reports with cognizant secretarial officers and heads of field elements
 - coordinates with cognizant secretarial officers and heads of field elements to assist in resolving other findings applicable to the OAM identified in the final audit/appraisal reports
 - reviews draft audit/appraisal reports for factual accuracy regarding policies and/or activities of the OAM
 - in coordination with the responsible safety officer (SO), implements and tracks to completion corrective actions within the prescribed timeframes for findings related to policies or activities of the OAM
 - determines the effectiveness of the corrective action implementation and reports any deficiencies to the responsible SO

OAM

The following is taken from DOE O 440.2B chg 1.

The following is a list of roles and responsibilities of the OAM:

- Supports the Director, OAM in carrying out the responsibilities assigned by the Secretary
- Supports the Office of the Secretary, other Headquarters offices, and field elements as requested, by assisting in determining appropriate aircraft resources to meet travel needs, planning specific trips, conducting safety analyses, conducting cost comparisons of available transportation modes, and procuring or arranging the procurement of necessary services
- Tasks the field elements or operations office to provide flight itinerary information if Federal aircraft are to be used for travel
- Has authority for aircraft charter procurement to support Headquarters offices for a total cost not to exceed \$25,000
 - Coordinates the appropriate fund sites for government aircraft services with the Office of Management, the Chief Financial Officer, and the NNSA, if applicable; requests reservations and obligation of funds; procures charters; and coordinates

- schedules, approvals, and services with the traveler's offices, the Office of the General Counsel, and the travel approving authority
 - Coordinates any procurement in excess of \$25,000 with the Headquarters Office of Procurement
- If the source of travel services is foreign, OAM will coordinate the procurement with all relevant parties and the U.S. Embassy of the country(ies) involved

b. Describe the purpose of the ABD's management style.

The following is taken from DOE G 440.2B-2A.

To facilitate and improve communications within the Department, the Secretary of Energy appoints the Director, OAM as the DOE SAMO and an ABD. The OAM Director is responsible for the policy, requirements, implementation guidelines, and technical standards of the Department's aviation programs.

c. Describe how aviation policy decisions are finalized within the Board.

The following is taken from the *Aviation Board of Directors' Bylaws and Protocols*.

Decisions of the board affecting policy shall be made by a two-thirds majority vote of the members. Each member present shall have one vote to cast on an issue, unless a formal proxy statement issued by another regular member is on file with the executive secretariat prior to the vote. Decisions of the board are binding on all members of the aviation program.

d. Discuss the current Board membership including how individuals are appointed to the Board, the length of appointment, and membership voting rights.

The following was taken from the *Aviation Board of Directors' Bylaws and Protocols*.

The SAMO shall be designated as Chairperson of the Board of Directors. The board shall consist of members appointed by the Director, Office of Management, Budget and Evaluation/CFO (ME-1) from a list of nominees submitted by the SAMO. The board may have a maximum of 20 primary members, consisting of one nominee for regular membership and one alternate submitted from each of the following organizations:

- Office of Management, Budget and Evaluation/CFO
- Office of Aviation Management
- Office of Defense Nuclear Nonproliferation
- Office of Security
- Office of Emergency Operations
- Science LPSO
- Environmental Management LPSO
- Office of Fossil Energy
- Bonneville Power Administration
- Southwestern Power Administration
- Western Area Power Administration
- Aviation Operations Division, Office of Secure Transportation
- Chicago Operations Office
- Idaho Operations Office

- Nevada Site Office
- Livermore Site Office
- Oak Ridge Operations Office
- Richland Operations Office
- Savannah River Operations Office
- Strategic Petroleum Reserves Project Management Office

The SAMO shall be included as the twentieth member of the board to represent ME-1 and shall serve as chair of that board.

Each member present shall have one vote to cast on an issue, unless a formal proxy statement issued by another regular member is on file for the executive secretariat prior to the vote.

6. Aviation Safety Officers must demonstrate a familiarity level knowledge of a typical commercial (civil) aviation organization.

a. Describe the typical management structure and associated positions in a commercial aviation organization.

The following is taken from 14 CFR 119.65.

A commercial aviation organization operating under 14 CFR 121, “Operating Requirements: Domestic, Flag, and Supplemental Operations,” must have sufficient qualified personnel serving full-time in the following or equivalent positions:

- Director of Safety
- Director of Operations
- Chief Pilot
- Director of Maintenance
- Chief Inspector

The administrator may approve positions or numbers of positions other than those listed above for a particular operation if the organization shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to:

- the kind of operation involved;
- the number and type of airplanes used; and
- the area of operations.

The following is taken from U.S. Department of Transportation (DOT), N8000.301.

A commercial aviation organization operating under 14 CFR 135, “Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons Onboard Such Aircraft,” are required to have sufficient qualified management and technical personnel to ensure the safety of its operations. Except for organizations using only one pilot in its operations, the organization must have qualified personnel serving as:

- Director of Operations
- Chief Pilot
- Director of Maintenance

The administrator may approve positions or numbers of positions other than those listed above for a particular operation if the organization shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to:

- the kind of operation involved;
- the number and type of airplanes used; and
- the area of operations.

b. Explain how the top management structure and the operating rules of a commercial organization may differ from the Department's organization.

The following is taken from DOE G 440.2B-2 (archived).

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:

- Aviation Program Manager (Federal) or Director of Operations (Federal)
- Chief Pilot (Federal)
- Director of Maintenance (Federal)
- 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:

- Aviation Program Manager (Federal)
- Aviation Safety Officer (Federal)
- Aviation Program Manager (Contractor) or Director of Operations (Contractor)
- Chief Pilot (Contractor)
- Director of Maintenance (Contractor)
- 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:

- Aviation Program Manager (Federal) and/or
- 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:

- Aviation Program Manager (Federal) and/or
- Aviation Safety Officer (Federal)
- Director of Operations (Contractor)
- Chief Pilot (Contractor)
- Director of Maintenance (Contractor)

A DOE or NNSA field element procuring CAS providers, on an occasional basis or frequent basis, should appoint a collateral duty Aviation Manager and/or ASO or request support from the Director, OAM or a field element with experienced aviation management staff.

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 DOE G 440.2B-2 (archived).

The following are operating rules:

- Aviation safety standards and safe operating practices
- 14 CFR 121.1, “Applicability” (FAA)
- The certificate holder’s operations specifications
- All appropriate maintenance and airworthiness requirements of this chapter (e.g., 14 CFR 1, “Federal Aviation Administration, Department of Transportation,” 21; 23, “Airworthiness Standards: Normal, Utility, Acrobatics, and Computer Category Airplanes,” 25, “Airworthiness Standards: Transport Category Airplanes,” 43; 45, “Identification and Registration Marking,” 47, “Aircraft Registration,” 65; 91; and 135)
- The manual required by 14 CR 135.21, “Manual Requirements”

c. Describe similarities between the Department’s aviation organization and that of a commercial operator including the following:

- **Aviation manuals**
- **Training programs**
- **Maintenance and inspection requirements**

Aviation Manuals

The following is taken from DOE G 440.2B-2A.

The following is a list of aviation manual requirements for DOE aviation programs:

- 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 parts 121; 125, “Certification and Operations: Airplanes Having a Seating Capacity of 20 or More Passengers or a Maximum Payload Capacity of 6,000 Pounds or More; and Rules Governing Persons On Board Such Aircraft,” 133, “Rotorcraft External Load Operations,” and/or 135 in accordance with the requirements section of DOE O 440.2B, chg 1, applicable to the scope of operations and types of aircraft in use.
- Aviation policy documents or manuals addressing 14 CFR parts 121, 125, or 135 operations and maintenance as a minimum should contain the sections required by 14 CFR 121, subpart G, “Manual Requirements,” 121.369, “Manual Requirements,” 125, subpart C, “Manual Requirements,” 125.249, “Maintenance Manual Requirements,” 133.47, “Rotorcraft-Load Combination Flight Manual,” 135.21, “Manual Requirements,” and 135.427, “Manual Requirements,” as appropriate. If the aviation operation involves aircraft established in 14 CFR 135.21, it should have separate sections for “Operations,” “Training,” “Security,” and “Maintenance.”

- Elements conducting special types of operations, described in 14 CFR 133 and 137, “Agricultural Aircraft Operations,” should refer to chapters X and XI of DOE G 440.2B-2A.
- DOE-Federal aircraft operations may choose to provide in the operation procedure documents or manuals the following as appendices:
 - Documentation demonstrating compliance with 14 CFR 91, 121, 125, 133, 135, 137, 139, “Certification of Airports,” or 145, “Repair Stations,” as applicable
 - Documentation supporting exemptions referenced in a FAA compliance statement
 - Documentation supporting exemptions from DOE O 440.2B chg 1 but not related to 14 CFR 91, 121, 133, 135, 137, 139, or 145
- The heads of the DOE field elements and the power marketing administrations or their designees, should concur and endorse the aviation policy documents or manual(s), subsequent changes to the documents or manual(s), and document such endorsement. Any changes to FAA-approved or accepted manuals must be coordinated with the FAA.

Training Programs

Each DOE/NSA element should ensure a written training program is established. The program should include the following elements:

- 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, “Definitions and Abbreviations”) is adequately trained to perform their assigned duties.
- 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.
- Establish qualifications for the ground instructors used for the training.
- 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 DOE G 440.2B-2A.
- 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 DOE G 440.2B-2A.
- 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:
 - 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.

- When the certification recommended by DOE G 440.2B-2A, paragraph (f)(2), is made by an entry in a computerized recordkeeping 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.
- 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.
- 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. 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.
- 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.
- 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 in the calendar month before, or after the month 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.

Maintenance and Inspection Requirements

The following is a list of maintenance and inspection requirements for DOE aviation programs:

- 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 43, 91, and 135.411, "Applicability," paragraph (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 OAM or the local FAA Office of Flight Standards (FSDO) for approval.
- 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 135.411(a)(2).
- 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 121, subparts J, "Special Airworthiness Requirements," L, "Maintenance, Preventive Maintenance, and Alterations," and V, "Records and Reports."
- Aircraft operations 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 121, 129, "Operations: Foreign Air Carriers and Foreign Operators of U.S.-Registered

Aircraft Engaged in Common Carriage,” 135, or 137, should be maintained in accordance with 14 CFR 125, subparts G, “Maintenance,” and L, “Records and Reports.”

- Bailed, surplused, or leased military aircraft should be maintained in accordance with an accepted FAA, maintenance and inspection program.
- Rotorcraft operating under 14 CFR 133 should comply with the airworthiness requirements of 14 CFR 43, 91, and 133.
- Elements with maintenance facilities located at a DOE facility or with contracted maintenance/inspection operations should adhere to 14 CFR 145 or 14 CFR 121, subparts L and V.
- A training and recurrent training program for maintenance personnel and maintenance specialists should be established, see DOE G 440.2B-2A, chapter VII.
- The APM and Director of Maintenance are responsible for
 - ensuring the aircraft is maintained properly and a quality control process is established during the performance of maintenance.
 - 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.
 - ensuring that maintenance technicians and repairmen are trained in the applicable Federal Aviation Regulations, company operations manual and maintenance procedures manual (if applicable).
 - ensuring that specialized training (nondestructive testing, avionics, painting, electrical, etc.) is made available and the technician and repairman have received recurrent training within the proceeding 12 months.
 - ensuring records of formal and on-the-job training are kept on file and current. As a minimum, the records should include the following:
 - Employee’s name and license number
 - Assignment date
 - Employee’s maintenance specialty
 - Types of aircraft, propellers, engines, and/or systems on which the employee is qualified to work
 - Factory or formal training, and date
 - Duty time
 - Recurrent training due date
 - Drug testing, including the last test date and results

Chartered, rented, and/or leased aircraft operations should adhere to the applicable parts and sections of 14 CFR 1 and the operations specifications issued by the FAA.

DOE-Federal aircraft maintenance programs approved under 14 CFR 135.411(a)(1) should have the following procedures incorporated into their programs:

- Tool calibration, serviceability, and inventory tracking procedures
- Parts acceptance and rejection procedure
- Inspection authorities and procedures for maintenance work accomplished by maintenance technicians and repairmen
- Methods of disseminating, approving, and submitting changes to the maintenance/inspection program

- Computerized tracking procedures for retirement life parts, overhauls, inspections, airworthiness directives (Ads), and service bulletins
- Aircraft parts procurement and procedures for vendor audits for other than original equipment manufactured parts
- Inoperative instruments, equipment, and minimum equipment list
- DOE-Federal aircraft maintenance/inspection program managers should address the requirements of 14 CFR 91.213, “Inoperative Instruments and Equipment,” 121.628, “Inoperable Instruments and Equipment,” and 135.179, “Inoperable Instruments and Equipment,” as applicable

7. Aviation Safety Officers must demonstrate a working level knowledge of their site specific Aviation Implementation Plan (AIP).

a. Describe the purpose of the AIP and how it pertains to your local organization.

The following is taken from DOE O 440.2B chg 1.

The AIP is a written document prepared to identify the programs, management roles, responsibilities, and 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.

b. Discuss the process for developing and approving an AIP.

The following is taken from DOE O 440.2B chg 1.

Each DOE program or field element that has management responsibility for assigned Federal aircraft or uses CAS must develop and publish an AIP detailing the standards, operating parameters, airworthiness criteria, security procedures, and safety systems of its planned aviation operations. As a minimum, the AIP will address all applicable requirements of DOE O 440.2B chg 1 and other related requirements established by DOE policy.

The AIP must be submitted to the OAM. The OAM Director must review and approve the AIPs submitted by DOE elements that are not part of the NNSA. The OAM Director will review and make recommendations for or against approval to the Administrator for Nuclear Security on the AIPs submitted by NNSA elements. If a difference of opinion develops between the OAM Director and the NNSA Administrator regarding whether an AIP should be approved, they will bring the issue to the Secretary or Deputy Secretary for resolution or direction.

c. Describe the process and frequency for reviewing, amending, and re-approving your AIP.

The following is taken from DOE O 440.2B chg 1.

Significant changes in management, operations, or maintenance standards require revision and a subsequent approval of the AIP. Each AIP must be reviewed and updated, if necessary, at least annually. Implementation plans and changes are considered reviewed or approved if the OAM Director has not responded within 90 days of receipt of the AIP document.

d. Identify the major program areas addressed in your AIP.

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

8. Aviation Safety Officers must demonstrate a working level knowledge of the capabilities of the aircraft used in their program.

a. Describe the basic capabilities and operating limitations for your aircraft including the following items:

- **Number of required crewmembers for each mission type**
- **Passenger capacity**
- **Weather limitations**
- **Time of day restrictions for your operations**
- **Altitude limitations**
- **Runway limitations**
- **Maximum weight and any cargo limitations**
- **Endurance limitations**

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

b. Given a possible mission, demonstrate how you might determine whether or not you could perform a mission that the Department requests with your aircraft.

Airplanes

The following is taken from the Pacific Northwest National Laboratory (PNNL)-MA-530 Rev 5, *Flight Operations Manual*.

The pilot in command (PIC) will calculate the gross takeoff weight, gross landing weight (if the maximum allowable gross landing weight is less than the maximum allowable gross takeoff weight for this aircraft), and the actual center of gravity for the loaded weight. The PIC will determine that these calculated values fall within the manufacturer's allowable weight and balance limits for the aircraft. The PIC will make these calculations using the actual weights of the airplane, fuel, oil, crew, passengers, cargo, and baggage.

The following items are also checked: airport elevation, temperature, wind, runway gradient, and runway conditions that affect the takeoff and landing performance of aircraft. The PIC will check the aircraft-approved flight manual to make sure the aircraft will be able to takeoff safely at the calculated gross weight and with the runway available, and then land at a safe and allowable weight.

Helicopters

The following is taken from the *Interagency Helicopter Operations Guide*.

Helicopter load calculations shall be completed for all flights to ensure that the helicopter will perform within the limitations established by the helicopter manufacturer, without exceeding the gross weight for the environmental conditions where the helicopter is to be operated.

Weight and balance information is kept in each aircraft flight manual or weight and balance book. This information includes the following:

- equipped weight of aircraft, as configured
- passenger configuration(s)
- cargo weight and distribution limits
- center of gravity limits
- maximum takeoff and landing weights
- charts for computing weights and center of gravity location

9. Aviation Safety Officers must demonstrate a working level knowledge of Federal Aviation Administration's (FAA's) role in DOE aviation.

a. Describe the Air Commerce Act of 1926 and the precedent that it set that continues to impact DOE aviation today.

The following is taken from U.S. Centennial of Flight Commission, *The Government Role in Civil Aviation—An Overview*.

Many aviation leaders in the 1920s believed that Federal regulation was necessary to give the public confidence in the safety of air transportation. To investigate the issue, President Calvin Coolidge appointed a board whose report favored Federal safety regulation. Congress passed the Air Commerce Act of 1926, which assigned to the U.S. Department of Commerce the fundamental tasks needed for civil air safety. Among these functions were: testing and licensing pilots, issuing certificates to guarantee the airworthiness of aircraft, making and enforcing safety rules, and investigating air accidents. The act also directed the department to take certain actions to assist the progress of aviation.

In 1938, the Civil Aeronautics Act transferred Federal responsibilities for non-military aviation from the Bureau of Air Commerce to a new, independent agency, the Civil Aeronautics Authority. The legislation also gave the authority the power to regulate airline fares and to determine the routes that air carriers would serve.

In 1940, President Franklin Roosevelt split the authority into two agencies, the Civil Aeronautics Administration (CAA) and the Civil Aeronautics Board (CAB). The CAA was responsible for air traffic control, safety programs, and airway development. The CAB was entrusted with safety rulemaking, accident investigation, and economic regulation of the airlines. Although both organizations were part of the Department of Commerce, the CAB functioned independently.

The approaching era of jet travel, and a series of midair collisions, promoted passage of the Federal Aviation Act of 1958 (repealed) (49 U.S.C. 1471). This legislation gave the CAA's functions to a new independent body, the Federal Aviation Agency. The act transferred

safety rulemaking from CAB to the new FAA, and also gave the FAA sole responsibility for a common civil-military system of air navigation and air traffic control.

In 1967, a new DOT combined major Federal responsibilities for air and surface transport. FAA's name changed to the Federal Aviation Administration as it became one of several agencies within DOT. At the same time, a new NTSB took over the CAB's role of investigating aviation accidents.

The FAA gradually assumed additional functions. The hijacking epidemic of the 1960s had already brought the agency into the field of civil aviation security. The FAA became more involved with the environmental aspects of aviation in 1968 when it received the power to set aircraft noise standards. Legislation in 1970 gave the agency management of a new airport aid program and certain added responsibilities for airport safety.

In the mid-1970s, the FAA had achieved a semi-automated air traffic control system using both radar and computer technology. In the 1990s, satellite technology received increased emphasis in the FAA's development program as a means to improvements in communications, navigation, and airspace management. In 1995, the agency assumed responsibility for safety oversight of commercial space transportation, a function begun 11 years before by an office within DOT headquarters.

As the new century began, issues facing the FAA included the progress of reforms aimed at giving the agency greater flexibility. Airline accidents, although rare in statistical terms, showed the need for further safety advances. The huge volume of flights challenged the capacity of the airport system, yet demonstrated the popularity of air travel. In September 2001, however, the air transportation system was challenged by terrorist attacks in which hijacked airliners were used as missiles that killed thousands of U.S. citizens as well as many others from around the world. The government's response included legislation, enacted in November that established a new DOT organization. This new Transportation Security Administration received broad powers to protect air travel and other transportation modes against criminal activity. Its creation was the latest step in the evolution of U.S. government's civil aviation role to meet changing needs and priorities.

b. Explain the primary differences in how the FAA views public aircraft and civil aircraft.

The following is taken from DOE O 440.2B chg 1.

Except for certain airspace rules that apply to all aircraft and certificates issued by the FAA, [reference FAA Act of 1958, Title 49 U.S.C., subtitle VII, *Aviation Programs*] the FAA has no regulatory jurisdiction over "public aircraft" operations. Therefore, for federally owned or operated aircraft, DOE must be self-regulating [refer to 49 U.S.C. 40125, paragraph (a)37]. However, when a federally owned aircraft is carrying personnel not essential to the performance of a governmental function, for which the aircraft was dispatched or when an aircraft operation is conducted for compensation from outside of the Federal Treasury, then for that operation, the aircraft is considered a "civil" aircraft and is required to comply with the applicable sections of the Federal Aviation Regulations, Title 14 CFR chapter 1, parts 21, 43, 61, 65, 91, 119, and DOE policy.

- c. Explain the primary differences in the rules governing DOE operations when DOE-owned, chartered, leased, bailed, or rented aircraft carry DOE passengers versus when these aircraft are conducting a Department mission carrying personnel (crewmembers or qualified non-crewmembers).**

The following is taken from *Disclosure Statement for Crewmembers and Qualified Non-Crewmembers Flying on Board Government Aircraft Operated as Public Aircraft*.

Generally, an aircraft used exclusively for the U.S. government may be considered a public aircraft as defined in Public Law (PL) 106-181, *Aviation Investment and Reform Act for the 21st Century*, provided it is not a government-owned aircraft transporting passengers or operating for commercial purposes. A public aircraft is not subject to many FAA regulations, including requirements relating to aircraft certification, maintenance, and pilot certification. If an agency transports passengers on a government-owned aircraft or uses that aircraft for commercial purposes, the agency must comply with all FAA regulations applicable to civil aircraft.

- d. Describe the rules and regulations that govern other military, Federal, state, or local agency aviation operations when they carry DOE personnel.**

The following is taken from the *Statement of Nicholas A. Sabatini, Federal Aviation Administration Associate Administrator, Regulation and Certification Before the Committee on Commerce, Science and Transportation on the Role of FAA in Safety Oversight of Forest Service Firefighting Operations*.

The FAA has regulatory and oversight authority over civil aircraft operations. Public aircraft operations are conducted by, or on behalf of, many different government agencies and departments, including state and Federal, from the Forest Service and the Department of Interior, to the Justice Department to the U.S. military. By statute, authority for the safety oversight of these operations belongs to the agency or department responsible for the operation. Military aircraft are not required to meet FAA design standards or to receive an FAA-type certificate.

- e. Explain which operations within the Department the FAA has oversight for and the relevancy of this oversight to your operations.**

The following is taken from Government Accountability Office (GAO)-02-77, *Aviation Safety*.

The FAA and the military services share certain safety oversight systems, but three primary differences also exist. Similarities include common processes for disseminating safety information, managing aviation safety risks, and certifying that aircraft meet civil aviation safety standards. Differences include processes to certify that aircraft meet their unique safety standards and to investigate aircraft accidents, as well as timeframes and thresholds for making decisions about potential aviation safety problems.

The FAA and the military services both created formal and informal internal mechanisms to implement their aviation safety oversight programs. Formal internal mechanisms are used to communicate official information, such as orders and directives. The FAA issues Ads to

provide primarily owners and operators of civil aircraft with formal notice of an unsafe condition. Similarly, the military services issue near-equivalents of Ads to distribute aviation safety messages to affected units and sister services' aviation safety centers.

According to both FAA and military officials, formal communication mechanisms also include internal meetings among engineering and program staff as well as FAA senior managers or internal meetings of senior military officers responsible for aviation safety. Both use training as another means of formally sharing aviation safety information internally among agency/service staff.

f. Describe how the FAA maintains oversight of Department operations including the frequency of this oversight.

The following is taken from GAO/RCED-87-62, *FAA's Airline Inspection Program*.

Within FAA headquarters, FSDO is responsible for assuring the safe operation of airlines. The office's headquarters staff develops the Federal Aviation Regulations that airlines must follow and prepares guidance on how inspectors should perform inspections. The FSDO units in FAA's nine regional offices interpret headquarters' guidance, perform administrative functions, supervise the operations of district officers, and perform special inspections.

Inspections performed by the FAA are divided into three functional categories—operations, maintenance, and avionics (aviation electronics). Operations inspections generally monitor the operational aspects of an airline, including pilot certification and performance, flight crew training, and in-flight record keeping. Maintenance inspections monitor an airline's overall maintenance program, including personnel training and maintenance policies and procedures. Avionics inspections review matters similar to those of maintenance inspections, except that they focus on an aircraft's aviation-related electronic components. These three functional categories are further divided into specific inspection types such as spot, en route, and main base.

10. Aviation Safety Officers must demonstrate a working level knowledge of the organization of the Code of Federal Regulations (CFR) and how to locate information in it.

a. Given a reference in the CFR, identify the following:

- **Title**
- **Chapter**
- **Part**
- **Subpart**
- **Section**

The following is taken from the National Archives and Records Administration, *Code of Federal Regulations (CFR): About*.

Title

The CFR is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal government. It is divided

into 50 titles that represent broad areas subject to Federal regulation. Each title of the CFR is updated once each calendar year and is issued on a quarterly basis:

- Titles 1-16 are updated as of January 1st.
- Titles 17-27 are updated as of April 1st.
- Titles 28-41 are updated as of July 1st.
- Titles 42-50 are updated as of October 1st.

Chapter

Each title is divided into chapters, which usually bear the name of the issuing agency.

Part

Each chapter is further subdivided into parts that cover specific regulatory areas.

Subpart

Large parts may be subdivided into subparts.

Section

All parts are organized in sections, and most citations in the CFR are provided at the section level.

- b. Perform a keyword search for a specific topic in the CFR.**
- c. Retrieve a specific CFR section by its citation.**
- d. Given a possible scenario, locate the applicable CFR guidance and apply it to the situation.**

KSAs ‘a’ through ‘d’ are performance-based KSAs. The Qualifying Official will evaluate their completion.

11. Aviation Safety Officers must demonstrate the ability to conduct evaluations of CAS operators using the DOE CAS Operator Checklist.

- a. Discuss methods used to verify that CAS operators are following the proper regulations, policies, and requirements when performing various missions for DOE including the following:**
 - **FAA regulations**
 - **DOE requirements**
 - **National Transportation Safety Board (NTSB) requirements**
 - **Insurance requirements**
 - **State and local requirements**
 - **OSHA requirements**

FAA Regulations

The following is taken from DOE O 440.2B chg 1.

The AIP requires CAS providers perform weight and balance calculations to ensure that aircraft are within the manufacturers’ and FAA- or military-established weight and balance

limitations to each operation, flight, or mission profile for which the aircraft are to be operated.

The contractor must comply with the Department's safety-of-flight notices, FAA Ads, and/or mandatory manufacturers' bulletins applicable to the types of aircraft, engine(s), propeller(s), and appliances in their aircraft operations.

The contractor must implement a maintenance management tracking and review process (using existing data systems where possible) that provides managers information on key elements of performance (i.e., performance indicators) on a recurring and systematic basis. Examples include aircraft availability and non-availability rates, non-available maintenance and non-available supply rates; scheduling effectiveness; parts and supply logistics effectiveness; cost effectiveness; and reliability rates of aircraft, power plants, propellers, and systems.

The contractor must report to the FAA within 72 hours after a contractor discovers any serious defect in, or other recurring unairworthy condition of, an aircraft, power plant, or propeller, or any component of any of them. The contractor must file the report using the web-based, internet-accessible FAA Service Difficulty Reporting System or the FAA accepted Helicopter Association International's Maintenance Malfunction Information Report System. The report shall describe the defect or malfunction completely with any pertinent information. If the defect or malfunction could result in an imminent hazard to flight, the contractor must use the most expeditious method it can to inform the FAA and the DOE ASO or SO.

DOE Requirements

The following is taken from DOE O 440.2B chg 1.

Providers or contractors that provide CAS must comply with the civil standards (14 CFR, chapter I, 49 CFR chapter XII, "Transportation Security Administration, Department of Homeland Security," 49 CFR, subchapter C, "Hazardous Materials Regulations," and DOE DOT special permit(s) or exemptions) applicable to the type of operations conducted while in service to the department or its contractors.

Contractors that use CAS in support of programmatic needs must have a program that complies with field office AIP and the following requirements:

- comply with the civil standards applicable to the type of operations conducted while in service to the department of its contractors;
- has an FAA accepted or approved continued airworthiness maintenance and inspection program applicable to the type and model aircraft operated;
- complete and maintain a passenger manifest;
- perform weight and balance calculations to ensure that aircraft are within the manufacturers and FAA- or military-established weight and balance limitations for each operation, flight, or mission profile for which the aircraft are to be operated;
- establish a comprehensive, integrated aviation safety program;
- develop aviation safety documentation for each mission that has risks not normally accepted by the public;

- ensure CAS providers are evaluated by a qualified aviation person or Department's designee before the initiation of flight operations and, if a continuing need exists, evaluations must be conducted every 24 months thereafter;
- CAS providers must give safety briefings and have a process for informing personnel of their rights established in the NTSB/SPC-99-04.
- establish reporting requirements to ensure CAS are effectively used, program needs are met, and accurate information is obtained to report accountability to appropriate oversight entities;
- require contractors working under a contract with DOE, that is paid at a rate equal to or more than the minimum rate for the senior executive service and has senior executive responsibilities to obtain approval from the DOE Offices of General Counsel prior to traveling onboard government aircraft, other than mission requirements travel; and
- establish an internal cost-analysis, review and approval process for the acquisition and use of commercial aviation providers to support departmental non-mission travel requirements.

NTSB Requirements

The following is taken from DOE O 440.2B chg 1.

Commercial aviation service providers are required to give passenger safety briefings (14 CFR 135 or 121) and have a process for informing personnel of their rights established in NTSB/SPC-99-04, appendix F.

Additionally, CAS providers must develop an accident response plan that includes: procedures for notifying NTSB and DOE of accidents and incidents and procedures that address the contractor's support of DOE responsibilities established in NTSB/SPC-99-04.

The following is taken from DOE G 440.2B-2A.

Initial notification of aircraft accidents, incidents, and overdue aircraft. The ASO at a DOE site that manages or oversees DOE-Federal aircraft, including operation of Federal aircraft by DOE contractors should immediately, and by the most expeditious means available, notify, or ensure that, the nearest NTSB field office is notified when an aircraft accident, incident, overdue aircraft, or any of the following incidents occur:

- engine failure at low altitude
- settling with power
- loss of tail rotor effectiveness
- tail rotor failure at low altitude
- bird strikes
- loss of situational awareness due to sun, low light, or haze
- fatigue related stress resulting in complacency or overconfidence

Insurance Requirements

The following is taken from DOE G 440.2B-2A.

The aircraft operator will provide a copy of the FAA part 133, *Operating Certificate*, to the field element prior to start of the project, including proof of liability insurance.

State and Local Requirements

The following is taken from DOE O 440.2B chg 1.

The Department occasionally relies on the aircraft support of other Federal, state, and local government agencies. Verification of the operator's compliance with government aviation safety standards, except for the exclusion in DOE O 440.2B chg 1, paragraph 3(c)(3), is required before personnel can travel or conduct missions on other government aircraft, including the use of foreign government aircraft.

OSHA Requirements

The following is taken from DOE G 440.2B-2A.

Crews need to know how to identify the circuit being worked and its voltage, by use of various aids such as geographical circuit prints, insulation design, proper marking by circuit signs and/or structure markings [OSHA 1910.269, *Electric Power Generation, Transmission, and Distribution*, paragraph (a) or other regulatory authority, National Electrical Safety Code (NESC) part 4, *Operation Rules*, Institute of Electrical and Electronic Engineers, Inc. (IEEE) standard 516, *IEEE Guide for Maintenance Methods on Energized Power Lines*] to avoid potential electrical shock.

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, flats, etc.; or an injury reportable under OSHA regulations is incurred requiring first aid or medical attention.

b. Identify the method that DOE uses to place specific requirements on CAS operators while they are operating for DOE.

The following is taken from DOE G 440.2B-2A.

Under current law, aircraft owned or hired by the DOE (public aircraft) are normally not subject to FAA oversight or required to comply with FAA regulations, except for certain FAA air space rules that apply to all aircraft within the U.S. However, an aircraft that has been issued a Certificate of Airworthiness (C of A), regardless of the aircraft's operational status, public or civil, must comply with applicable FAA airworthiness rules. (The FAA retains oversight jurisdiction of the airworthiness of an aircraft if the aircraft has been issued an FAA C of A and the operator, if issued an air carrier or commercial operator's certificates.) The FAA also has jurisdiction over civil aircraft operations. Civil aircraft operations are those flights that transport personnel to give speeches or attend meetings, conferences, political events, site visits, or training not associated with the operation or duties onboard a government aircraft. All other flight operations by definition are public flights.

Contracts for aircraft that carry DOE or contractor personnel should specify requirements for CAS vendors or providers. For example:

- Operating in accordance with the requirements of their certificate, even while operating as a public aircraft for the Department
- Designating the specific aircraft and pilots that will be used for DOE missions
- Specifying special equipment required for the particular operation, including shoulder harnesses for helicopter passengers or wire strike protection systems for helicopters

- Specifying operating procedures that are to be followed

c. Discuss why the FAA has regulatory oversight of some DOE CAS aircraft missions and not others and identify those that your field element conducts for which the FAA has no responsibility.

The following is taken from FAA Order 8900.1 chg 0.

Government-owned aircraft operators, holding any type of FAA certification, will be included in the normal surveillance activities such as spot inspections of the aircraft and aircraft records. This includes any aircraft exclusively leased to the Federal government. Any aircraft or operation certificated by the FAA is subject to this surveillance regardless of whether it is operating as public or civil. For example, if an aircraft operator holds a C of A and is considered public, the operation's maintenance records are eligible for review. The regional public aircraft coordinator can assist with any questions regarding the public state of an operation.

The following is taken from DOE G 440.2B-2A.

All current DOE-owned aircraft have been issued "standard" or "special" C of A; therefore, it is the position of DOE to maintain civil aircraft standards for DOE-Federal aircraft. In addition, on occasion, DOE-Federal aircraft fly personnel for other than mission travel purposes; because of these operations, the aircraft must meet 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 C of A issued by the FAA to operate in the national Airspace System. DOE also conducts UA operations from small micro-UA to large UA. Unmanned aircraft pose a challenge to meeting the same regulations as those of manned aircraft; nevertheless, the FAA has ruled that UA are aircraft and subject to FAA oversight and regulations.

To identify the DOE missions at your location over which FAA has limited or no responsibility, refer to your AIP.

d. Briefly describe the FAA's level of oversight of CAS operators including the regularity of this oversight.

The following is taken from FAA 8900.1 chg 0.

Government-owned aircraft operators who are conducting public aircraft operations must be included in the FSDO's annual planned surveillance activities to ensure that their status remains unchanged.

- e. Describe your field elements' methods for conducting oversight of CAS operators including the following:**
- Identifying when an assessment needs to be performed
 - Identifying the individuals that may be qualified to perform the assessment
 - Determining the regulations, policies, and procedures that the operator will be assessed by

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

f. Identify the major areas addressed in the DOE CAS Checklist that should be included in all CAS operator assessments.

The following is taken from the DOE, *Evaluation Checklist for Operations and Maintenance*.

The objective of the checklist is to determine if the contractor is operating within the Federal Aviation Regulations, DOE operating procedures, National Fire Protection Act of 1974, OSHA regulations, and provides for a safe and efficient operation.

The major areas addressed in the DOE Evaluation Checklist for Operations include: general operations, flight operations, aircraft and equipment, Visual Flight Rules/Instrument Flight Rules (VFR/IFR) operating limitations and weather requirements, flight crewmember requirements, flight crewmember flight time limitations and rest requirements, crewmember testing requirements, training, and airplane performance operating limitations.

The major areas addressed in the DOE Evaluation Checklist for Maintenance include: production control, maintenance shop area, battery shop, paint shop, tool room, and supply.

12. Aviation Safety Officers must demonstrate a working level knowledge of the requirements for commercial operators contained in 14 CFR Parts 91, *General Operating and Flight Rules*; 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations*; 133, *Rotorcraft External-Load Operations*; 135, *Operating Requirements: Commuter and On-Demand Operations and Rules Governing Persons On Board Such Aircraft*; and 137, *Agricultural Aircraft Operations*.

a. Describe which Parts of the Federal Aviation Regulations govern certificated operators versus non-certificated operators.

The following is taken from 14 CFRs 1, 61, 91, 119, 133, 135, 137, 141, and 145.

The Federal Aviation Regulations are defined in 14 CFR. Chapter 1 includes 88 parts, numbered non-sequentially and divided into 12 subchapters. The numbering starts at 14 CFR 1.1 and ends at 14 CFR 199.

Some parts of the 14 CFR 1 apply to everyone conducting aeronautical operations in the U.S. These include parts in subchapters A, "Definitions," E, "Airspace," and F, "Air Traffic and General Operating Rules." Since these subchapters deal with the interaction of aeronautical vehicles over the U.S., all operators must adhere to some of the sections in them for the purpose of safety (part 91, subpart B, "Flight Rules," coalesces requirements of the subchapters listed above into one subpart for ease of location).

It is important to note here that there are multiple ways to look at the words "certificated" and "non-certificated." 14 CFR 61 states: "A person may not act as PIC or in any other capacity as a required pilot flight crewmember of a civil aircraft of U.S. registry, unless that person has a valid pilot certificate." And 14 CFR 91.203, "Civil Aircraft: Certifications Required," states: "...no person may operate a civil aircraft unless it has within it an appropriate and current airworthiness certificate." 14 CFR 119 also identifies requirements for acquiring certificates, as well as parts 133, 137, 141, and 145. The FAA issues each of these certificates and states that any holder of an FAA-issued certificate, be it for an airman,

airplane, operation or facility, falls under FAA surveillance to verify compliance with certification requirements.

So, who and what can be “non-certificated?” The only operations that are not under FAA jurisdiction are public aircraft operations. At this point one could concede that “certificated” equates to a “civil” aviation asset (airman, airplane, operation or facility) and “non-certificated” equates to a “public” aviation asset. The FAA inspectors will commonly look at the words “certificated” and “non-certificated” in this fashion. This is an important understanding from the position of guidance, surveillance and oversight. However, in the civil aviation industry, when an operation is referred to as “certificated,” it refers to certification under 14 CFR 119. When an operation is referred to as “non-certificated,” it refers to an operation under 14 CFR 91.

In this reference guide, the terms “certificated” and “non-certificated” will be used in the same venue as the civil aviation industry, unless otherwise noted.

14 CFR 119 consolidates the certification and operations specifications requirements for persons who operate in common carriage under 14 CFR 121 and 135. 14 CFR 119 also contains definitions pertinent to operations that do not involve common carriage. The following paragraphs and table 1 are intended to more fully describe the basis for issuance of a particular type of certificate (air carrier or operating) and the kinds of operations authorized under those certificates and operations specifications.

The first step in certification is determining if the operator is engaged in common carriage. The operator is engaged in common carriage if all of the following apply:

- The operator “holds out” to the public (by advertising or other means)
- To transport persons or property
- For compensation or hire

Operations not involving common carriage include the following definitions or exceptions. These definitions or exceptions are contained in 14 CFR 119 and in sections of 91.

- Non-common carriage involves the carriage of persons or property for compensation or hire but there is no holding out. Non-common carriage operations require the issuance of an operating certificate. Operations would be conducted under 14 CFR 125 or 135, depending on the type of aircraft, seating configuration, and payload capacity.
- Private carriage involves the carriage of persons or property for compensation or hire with limitations on the number of contracts. The carriage of persons or property for compensation or hire under a contractual business arrangement between the operator and another person or organization, which did not result from the operator’s holding out or offering service is considered to be private carriage. (In this situation, the customer seeks an operator to perform the desired service and enters into an exclusive, mutual agreement as opposed to the operator seeking customers). Private carriage operations require the issuance of an operating certificate. Operations would be conducted under 14 CFR 125 or 135, depending on the type of aircraft, seating configuration, and payload capacity.
- Operations not involving transportation of persons or cargo. 14 CFR 119 defines a direct air carrier as a person who provides or offers to provide air transportation and

who has control over the operational functions performed in providing that transportation. The FAA issues certificates to these direct air carriers. Title 49 U.S.C. expands the definition of an air carrier to include a person who acts “indirectly.” The FAA does not issue certificates to indirect air carriers. An indirect air carrier is a company that contracts aircraft and crew services from an air carrier or commercial operator but may not engage in control over the operational function of any flight. Examples of indirect air carriers include freight forwarders, brokers, or public charter operators. An indirect air carrier will act as an agent for either the customer or the air carrier, and their advertising must make it clear that a certificated air carrier or commercial operator provides the transportation.

- Operations in which persons or cargo are transported without compensation or hire. These operations are conducted under 14 CFR 91 and do not require a 14 CFR 119-defined certificate.

There are exceptions from the certification requirements of 14 CFR 119 and the operating rules of 14 CFR 121 and 135. Some of these are summarized here (refer to the cited regulations for the complete regulatory content):

- 14 CFR 91, subpart F, “Large and Turbine-Powered Multiengine Airplanes and Fractional Ownership Program Aircraft,” applies to large and turbine-powered multi-engine airplanes and fractional ownership program aircraft. 14 CFR 91.501, “Applicability,” lists certain operations not involving common carriage that may be conducted under 14 CFR 91 instead of 14 CFR 121 or 135. These operations involve the transportation of persons or property and may involve compensation. 14 CFR 91.501 sets conditions on the amount and types of compensation for certain of these operations. Examples include:
 - Ferry or training flights
 - Aerial work operations such as aerial photography or survey, or pipeline patrol, but not including fire-fighting operations
 - Sales demonstration flights (limited compensation for expenses)
 - Personal transportation for operator or guests (no charge, assessment or fee)
 - Carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or parent or subsidiary (carriage is incidental to business and limited compensation for ownership, operating, and maintenance costs or no charge for guests when not within scope of business of company)
 - Time-shares, interchange agreements, joint ownership
 - Carriage of property (except mail) incidental to business (limited compensation for expenses)
 - Carriage of group (with common purpose) when there is no charge, assessment or fee
 - Carriage of persons for purpose of selling land, goods, property when there is no charge, assessment or fee
- 14 CFR 119.1, “Applicability,” paragraph (d) states that 14 CFR 119 certification requirements do not apply to fractional ownership, or operations conducted under 14 CFR 129, 133, 137, or 139.
- 14 CFR 119.1(e) lists operations that do not require air carrier or commercial operator certification. Examples include:
 - Student instruction

- Certain nonstop sightseeing flights conducted within a 25 statute mile radius of the airport
- Ferry or training flights
- Aerial work operations such as: crop dusting, seeding, spraying, and bird chasing; banner towing; aerial photography or survey; fire fighting; helicopter operations in construction or repair work (but it does apply to transportation to and from the site of operations); and power line or pipeline patrol
- Sightseeing flights in hot air balloons
- Nonstop flights within 25 statute miles for intentional parachute operations
- Limited helicopter flights within 25 statute miles
- 14 CFR 133 or 375, “Certain Foreign Civil Aircraft Operations Within U.S.”
- Emergency mail service (49 U.S.C. 41906, *Emergency Mail Transportation*)
- Carrying candidates in elections (14 CFR 91.321, “Carriage of Candidates in Elections”)

The type of certificate issued and the type of operations conducted will determine which parts of 14 CFR, chapter 1 apply to a 14 CFR 119 operator. There are two basic types of air operator certificates issued to U.S. operators that conduct operations in common carriage:

- An air carrier certificate is issued to operators that conduct interstate, foreign, or overseas transportation, or to carry mail.
- An operating certificate is issued to operators that conduct intrastate transportation.

Once the type of certificate is determined, the next step is to determine the appropriate operating rule and kinds of operation. There are two operating rules appropriate to air carriers and commercial operators. An operator will operate under 14 CFR 135 or 121, or both, depending on whether the operation is scheduled and the size and type of aircraft used. There are five kinds of operations: domestic, flag, and supplemental operations apply to operations conducted under 14 CFR 121; commuter and on-demand operations describe operations under 14 CFR 135. First determine if the operator conducts scheduled or non-scheduled operations:

- Scheduled operations include passenger operations in which the operator offers the departure location and time and the arrival location in advance. Scheduled operations can also carry cargo. However, an all-cargo operation is defined as non-scheduled.
- Non-scheduled operations include:
 - passenger-carrying operations in which the departure time and the departure and arrival locations are specifically negotiated with the customer or the customer’s representative, or
 - all-cargo operations, or
 - scheduled passenger operations in aircraft (other than turbojet-powered airplanes) that have 9 or fewer passenger seats and 7,500 pounds or less of payload capacity that operate with a frequency less than five round trips a week on at least one route between two or more points according to a published flight schedule, or
 - passenger operations conducted as a public charter under 14 CFR 380, “Public Charters.”

Once it is determined whether the operation is scheduled or non-scheduled, the next step is to determine the operation specifications. The operation specifications will detail the operating rules and kinds of operations. The definitions for kinds of operations are contained in 14 CFR 119.1.

- Kinds of scheduled operations:
 - Part 121 flag (An operator who has flag authority will also receive domestic and supplemental authority.)
 - Part 121 domestic (An operator who has domestic authority will also receive supplemental authority.)
 - Part 135 commuter (An operator who has commuter authority will also receive on-demand authority.)
- Kinds of non-scheduled operations:
 - Part 121 supplemental
 - Part 135 on-demand

There have been a number of instances where a supplemental type certificate (STC) or other approved technical amendment to the type certification data results in a limitation or reduction of the maximum payload capacity for a particular make, model, and series airplane. This reduction is achieved through a reduction of the maximum zero fuel weight or other means. One instance involves the Boeing business jet, but other airplanes have also been modified.

14 CFR 119 defines, for air carriers and commercial operators, which operating rule will apply to the operation of their aircraft. 14 CFR 119 references passenger seat configuration and payload capacity to determine the applicable operating rules. In general, on-demand operation of airplanes having a passenger seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less are conducted under 14 CFR 135. On-demand operations of multiengine airplanes with a passenger seat configuration of more than 30 seats or a payload capacity of more than 7,500 pounds are conducted under 14 CFR 121.

14 CFR 125 prescribes rules governing the operations of U.S. registered airplanes that have a seating configuration of 20 or more passenger seats, or a maximum payload capacity of 6,000 pounds or more when common carriage is not involved.

FAA policy is that the passenger seat configuration and (maximum) payload capacity as defined in 14 CFR 119 and in 14 CFR 121, 125, and 135 determine the applicable operating rule. If the passenger seating configuration or maximum payload capacity is modified, restricted, or limited through FAA-approved means (i.e., STC, Aircraft Flight Manual revision), the amended passenger seat configuration and payload capacity can be used to determine the applicable operating rules.

The following table summarizes the appropriate operating rule and kinds of operation based on the aircraft type, size, seating configuration, and payload capacity, as well as the area of operations.

The following is taken from FAA Order 8900.1 chg 0.

Table 1. Certification

TYPE OF CERTIFICATE	SEATING CAPACITY PAYLOAD CAPACITY	14 CFR OPERATING PART	KIND OF OPERATION
AIR CARRIER CERTIFICATE Common Carriage (holding out to transport persons or property for compensation or hire) • Interstate, or • Foreign, or • Overseas, or • Carriage of mail	Scheduled Operations (common carriage passenger operation; departure, location, and time and arrival location offered in advance by the operator)		
	• Turbojets, or • Multi-engine airplanes with 10 or more passenger seats, OR more than 7500 pounds payload capacity • Within or between 48 contiguous states, entirely within a state, territory, or possession, or special authorizations	121	Domestic
	• Turbojets, or • Multi-engine airplanes with 10 or more passenger seats, OR more than 7500 pounds payload capacity • Entirely outside U.S., take-off or landing outside 48 contiguous states, or between Alaska, Hawaii, territories, and outside U.S.	121	Flag
	Airplanes with 9 or fewer passenger seats AND 7500 lbs. or less payload capacity, or any rotorcraft	135	Commuter
	Airplanes, other than turbojets, with 9 or fewer passenger seats AND 7500 lbs. or less payload capacity, or any rotorcraft used in scheduled passenger-carrying operations with a frequency less than 5 round trips per week on at least one route between two or more points according to the published flight schedules	135	On-demand
	Nonscheduled Operations (negotiated departure time, departure location, and arrival location; or all-cargo; or part 380 public charter)		
	Passenger operations with multiengine airplanes more than 30 passenger seats OR more than 7500 pounds payload capacity NOTE: A multi-engine airplane with 10 to 30 seats or a turbojet listed in operation specifications for part 121 domestic or flag operations must be operated under part 121 supplemental for on-demand operations	121	Supplemental
	• Passenger operations with airplanes 30 or fewer passenger seats AND 7500 lbs. or less payload capacity, or any rotorcraft • NOTE: A multi-engine airplane with 10 to 30 seats or a turbojet that is listed in operation specifications for part 121 domestic or flag operations cannot be operated under part 135 on-demand rules, but that specific airplane must be operated under part 121 supplemental rules for non-scheduled operations	135	On-demand

TYPE OF CERTIFICATE	SEATING CAPACITY PAYLOAD CAPACITY	14 CFR OPERATING PART	KIND OF OPERATION
	• All-cargo operations with airplanes having a payload capacity of more than 7,500 pounds	121	Supplemental
	• All-cargo operations with airplanes having a payload capacity of 7,500 pounds or less, or with rotorcraft.	135	On-demand
OPERATING CERTIFICATE	Scheduled Operations (common carriage passenger operation; departure, location, and time and arrival location offered in advance by the operator)		
Common Carriage in intrastate operations (holding out to transport persons or property for compensation or hire)	• Turbojets, or • Multi-engine airplanes with 10 or more passenger seats, OR more than 7500 pounds payload capacity • Within or between 48 contiguous states, entirely within a state, territory, or possession, or special authorizations	121	Domestic
	• Airplanes with 9 or fewer passenger seats AND 7500 lbs. or less payload capacity, or any rotorcraft	135	Commuter
	Nonscheduled Operations (negotiated departure time, departure location, and arrival location; or all-cargo; or part 380 public charter)		
	• Multi-engine airplanes with more than 30 passenger seats OR more than 7500 pounds payload capacity • NOTE: A multi-engine airplane with 10 to 30 seats or a turbojet listed in operation specifications for part 121 domestic or flag operations must be operated under part 121 supplemental for on-demand operations	121	Supplemental
	• Airplanes with 30 or fewer passenger seats AND 7500 lbs. or less payload capacity, or any rotorcraft • NOTE: A multi-engine airplane with 10 to 30 seats or a turbojet that is listed in operation specifications for part 121 domestic or flag operations cannot be operated under part 135 on-demand rules, but that specific airplane must be operated under part 121 supplemental rules for non scheduled operations	135	On-demand
• Operations not involving common carriage (non common carriage or private carriage; see part 119 definition)	• Airplanes with 20 or more passenger seats and 6000 lbs. or more payload capacity	125	N/A
	• Airplanes with less than 20 seats and less than 6000 lbs. payload capacity and any rotorcraft	135	On-demand

Source: FAA Order 8900.1 chg 0.

b. Describe some of the differences in FAA operations and maintenance requirements for certificated operators versus non-certificated operators including the following:

- **Crewmember qualification**
- **Crewmember training requirements**
- **Flight and duty time limitations**
- **Airworthiness inspection differences**

Crewmember Qualification

The following is taken from 14 CFR 61.3.

No certificate holder may use nor may any pilot act as a pilot unless the pilot holds at least a commercial pilot certificate with appropriate category and class ratings for the aircraft concerned, and an instrument rating. Notwithstanding the requirements of 14 CFR 61.63, “Additional Aircraft Ratings (Other Than on an Airline Transport Pilot Certificate),” paragraphs (b) and (c), a pilot who is currently employed by a certificate holder and meets applicable training requirements and the proficiency check requirements, may be issued the appropriate category and class ratings by presenting proof of compliance with those requirements to a FSDO.

For non-certificated operators, a person may not act as PIC or in any other capacity as a required pilot flight crewmember of a civil aircraft of U.S. registry, unless that person has a valid pilot certificate or special purpose pilot authorization issued under 14 CFR 61 in that person’s physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization. In addition, a person may not act as PIC or in any other capacity as a required pilot flight crewmember of an aircraft, under a certificate issued to that person under 14 CFR 61, unless that person has a current and appropriate medical certificate that has been issued under 14 CFR 67, “Medical Standards and Certification,” or other documentation acceptable to the administrator, which is in that person’s physical possession or readily accessible in the aircraft.

The following is taken from 14 CFR 135.293.

No certificate holder may use a pilot, nor may any person serve as a pilot, unless, since the beginning of the 12th calendar month before that service, that pilot has passed a written or oral test, given by the administrator or an authorized check pilot, on that pilot’s knowledge in the following areas:

- The appropriate provisions of 14 CFR 61, 91, and 135 and the operations specifications and the manual of the certificate holder
- For each type of aircraft to be flown by the pilot, the aircraft power plant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the approved aircraft flight manual or equivalent, as applicable
- For each type of aircraft to be flown by the pilot, the method of determining compliance with weight and balance limitations for takeoff, landing, and en route operations

- Navigation and use of air navigation aids appropriate to the operation or pilot authorization, including, when applicable, instrument approach facilities and procedures
- Air traffic control procedures, including IFR procedures when applicable
- Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and wind shear, and, if appropriate for the operation of the certificate holder, high altitude weather
- Procedures for:
 - recognizing and avoiding severe weather situations
 - escaping from severe weather situations, in case of inadvertent encounters, including low-altitude wind shear (except that rotorcraft pilots are not required to be tested on escaping from low-altitude wind shear)
 - operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions
- New equipment, procedures, or techniques, as appropriate

No certificate holder may use a pilot, nor may any person serve as a pilot, in any aircraft unless, since the beginning of the 12th calendar month before that service, that pilot has passed a competency check given by the administrator or an authorized check pilot in that class of aircraft, if single-engine airplane other than turbojet, or that type of aircraft, if helicopter, multiengine airplane, or turbojet airplane, to determine the pilot's competence in practical skills and techniques in that aircraft or class of aircraft. The extent of the competency check shall be determined by the administrator or authorized check pilot conducting the competency check. The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved.

Crewmember Training Requirements

The following is taken from DOE O 440.2B chg 1.

Flight crewmembers and maintenance personnel must complete initial training and recurrent training appropriate for their responsibilities and relevant to the types of aircraft and operations/missions conducted by the department. The training must

- be events based;
- measure performance;
- meet FAA standards and minimum standards established by the field element;
- include measures taken to correct identified deficiencies;
- be tracked per pilot and mechanic;
- be tracked per aircraft type, make, and model; and
- be documented to provide for outside oversight and appraisal.

Flight crewmembers and maintenance personnel must demonstrate proficiency in operational and maintenance tasks relevant to the types of aircraft and operations/missions conducted by the department. The field element manager must establish the tasks or skills to be measured and proficiency goals for each.

Flight dispatchers and cabin safety personnel must complete initial training and recurrent training appropriate for their responsibilities and relevant to the types of aircraft and operations/missions conducted by the department.

Field element training programs must address the applicable sections of 14 CFR 121, subpart N, “Training Program,” for large aircraft operations or 14 CFR 135, subpart H, “Training,” for small aircraft or the recommendations in DOE G 440.2B-2A, chapter VII to provide sufficient detail to describe the requirements, management, and record keeping processes.

These and other documents are usually prepared to identify roles and responsibilities of respective parties in these shared situations. The roles, responsibilities, and procedures contained in these agreements should be clearly addressed in the written safety and health program to ensure that they are adequately communicated throughout the site.

Flight and Duty Time Limitations

The following is taken from Government Industry, *Pilot’s Duty and Flight Hours Continue to Divide Industry*.

Current FAA regulations impose an eight-hour limit for a pilot’s flight time during a 24-hour period, provided that the pilot has had at least eight continuous hours of rest during that same 24-hour period. If a pilot’s actual rest is less than nine hours in the 24-hour period, the next rest period must be lengthened to provide for the appropriate compensatory rest. Total consecutive duty time can reach 16 hours. But agency rules do not currently address “standby time” while on duty.

The following is taken from DOE O 440.2B chg 1.

DOE field element managers must establish duty and flight limits appropriate to the type of operation being conducted, (e.g., limit on the time an employee is on call, standby, or ready reserve).

Airworthiness Inspection Differences

The following is taken from FAA 8900.1 chg 0.

Government aircraft operators, holding any type of FAA certification, will be included in the normal surveillance activities such as spot inspections of the aircraft and aircraft records. This includes any aircraft exclusively leased to the Federal government. Any aircraft or operation certificated by the FAA is subject to this surveillance regardless of whether they are operating as public or civil. For example, if an operator’s operation is considered public or private and they hold an airworthiness certificate, their maintenance records are eligible for review. Government-owned aircraft operators who are conducting public aircraft operations must be included in the FSDO’s annual planned surveillance activities to ensure that their status remains unchanged.

c. Discuss the types of missions that require a Part 135 operator versus those that may be performed by a Part 91 operator.

The following is taken from 14 CFR 119.1.

14 CFR 119.1(e) lists operations that do not require certification under part 119, but must still be performed under 14 CFR 91 (as a minimum). They are:

- Student instruction
- Certain nonstop sightseeing flights conducted within a 25 statute mile radius of the airport
- Ferry or training flights
- Aerial work operations such as: crop dusting, seeding, spraying, and bird chasing; banner towing; aerial photography or survey; fire fighting; helicopter operations in construction or repair work (but it does apply to transportation to and from the site of operations); and power line or pipeline patrol
- Sightseeing flights in hot air balloons
- Nonstop flights within 25 statute miles for intentional parachute operations
- Limited helicopter flights within 25 statute miles
- 14 CFR 133 or 14 CFR 375
- Emergency mail service (49 U.S.C. 41906)
- Carrying candidates in elections (14 CFR 91.321)

d. Identify the regulations that the Department would be primarily concerned with when procuring the services of a CAS operator to conduct various missions including the following:

- **Transporting nine or less passengers**
- **Transporting ten or more passengers**
- **Conducting pipeline or power line patrol**
- **Taking aerial photographs over our facilities**
- **Spraying an area for controlling insect populations**
- **Putting a large air conditioner on top of a facility**
- **Taking a facility manager over a site to view new construction**

Transporting Nine or Less Passengers

The following is taken from 14 CFR 119.3.

Common carriage operations conducted with airplanes, including turbojet-powered airplanes, having a passenger-seat configuration of 30 seats or fewer, excluding each crewmember seat, and a payload capacity of 7,500 pounds or less, except that operations using a specific airplane that is also used in domestic or flag operations and that is so listed in the operations specifications as required by 14 CFR 119.49, "Contents of Operations Specifications," paragraph (a)(4), for those operations are considered supplemental operations.

If the operator uses a rotorcraft, the flight would also be considered an on-demand operation under 14 CFR 135.

Transporting Ten or More Passengers

The same rules apply as with nine or less passengers.

Conducting Pipeline or Power Line Patrol

The following is taken from 14 CFR 91.501.

Operations that may be conducted under the rules in 14 CFR 91, subpart F, section 501, “Applicability,” instead of those in 14 CFR 121, 129, 135, and 137 when a common carriage is not involved, include: aerial work operations such as aerial photography or survey, or pipeline patrol, but not including fire fighting operations.

Taking Aerial Photographs Over Our Facilities

The same rules apply as with pipeline patrols.

Spraying an Area for Controlling Insect Populations

The following is taken from 14 CFR 119.1, 137.3, and 137.19.

14 CFR 119.1(e) identifies aerial work operations to include crop dusting, seeding, spraying, and bird chasing, and states that these activities are exempt from certification requirements of 14 CFR 119. However, 14 CFR 137 covers agricultural aircraft operations within the U.S. and the issue of commercial and private agricultural aircraft operator certificates for those operations.

14 CFR 137.19, “Certification Requirements,” states that an applicant for a commercial agricultural aircraft operator certificate is entitled to that certificate if he shows that he meets the requirements of 14 CFR 137.19(c), (d), and (e) that apply to the dispensing of economic poisons.

14 CFR 137.3, “Definition of Terms,” defines economic poison as (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary of Agriculture shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. So, the governing part for this operation would be 14 CFR 137.

Putting a Large Air Conditioner on Top of a Facility

The following is taken from 14 CFR 119.1 and 133.17.

14 CFR 119.1(e) identifies aerial work operations to include helicopter operations in construction or repair work (but it does apply to transportation to and from the site of operations) and states that these activities are exempt from certification requirements of 14 CFR 119.

However, 14 CFR 133 covers operating and certification rules governing the conduct of rotorcraft external-load operations in the U.S. by any person. 14 CFR 133.17, “Requirements for Issuance of a Rotorcraft External-Load Operator,” states if an applicant shows that he complies with 14 CFR 133.19, “Rotorcraft,” 133.21, “Personnel,” and 133.23, “Knowledge and Skill,” the administrator issues a rotorcraft external-load operator certificate to him with an authorization to operate specified rotorcraft with those classes of rotorcraft-load combinations for which he complies with the applicable provisions of 14 CFR 133, subpart D, “Airworthiness Requirements.” So, the governing part for this operation would be 14 CFR 133.

Taking a Facility Manager Over a Site to View New Construction

The following is taken from 14 CFR 91.501.

Operations that may be conducted under the rules in this subpart instead of those in parts 121, 129, 135, and 137 of this chapter when common carriage is not involved, include: carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company.

13. Aviation Safety Officers must demonstrate a working level of knowledge with the Department's aviation accident/fatality history and its impact on the program.

- a. Briefly describe the Department's aviation accident history identifying the most significant occurrences including the following:**
- **Department-owned aircraft accidents**
 - **CAS (chartered, rented or leased) aircraft accidents**
 - **Most predominate cause for these accidents**

Department-Owned Aircraft Accidents.

The following is taken from the Aviation Safety Network.

The worst accident in Atomic Energy Commission (AEC) aviation history occurred on May 19, 1972, with the crash of an Albuquerque DOE-owned Beech Queen Air. Investigation of this accident indicated that a cargo door was obstructed by cargo. When the door opened upon takeoff, the cargo was released and impacted the left propeller. The pilot suspected engine failure, and, instead of aborting takeoff, waited until airborne, shut down the left engine, and attempted a single-engine landing. The pilot lost control of the aircraft, and all occupants, including an internationally renowned health physicist and eight American nuclear scientists were killed in the crash. This tragedy served to highlight the deficiencies that had led to the AEC's first effort at establishing operational standards.

The following is taken from Special Investigation Report, NTSB/SIR-94/01, *Safety Issues Related to Wake Vortex Encounters During Visual Approach Landing*.

The second most significant Department-owned aircraft accident may be the December 18, 1992 accident involving a Cessna Citation 550 in Billings, MT. During descent into Billings, the Citation was sequenced behind a Boeing 757, and both airplanes were eventually cleared for visual approaches. About 1½ miles from the runway the Citation was observed to roll rapidly to the inverted position and descend almost vertically into the ground. NTSB determined the probable causes of the accident to be the PIC's failure to follow established vortex avoidance procedures, as published in the airman's information manual, to provide his own wake turbulence separation.

CAS (Chartered, Rented or Leased) Aircraft Accidents

The following is taken from the Aviation Safety Network.

On June 3, 1992, a Cessna TR182 chartered by PNNL crashed in rough, steep terrain on the U.S. Army's Yakima Testing Center. The crash resulted in the death of the pilot and two PNNL staff members. At the time of the accident, the PNNL staff members were gathering data on two species of birds, the sage grouse and the ferruginous hawk. These activities were in support of the Vegetative Mapping on Yakima Testing Center Project, project number 11832.

Over the life cycle of the project, task activities had been added as the scope of the project grew. The bird surveillance task being conducted at the time of the accident was in support of one of these project tasks.

As part of the task activities, a fixed winged aircraft was used to conduct various surveillance flights to monitor and evaluate specific bird populations. Conducting portions of the surveillance flights required the aircraft to be low and slow.

Most Predominate Cause for These Accidents

The following taken from the AAIRS reports.

The most predominate causes for the cited DOE aviation accidents are:

- policies and procedures were inadequate with regard to the use of aircraft and specifically management's rule for providing oversight;
- line management and staff viewed the use of aircraft as a routing activity and relied heavily on the experience and judgment of the pilots;
- DOE did not fully recognize the hazards associated with aircraft operations and management failed to aggressively evaluate and manage the associated tasks; and
- pilot error stemming from lack of training/proficiency and loss of situational awareness.

b. Describe some of the immediate and long-range impacts of these accidents on the program.

The following is taken from the AAIRS reports.

Some of the immediate and long-range impacts of DOE aviation accidents include the loss of life, the loss of airframes, the inability to complete a given mission, the damage to the public trust, and increased oversight.

c. Qualitatively compare the Department's aviation accident rates with civil aviation's accident rates.

The following is taken from GSA, *Federal Aircraft Report, Fiscal Year 2008*.

Section 3 of the *Federal Aircraft Report, Fiscal Year 2008*, provides information about the Federal government's aircraft accidents and incidents occurring inside or outside the U.S. Tables depict accident rates per 100,000 flight hours, agency-owned or contractor owned/operated accidents and incidents, and accidents and incidents by type of aircraft. Each

Federal agency is required by chapter 12 of the Federal Management Regulation subchapter B, part 102-33, section 102-33, 445 and 450 to report accidents and incidents to the NTSB and to the GSA. Any accident or incident that meets the definition as found in NTSB 830, *Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records*, must be reported. The GSA and the ICAP use the information collected to calculate safety statistics for the Federal aviation community and share lessons learned.

The Federal aviation accident rate, the total number of accidents, and the number of fatalities experienced peaked in 1990 with 29 accidents, 27 fatalities in 1992, and the accident rate of 5.93 in 1996. Since then Federal agencies have worked hard to reduce those numbers and the trend indicates declines across the board. For example, during the last 5 years (2004 to 2008) the total number of accidents per year is averaging 15.2, the number of fatalities per year is averaging 6.6, and the accident rate per year is averaging 3.48. GSA and the ICAP members are constantly working to reduce the number of accidents by instituting aviation safety procedures and programs designed to reduce accidents, injuries, and fatalities.

The following is taken from the Bureau of Transportation Statistics, tables 2-14, *U.S. General Aviation Safety Data*.

Table 2 identifies the civil aircraft accidents, fatalities, and rates from NTSB for 1996 through 2008, for U.S. General Aviation.

Table 2. U.S. General Aviation civil aircraft accident rates

Year	Accidents		Fatalities		Flight Hours	Accidents per 100,000 Flight Hours	
	All	Fatal	Total	Aboard		All	Fatal
1996	1,908	361	636	619	24,881,000	7.65	1.45
1997	1,844	350	631	625	25,591,000	7.19	1.36
1998	1,905	365	625	619	25,518,000	7.44	1.41
1999	1,905	340	619	615	29,246,000	6.50	1.16
2000	1,837	345	596	585	27,838,000	6.57	1.21
2001	1,727	325	562	558	25,431,000	6.78	1.27
2002	1,715	345	581	575	25,545,000	6.69	1.33
2003	1,739	352	632	629	25,706,000	6.75	1.36
2004	1,617	314	558	558	24,888,000	6.49	1.26
2005	1,669	321	562	557	24,401,000	6.83	1.31
2006	1,520	307	702		23,963,000	6.34	1.28
2007	1,650	288	496		23,819,000	6.93	1.21
2008	1,559	275	495		21,931,000	7.11	1.25

Source: Bureau of Transportation Statistics, tables 2-14, *U.S. General Aviation Safety Data*.

The following is taken from NTSB, *Aviation Accident Statistics*.

Table 3 identifies the civil aviation accidents, fatalities, and rates from NTSB for 1996 through 2008, for U.S. air carriers operating under 14 CFR 135, on-demand operation.

Table 3. U.S. air carriers operating under 14 CFR 135, on-demand operation

	Accidents		Fatalities			<u>Accidents per 100,000 Flight Hours</u>	
Year	All	Fatal	Total	Aboard	Flight Hours	All	Fatal
1996	90	29	63	63	3,220,000	2.80	0.90
1997	82	15	39	39	3,098,000	2.65	0.48
1998	77	17	45	41	3,802,000	2.03	0.45
1999	74	12	38	38	3,204,000	2.31	0.37
2000	80	22	71	68	3,930,000	2.04	0.56
2001	72	18	60	59	2,997,000	2.40	0.60
2002	60	18	35	35	2,911,000	2.06	0.62
2003	73	18	42	40	2,927,000	2.49	0.61
2004	66	23	64	63	3,238,000	2.04	0.71
2005	65	11	18	16	3,815,000	1.70	0.29
2006	52	10	16	16	3,742,000	1.39	0.27
2007	62	14	43	43	4,033,000	1.54	0.35
2008	56	19	66	66	3,673,000	1.52	0.52

Source: NTSB, *Aviation Accident Statistics*.

Table 4 identifies the civil aviation accidents, fatalities, and rates from NTSB for 1996 through 2008, for U.S. air carriers operating under 14 CFR 135, scheduled service.

Table 4. U.S. air carriers operating under 14 CFR 135, scheduled service

Year	Accidents		Fatalities		Flight Hours	Departures	Accidents per 100,000 Flight Hours		Accidents per 100,000 Departures	
	All	Fatal	Total	Aboard			All	Fatal	All	Fatal
1996	11	1	14	12	2,756,755	3,515,040	0.399	0.036	0.313	0.028
1997	16	5	46	46	982,764	1,394,096	1.628	0.509	1.148	0.359
1998	8	0	0	0	353,670	707,071	2.262	-	1.131	-
1999	13	5	12	12	342,731	672,278	3.793	1.459	1.934	0.744
2000	12	1	5	5	369,535	603,659	3.247	0.271	1.988	0.166
2001	7	2	13	13	300,432	558,052	2.330	0.666	1.254	0.358
2002	7	0	0	0	273,559	513,452	2.559	-	1.363	-
2003	2	1	2	2	319,206	572,260	0.627	0.313	0.349	0.175
2004	4	0	0	0	302,218	538,077	1.324	-	0.743	-
2005	6	0	0	0	299,775	527,267	2.002	-	1.138	-
2006	3	1	2	2	301,495	568,464	0.995	0.332	0.528	0.176
2007	3	0	0	0	291,701	592,577	1.028	-	0.506	-
2008	7	0	0	0	290,400	581,000	2.410	-	1.205	-

Source: NTSB, *Aviation Accident Statistics*.

Table 5 identifies the civil aviation accidents, fatalities, and rates from NTSB for 1996 through 2008, for U.S. air carriers operating under 14 CFR 121, scheduled and nonscheduled service (airlines).

Table 5. U.S. air carriers operating under 14 CFR 121, scheduled and nonscheduled service

Year	Accidents		Fatalities		Flight Hours	Departures	Accidents per 100,000 Flight Hours		Accidents per 100,000 Departures	
	All	Fatal	Total	Aboard			All	Fatal	All	Fatal
1996	37	5	380	350	13,746,112	8,228,810	0.269	0.036	0.450	0.061
1997	49	4	8	6	15,838,109	10,318,383	0.309	0.025	0.475	0.039
1998	50	1	1	0	16,816,555	10,979,762	0.297	0.006	0.455	0.009
1999	51	2	12	11	17,555,208	11,308,762	0.291	0.011	0.451	0.018
2000	56	3	92	92	18,299,257	11,468,229	0.306	0.016	0.488	0.026
2001	46	6	531	525	17,814,191	10,954,832	0.236	0.011	0.383	0.018
2002	41	0	0	0	17,290,198	10,508,473	0.237	-	0.390	-
2003	54	2	22	21	17,467,700	10,433,164	0.309	0.011	0.518	0.019
2004	30	2	14	14	18,882,503	11,023,128	0.159	0.011	0.272	0.018
2005	40	2	22	20	19,390,029	11,130,407	0.206	0.015	0.359	0.027
2006	33	2	50	49	19,263,209	10,820,915	0.171	0.010	0.305	0.018
2007	28	1	1	1	19,440,744	10,806,740	0.144	0.005	0.259	0.009

2008	28	2	3	1	19,351,000	10,787,000	0.145	0.010	0.260	0.019
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Source: NTB, *Aviation Accident Statistics*.

Table 6 identifies the aviation accidents, fatalities, and rates from OAM for 1996 through 2005, for DOE-owned aircraft and DOE commercial aircraft services (total departures are calculated based on total flight hours of rotorcraft multiplied by 1.7 plus total flight hours of fixed-wing aircraft multiplied by 1.3 and the inventory of DOE aircraft [owned and CAS] is split evenly between rotorcraft and fixed-wing).

Table 6. DOE-owned and CAS aircraft

	Accidents		Fatalities		Flight Hours	Departures	<u>Accidents</u> per 100,000 Flight Hours		<u>Accidents</u> per 100,000 Departures	
	All	Fatal	Total	Aboard			All	Fatal	All	Fatal
1996	1	0	0	0	9,570.0	14,355	10.4	-	7.0	-
1997	0	0	0	0	7,886.0	11,829	-	-	-	-
1998	1	0	0	0	8,252.0	12,378	12.1	-	8.1	-
1999	0	0	0	0	9,854.0	14,781	-	-	-	-
2000	0	0	0	0	9,322.5	13,984	-	-	-	-
2001	0	0	0	0	8,963.3	13,445	-	-	-	-
2002	0	0	0	0	10,447.8	15,672	-	-	-	-
2003	0	0	0	0	9,084.3	13,626	-	-	-	-
2004	1	1	1	1	9,911.6	14,867	10.1	10.1	6.7	6.7
2005	0	0	0	0	10,741.7	16,113	-	-	-	-

Source: OAM.

- d. Compare the Department's recent accident history with that prior to 1992 and describe some of the program changes that have affected this rate.

Table 7. Number of DOE aviation accidents and incidents

	Number of Accidents	Estimated Hours Flown	Accident Rate
1944-1992	23	422,000	5.5
1993-2005	3	128,329.2	2.3

Source: Table 6 above.

The number of aviation fatalities has also decreased.

Table 8. Number of DOE aviation fatalities

	Number of Fatalities	Estimated Hours Flown	Fatal Accident Rate
1944-1992	38	422,000	9
1993-2005	1	128,329.2	0.8

Source: Table 6 above.

Using data from the tables in the previous competency element, DOE has flown a total of 550,329 hours from 1944 through 2005 in both DOE-owned and CAS aircraft. The DOE overall aviation accident rate, utilizing the numbers in the tables 7 and 8, is 4.7 accidents per 100,000 flight hours. The overall fatality accident rate is 7.09 fatalities per 100,000 flight hours.

DOE has made significant improvements to its safety record due to the following:

- Stricter adherence to FAA regulations
- A centralized approach to aviation management and safety policy developed within the Department
- Better management control

Table 9 shows the marked improvement in DOE's safety record since DOE enhanced its aviation program management and policies starting in 1993.

Table 9. Improvement in DOE safety record since 1944

	Number of Accidents	Estimated Hours Flown	Accident Rate Per 100,000 Flight Hours	Accident Rate Per 100,000 Departures
DOE 1944-1992	23	422,000	5.5	3.6
DOE 1993-2005	3	128,329.2	2.3	0.8
(2008) 14 CFR 121	28	19,351,000	0.145	0.260
(2008) 14 CFR 135	7	290,400	2.41	1.205

Source: Tables 4, 5, and 6 above.

14. Aviation Safety Officers must demonstrate a working level knowledge of their site-specific pre-accident plan.

- a. Describe the pre-accident plan at your site and include the following:
- Immediate notification procedures and the "chain of command"
 - Methods to secure an on-site or off-site accident
 - Coordination contingencies with local government and private organizations such as police and fire departments, hospitals, and medical evacuation units
 - Responsibilities of the Department for notifying family members and providing assistance to them

- b. Explain whether the pre-accident plan is aviation-specific or generic to all operations at the site.
- c. Describe the training and qualifications for individuals within your aviation program regarding the pre-accident plan including the following:
 - Accident notification procedures
 - Medical assistance that individuals may provide
 - Biohazards and methods to handle them
 - Hazardous materials if present at an aviation accident site
- d. Describe the review process for your pre-accident plan and how often this occurs.

KSAs ‘a’ through ‘d’ are performance-based KSAs. The Qualifying Official will evaluate their completion.

15. Aviation Safety Officers must demonstrate a working level knowledge of DOE O 225.1A, *Accident Investigations* and its associated Guide, DOE G 225.1A-1, *Implementation Guide for Use with DOE O 225.1, Accident Investigations*.

- a. Describe the two types of accident investigations currently performed within the Department.

The following is taken from DOE O 225.1A.

Accidents shall be analyzed and characterized expeditiously, as indicated in DOE O 225.1A, *Accident Investigations*, paragraph 4, to determine if either a type A or type B investigation shall be conducted based on the criteria indicated below. Uncertainty in categorization shall be mutually resolved by the Office of the Deputy Assistant Secretary for Oversight and the heads of field elements. All accidents not meeting the criteria for a type A or type B investigation shall be categorized, investigated, and reported according to the requirements of DOE O 231.1A chg 1, *Environment, Safety and Health Reporting*, and/or DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*. Investigations required by these Orders may provide indicators of future, more severe accidents, which, when identified and corrected early, can prevent more serious accidents.

- b. Explain the primary differences between the two types of accident investigations including the following:
 - The major criteria that determine which type of investigation will be conducted
 - Who has responsibility for appointing each investigation board

Table 10. Investigation categorization algorithm summary

Categorization Criteria	Type of Investigation	
	Type A	Type B
Human Effects	<p>Any fatal or likely to be fatal</p> <ul style="list-style-type: none"> ▪ injury (49 CFR 830.2, “Definitions”) ▪ chemical exposure ▪ biological exposure <p>Any one accident requiring hospitalization of three or more individuals incurring a serious injury (serious injury is defined in 49 CFR 830.2 as any injury that requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; results in severe hemorrhages, nerve, muscle, or tendon damage; involves severe damage to an internal organ; or involves second- or third-degree burns affecting more than 9 percent of the body surface); or with a high probability of realizing a permanent total disability due to injuries, chemical exposures, or biological exposures received.</p> <p>One individual radiation exposure (see 10 CFR 835.202, “Occupational Dose Limits for General Employees”) of</p> <ul style="list-style-type: none"> ▪ 25 rem or more total ▪ 75 rem or more to the eye ▪ 250 rem or more to skin or extremity (shallow dose) ▪ 250 rem or more for external exposure (deep dose) or to organ or tissue (committed dose for other than lens of the eye ▪ 2.5 rem or more dose to embryo or fetus of pregnant woman 	<p>Any accident that results in the hospitalization of one or more DOE, contractor, or subcontractor employees, or members of the public for 5 continuous days or longer due to</p> <ul style="list-style-type: none"> ▪ serious injury ▪ occupational illness (except members of the public) ▪ chemical exposure ▪ biological exposure <p>Any one accident resulting in five or more lost workday cases.</p> <p>A series of accidents involving five or more lost-workday cases occurring within a 1-year time period that involve identical or similar</p> <ul style="list-style-type: none"> ▪ facilities ▪ systems ▪ equipment ▪ materials ▪ procedures <p>A single radiation exposure to an individual that results in:</p> <ul style="list-style-type: none"> ▪ 10 rem but <25 rem total dose ▪ 30 rem but <75 rem dose to the lens of the eye ▪ 100 rem but <250 rem shallow dose to skin or an extremity ▪ 100 rem but <250 rem sum of deep dose and dose to organ or tissue (other than lens of the eye) ▪ 1 rem but <2.5 rem dose to embryo or fetus of declared pregnant woman.

Categorization Criteria	Type of Investigation	
	Type A	Type B
Environmental Effects	Any release greater than five times the reportable limits in 40 CFR 302, “Designation, reportable Quantities, and Notification,” of a hazardous substance, material, waste, or radionuclide resulting in serious environmental damage.	Any release over two times but less than five times the reportable limits in 40 CFR 302 of hazardous substance, material, waste, or radionuclide resulting in serious environmental damage.
Property Effects	<p>Loss or damage* of \geq \$2.5 million in property, including costs for</p> <ul style="list-style-type: none"> ▪ cleaning ▪ decontaminating ▪ renovating ▪ replacing or ▪ rehabilitating <p>structures, equipment, or property</p> <p>Apparent loss, explosion, or theft involving radioactive or hazardous material in quantities or circumstances likely to constitute a hazard to health, safety, or property.</p> <p>Any unplanned unclear criticality.</p> <p>*When estimating loss or damage, follow the methods in DOE G 430.1-1, <i>Cost Estimating Guide</i>.</p>	<p>Loss or damage* of over \$1 million but less than \$2.5 million on property, including costs for</p> <ul style="list-style-type: none"> ▪ cleaning ▪ decontaminating ▪ renovating ▪ replacing or ▪ rehabilitating <p>structures, equipment, or property</p> <p>The operation of a nuclear facility beyond its authorized limits resulting in the consequences identified in columns 2, 3, or 4 of this table.</p> <p>*When estimating loss of damage, follow the methods in DOE G 430.1-1, <i>Cost Estimating Guide</i>.</p>
Other Effects	Any accident or series of accidents deemed appropriate by the Secretary or the Assistant Secretary for Environment, Safety, and Health.	<p>Any accident or series of accidents deemed appropriate by the</p> <ul style="list-style-type: none"> ▪ Secretary; ▪ Assistant Secretary for Environment, Safety, and Health; ▪ Associate Deputy Secretary for Field Management; ▪ Cognizant Secretarial Officer; or ▪ Heads of field elements.

Source: DOE G 225.1A-1.

The Assistant Secretary for Environment, Safety and Health (EH-1), who serves as the appointing official for Type A accident investigations, may delegate this responsibility to the head of a field element, subject to conditions specified in the memorandum of delegation and board appointment.

c. Discuss the qualifications required for acting as a member of an accident investigation board.

The following is taken from DOE G 225.1A-1.

Board members must be:

- DOE employees
- Subject matter experts in areas related to the accident

Care must be taken in selecting board members who are not in the direct line management chain responsible for day-to-day operations or for line management oversight of the facility, area, or activity involved in the accident. In addition, the board must not include both a supervisor and his or her subordinate(s).

d. Identify the one qualification that at least one board member must have in order to have a fully-qualified board.

The following is taken from DOE G 225.1A-1.

At least one board member must be a DOE accident investigator and must have participated in a least one type A or type B accident investigation. At least one board member or consultant/advisor must be knowledgeable in evaluating management systems (i.e., have demonstrated understanding and experience in applying and evaluating safety management system components as defined in DOE P 450.4, DOE P 411.1, *Safety Management Functions, Responsibilities, and Authorities Policy*, and their accompanying implementation guidance). These skills may reside in a single board member.

e. Discuss who has the authority to grant a waiver for conducting an accident investigation.

The following is taken from DOE G 225.1A-1.

A request for waiver of any responsibility for conducting a type A or type B accident investigation may be prepared by the head of a field element when it is determined that there would be no substantial lessons learned from conducting the investigation. It is anticipated that written requests for waiver will be submitted in a timely manner (i.e., no longer than 5 calendar days after categorization of the accident). The request for waiver must contain the rationale and shall be submitted to EH-1 for approval through the Office of the Deputy Assistant Secretary for Oversight (EH-2) who will review requests for waiver and either recommends approval or disapproval of the request in writing. Copies of the waiver request and the approval or disapproval will be maintained both by EH-2 and the head of the field element.

f. Describe the requirements for publishing lessons learned once an investigation is completed.

The following is taken from DOE G 225.1A-1.

The responsibility for developing and disseminating lessons learned arising from type A, type B, and limited scope accident investigations resides with the appointing official as defined in DOE O 225.1A, paragraphs 4d(5), 5a(5)(f), and 5c(10).

16. Aviation Safety Officers must demonstrate a familiarity level of knowledge of the NTSB's role in investigating DOE aviation accidents.

a. Identify the organization that has the primary responsibility for investigating DOE aviation accidents and their ability to designate this authority to third parties.

The following is taken from 49 CFR 800 subpart B.

Acting pursuant to the authority vested in it by 49 U.S.C. 1441, *Title VII of the Federal Aviation Act of 1958*, and section 304(a)(1) of the Independent Safety Board Act of 1974, the NTSB hereby requests the Secretary of the Department of Transportation to exercise his authority subject to the terms, conditions, and limitations of 49 U.S.C. 1441 and section 304(a)(1) of the Independent Safety Board Act of 1974, and as set forth below to investigate the facts, conditions, and circumstances surrounding certain fixed-wing and rotorcraft aircraft accidents and to submit a report to the board from which the board may make a determination of the probable cause.

The authority to be exercised hereunder shall include the investigation of all civil aircraft accidents involving rotorcraft, aerial application, amateur-built aircraft, restricted category aircraft, and all fixed-wing aircraft which have a certificated maximum gross takeoff weight of 12,500 pounds or less except:

- Accidents in which fatal injuries have occurred to an occupant of such aircraft, but shall include accidents involving fatalities incurred as a result of aerial application operations, amateur-built aircraft operations, or restricted category aircraft operations.
- Accidents involving aircraft operated according to the provisions of 14 CFR 135 entitled "Air Taxi Operators and Commercial Operators of Small Aircraft."
- Accidents involving aircraft operated by an air carrier authorized by certificate of public convenience and necessity to engage in air transportation.
- Accidents involving midair collisions.

The following is taken from FAA Order 8020.16.

FAA's nine responsibilities in accident investigations are to determine whether:

- Performance of FAA facilities or functions was a factor.
- Performance of non-FAA owned and operated air traffic control facilities or navigational aids was a factor.
- Airworthiness of FAA-certificated aircraft was a factor.
- Competency of FAA-certificated airmen, air agencies, commercial operators, or air carriers was involved.

- Federal aviation regulations were adequate.
- Airport certification safety standards or operations were involved.
- Airport security standards or operations were involved.
- Airmen medical qualifications were involved.
- There was a violation of Federal Aviation Regulations.

Provided that this authority shall not be construed to authorize the secretary to hold public hearings or to determine the probable cause of the accident; and provided further, that the secretary will report to the board in a form acceptable to the board the facts, conditions, and circumstances surrounding each accident from which the board may determine the probable cause.

b. Describe some of the major differences between the NTSB investigating a DOE aviation accident and the Department conducting an accident investigation including the following:

- **Determination of probable cause**
- **Determination of contributing causal factors**
- **Management's role in the aviation program**

Determination of Probable Cause

The following is taken from 49 CFR 801.32.

The board shall report the facts, conditions, and circumstances, and its determination of the cause or probable cause of all U.S. civil aviation accidents approximately 6 months after each accident occurs. All such reports shall be provided by computer printout, published periodically as "Briefs of Accidents."

All major or catastrophic air carrier accidents and noncatastrophic accidents, involving both air carriers and general aviation, which provide unusually significant safety issues shall be reported by the board in detailed, narrative format. The formal, narrative report shall provide the facts, conditions, and circumstances, and the board's determination of the cause or probable cause of the accident; the report shall be issued approximately 6 months after the date of accident.

After notice of issuance appears in the Federal Register, as required by the Independent Safety Board Act of 1974, section 304(a)(2), the report shall be made available for public inspection in the board's public reference room.

The following is taken from Air Force Instruction 91-206(I).

Analysis to determine the cause(s) of the mishap is conducted internally among NTSB personnel only (i.e., investigator-in-charge (IIC), group chair, engineering and technical staffs). This process is closed to parties.

Parties may submit written positions drawn from the evidence to propose findings, a probable cause or causes, and recommendations. These submissions become part of the investigation record. The board considers the body of evidence, its staff's analysis and any submissions, to assign factor and probable cause.

Determination of Contributing Causal Factors

The following is taken from DOE G 225.1A-1.

A key element of the investigation is determining the causal factors or “why the accident happened.” The causal factors of an accident are events and conditions in the accident sequence necessary and sufficient to produce or contribute to the unwanted result. Causal factors generally consist of a series of relatively simple and explicit statements that summarize the causes and their contributing factors, including any systematic factors. There are three types of causal factors: direct, contributing, and root causes. Direct cause is defined as the immediate events or conditions that cause the accident. Contributing causes are conditions or events that collectively increase the likelihood of an accident but that individually did not cause the accident. Root causes are conditions or events that, if corrected or eliminated, would prevent recurrence of the accident.

DOE O 225.1A requires that causal factors, including root causes, be identified during an accident investigation. Contributing and root causes should always be identified in order to complete the causal factors analysis. If the accident investigation board is unable to identify the root causes of the accident, a statement to that effect should be included in the report.

Identifying the direct cause of an accident is optional. While it may not be necessary to identify the direct cause in order to complete the causal factors analysis, the direct cause should be identified when it facilitates understanding why the accident occurred or when it is useful in developing lessons learned from the accident.

The following is taken from 49 CFR 831.4.

Accidents and incident investigations are conducted by the board to determine the facts, conditions, and circumstances relating to an accident or incident and the probable cause(s) thereof. These results are then used to ascertain measures that would best tend to prevent similar accidents or incidents in the future. The investigation includes the field investigation (on-scene at the accident, testing, teardown, etc.), report preparation, and, where ordered, a public hearing. The investigation results in board conclusions issued in the form of a report or “brief” of adverse parties. They are not subject to the provisions of the Administrative Procedure Act (5 U.S.C. 504, *Cost and Fees of Party*, et seq.), and are not conducted for the purpose of determining the rights or liabilities of any person.

Management’s Role in the Aviation Program

The following is taken from DOE G 225.1A-1.

DOE O 225.1A, paragraph 5a(5), delegates implementation responsibility for the program to EH-2. The DOE accident investigation program manager (referred to throughout DOE G 225.1A-1 as the “program manager”) is assigned the responsibilities for day-to-day management of the program by EH-2.

Accident investigation program manager responsibilities include, but are not limited to:

- Developing departmental policy and maintaining program guidance.
- Coordinating the program with Headquarters and field element points of contact.
- Maintaining program-related resource databases.
- Providing or identifying acceptable program-related training materials to points of contact.
- Analyzing and trending data from past accidents.
- Reviewing and providing comments on CAPs.
- Assisting in developing and disseminating lessons learned to the Department for type A and limited scope accident investigations.
- Assisting in the selection, appointment, support, training, qualification, and other activities of type A accident investigation boards appointed by EH-1.
- Evaluating requests for waivers for type A and type B investigations, as well as making recommendations on their approval to EH-1.
- Recommending to EH-1 the need to conduct a limited scope accident investigation, as appropriate.

The following is taken from 49 CFR 831.8.

The designated IIC organizes, conducts, controls, and manages the field phase of the investigation, regardless of whether a board member is also on-scene at the accident or incident site. (The role of the board member at the scene of an accident investigation is as the official spokesperson for the Safety Board.) The IIC has the responsibility and authority to supervise and coordinate all resources and activities of all personnel, both board and non-board involved in the on-site investigation. The IIC continues to have considerable organizational and management responsibilities throughout later phases of the investigation, up to and including board consideration and adoption of a report or brief of probable cause(s).

c. Describe the time frame for the NTSB to issue an accident investigation final report.

The following is taken from 49 CFR 801.32.

The formal narrative report shall provide the facts, conditions, and circumstances, and the board's determination of the cause or probable cause of the accident; the report shall be issued approximately 6 months after the date of the accident. All such reports shall be provided by computer printout, published periodically as "Briefs of Accidents."

17. Aviation Safety Officers must demonstrate a working level knowledge of how to notify the NTSB if an accident occurs and the information that is required in the notification.

a. Identify the Federal regulation that requires aviation mishaps to be reported to the NTSB.

The following is taken from 49 CFR Appendix to 800.

The authority to be exercised hereunder shall include the investigation of all civil aircraft accidents involving rotorcraft, aerial application, amateur-built aircraft, restricted category aircraft, and all fixed-wing aircraft which have a certificated maximum gross takeoff weight of 12,500 pounds or less except: accidents in which fatal injuries occur to an occupant; but, shall include accidents involving fatalities incurred as a result of aerial application operations, amateur-built, or restricted category aircraft operations; accidents involving aircraft operated according to the provisions of 14 CFR 135; accidents involving aircraft operated by an air carrier authorized by certificate of public convenience and necessity to engage in air transportation; and accidents involving midair collisions.

b. Distinguish examples of accidents from incidents.

The following definitions are taken from 49 CFR 830.2.

Aircraft accident means an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Incident means an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

c. Describe the time limitations for notifying the NTSB of a mishap.

The following is taken from 49 CFR 830.5.

The operator of any civil aircraft, or any public aircraft not operated by the Armed Forces or an intelligence agency of the United States, or any foreign aircraft shall immediately, and by the most expeditious means available, notify the nearest NTSB field office.

d. Given possible accidents and incidents, distinguish those that would require NTSB notification.

The following is taken from 49 CFR 830.5.

49 CFR 830.5, "Immediate Notification," identifies the following items as those requiring NTSB notification:

- Flight control system malfunction or failure
- Inability of any required flight crewmember 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
 - An evacuation of an aircraft in which an emergency egress system is utilized
- An aircraft is overdue and is believed to have been involved in an accident

e. Discuss how and where the NTSB should be notified of a mishap.

The following is taken from the Washington State Department of Natural Resources, *Aviation Program Operating Plan*.

Notification shall be immediate, and to the nearest NTSB field office. The NTSB field offices are listed under U.S. Government in the telephone directories of the following cities: Anchorage, AK; Atlanta, GA; West Chicago, IL; Denver, CO; Arlington, TX; Gardena (Los Angeles), CA; Miami, FL; Parsippany, NJ (metropolitan New York, NY); Seattle, WA; and Washington D.C.

f. Describe who is responsible for notifying the NTSB in the event of a DOE-owned aircraft mishap versus DOE-chartered, leased, bailed, or rented aircraft.

The following is taken from DOE O 440.2B chg 1.

Field element managers must develop an accident response plan that includes:

- procedures for notifying NTSB and DOE of accidents and incidents (49 CFR 830; DOE O 225.1A; and DOE O 232.1A), and
- procedures that address the contractor's support of DOE responsibilities established in NTSB Report Number SPC-99-04.

g. Identify who is responsible for preserving the wreckage at an accident site.

The following is taken from 49 CFR 830.10.

The operator of an aircraft involved in an accident or incident for which notification must be given is responsible for preserving, to the extent possible, any aircraft wreckage, cargo, and mail aboard the aircraft, and all records, including all recording medium of flight, maintenance, and voice recorders, pertaining to the operation and maintenance of the aircraft and to the airmen until the board takes custody thereof or a release is granted pursuant to 49 CFR 831.12, "Access to and Release of Wreckage, Records, Mail, and Cargo," paragraph (b).

h. List the information required in an NTSB notification and how soon it should be filed with the NTSB.

The following is taken from 49 CFR 830.6 and 830.15.

The operator of a civil, public, or foreign aircraft shall file a report on Board Form 6120.1/2 (OMB No. 3147-0001) within 10 days after an accident or after 7 days if an overdue aircraft is still missing. A report on an incident for which immediate notification is required by 49 CFR 830.5(a) shall be filed only as requested by an authorized representative of the board.

Each crewmember, if physically able at the time the report is submitted, shall attach a statement setting forth the facts, conditions, and circumstances relating to the accident or incident as they appear to him. If the crewmember is incapacitated, he shall submit the statement as soon as he is physically able.

The notification required in 49 CFR 830.5 shall contain the following information, if available:

- Type, nationality, and registration marks of the aircraft
- Name of owner, and operator of the aircraft
- Name of the pilot, the PIC
- Date and time of the accident
- Last point of departure and point of intended landing of the aircraft
- Position of the aircraft with reference to some easily defined geographical point
- Number of persons aboard, number killed, and number seriously injured
- Nature of the accident, the weather, and the extent of damage to the aircraft, so far as is known
- A description of any explosives, radioactive materials, or other dangerous articles carried

18. Aviation Safety Officers must demonstrate a working level knowledge of DOE O 232.1-2, *Occurrence Reporting and Processing of Operations Information*.

a. Discuss some of the reasons that the Department maintains ORPS.

The following is taken from DOE M 231.1-2.

EH-1 is responsible for maintaining an unclassified central database, ORPS. Occurrence report documentation and distribution requirements will be satisfied by utilization of ORPS, with the exception of those involving classified information or unclassified controlled nuclear information (UCNI). Reports for occurrences involving classified information or UCNI will be prepared in written form. After the classified information and UCNI is removed, the report must be entered into ORPS.

Each facility manager must collect and disseminate to their personnel information from occurrences related to their facilities and similar DOE facilities. This information includes both lessons learned and good practices. Each facility manager should use this information for trending and analysis for early identification and correction of deteriorating conditions.

One of the major purposes of this reporting system is to provide feedback of safety and operational information identified in the occurrence reports to other DOE facilities. In addition, Headquarters oversight and assessment organizations should use ORPS information to prepare safety notices and other feedback documents. These uses are dependent on the quality of the information reported, which means the information should be thorough and

accurate. To this end, occurrence reports should contain sufficient information about the facility operations and the occurrence to facilitate action by other personnel who are unfamiliar with details of the facility, equipment, process, or procedures.

b. Describe the three categories of occurrences that are to be reported.

The following is taken from DOE M 231.1-2.

ORPS now has six categories of occurrences that are to be reported. The facility manager must categorize all occurrences, except operational emergencies, within 2 hours of discovery by the cognizant facility staff following the site/facility-specific procedures developed according to DOE M 231.1-2, section 9. The significance categories, as outlined in DOE M 231.1-2, section 11 are for those occurrences of interest for complex-wide occurrence reporting and are described very generally below.

Operational emergencies are defined in DOE O 151.1C, *Comprehensive Emergency Management System*. Operational emergency occurrences are the most serious occurrences and require an increased alert status for onsite personnel and, in specified cases, for offsite authorities. The prompt notification requirements, definitions, criteria, and classifications of operational emergencies and appropriate responses are provided in DOE O 151.1C. Written occurrence reports must be completed according to DOE M 231.1-2.

Significance Category 1. Occurrences in this category are those that are not operational emergencies and that have a significant impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.

Significance Category R. Occurrences in this category are those identified as recurring, as determined from the periodic performance analysis of occurrences across a site.

Significance Category 2. Occurrences in this category are those that are not operational emergencies and that have a moderate impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.

Significance Category 3. Occurrences in this category are those that are not operational emergencies and that have a minor impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.

Significance Category 4. Occurrences in this category are those that are not operational emergencies and that have some impact on safe facility operations, worker or public safety and health, or public/business interests.

If the consequences are not fully determined or the event exceeds the threshold of more than one criterion, the event must be categorized at the higher criteria level being considered. The occurrence criterion must be continuously reevaluated and changed, as needed, when new information becomes available.

c. Discuss the time limitation for filing initial reports, updates to the reports, and final reports.

The following is taken from DOE M 231.1-2.

Initial Reports

The written notification report must be submitted according to the following schedule:

- Reports for operational emergencies and significance category 1 occurrences must be filed before the close of the next business day from the time of categorization (not to exceed 80 hours).
- Reports for significance categories R and 2 occurrences must be filed before the close of the next business day from the time of categorization.
- Reports for significance category 3 occurrences must be filed no later than close of business on the second business day from the time of categorization.
- Reports for significance category 4 occurrences must be filed on a short form report that is required by close of business the second business day from the time of categorization.

Updates to Reports

The update report must provide a detailed explanation of the delay and provide an estimated date for submittal of the final report. It is expected that the analysis of most occurrences will be completed and the final report submitted within 45 calendar days. However, for certain occurrences, such as those requiring an accident investigation, it is understood that the information required for the final report may not be available within this time. For occurrences resulting in an accident investigation, all causes (direct, contributing, and root) identified in the accident investigation report, as well as the corrective actions developed in response to the judgments of need, must be included in the final report.

Final Reports

The final reports must be prepared by the facility manager and submitted as soon as practical but within 45 calendar days after initial categorization of the occurrence. The final report must be prepared using the writing instructions listed in DOE M 231.1-2, section 5.4.1. If the required analysis cannot be completed within 45 calendar days after initial categorization, an update report must be submitted within the 45 days.

For operational emergencies and significance categories 1, R, and 2 final reports, the facility representative must review, approve, and add any comments, as necessary, within 14 calendar days after receipt of the report. For operational emergencies and significance category 1 final reports, after the facility representative has approved the occurrence report, the program manager must review, approve, and add any comments to the final report within 14 calendar days. If the ORPS database is being used, the facility representative and program manager's comments should be provided through ORPS.

If the final report is not approved by the facility representative or the program manager, the facility representative or program manager who is rejecting the report must provide the reason for disapproval in the comment section of the report at the time the action is taken. The revised final report must be resubmitted within 21 calendar days of the disapproval. If it cannot be resubmitted within this time, an update report must be submitted within the 21

calendar days explaining the delay and providing an estimated date for resubmittal of the final report. This information must be reported in the “evaluation” block of the occurrence report.

d. Describe the method for filing reports and updates to the reports.

The following is taken from DOE M 231.1-2.

In preparing the notification report, and subsequently the final report, the following writing instructions must be followed:

- The report should enable the general reader to understand the basic what, who, when, where, how of the event, the safety issues involved, and the actions taken.
- The subject/title and the first paragraph of the occurrence description should relay the essential nature of the event (i.e., a summary of the occurrence in newspaper style).
- All information should be clear and succinct. Avoid redundant and unnecessary text, and lengthy log book accounts, unless a discussion of the event in chronological orders is considered essential to understanding the event.
- Complex and more significant occurrences should warrant a greater level of detail. Significance category 4 occurrences would likely need only a short paragraph under occurrence description. However, all reports should present enough information so that the general reader understands why the event needs to be reported and what the effect is.
- Avoid jargon and uncommon or site/facility-specific abbreviations and acronyms. If used, acronyms should be initially spelled out.
- Unless necessary to record and explain the event (e.g., suspect/counterfeit items or material), use general descriptions of equipment, procedures, etc., rather than presenting lengthy detailed titles and the numbers and letters assigned to those items.
- Quantify the level of contamination, dose, release, and damage (e.g., estimate the acres of wild land burned) when possible, instead of merely stating a reportable limit was exceeded.
- Use active rather than passive voice whenever possible. For example, write, the electrician severed the conduit, rather than the conduit was severed.
- When appropriate for clarification, photos, sketches, and drawings must be maintained with the ORPS occurrence report record. In addition, sites are encouraged but not required to make photos, sketches, and drawings available via a web page, with the web page address included as a hyperlink in the ORPS report.

The update report must provide a detailed explanation of the delay and provide an estimated date for submittal of the final report. This information must be reported in the “evaluation” block of the occurrence report.

19. Aviation Safety Officers must demonstrate a working level knowledge of the GSA AAIRS.

a. Briefly describe AAIRS, its purpose, and its relationship to the Department’s ORPS program.

The following is taken from the U.S. Department of Energy Web Page.

AAIRS provides a system to report and disseminate safety information including near misses, incidents, accidents, lessons learned, and corrective actions taken to share with the ICAP and the other Federal agencies to adopt a Federal-wide event reporting system to address aviation related safety issues.

Accident and incident data must be reported through the ICAP AAIRS, which is accessible from the Internet. Instructions for using the system and the data elements and definitions for accident/incident reporting are available through the system or from GSA, Aircraft Management Policy Division, 1800 F Street, NW, Washington, DC 20405.

The following is taken from DOE G 440.2B-2 (archived).

Subsequently, additional information on an aviation mishap should be obtained by a field element or Headquarters ASO for inclusion in the GSA's AAIRS from the DOE ORPS.

b. Describe the various methods for filing a report with AAIRS.

The following is taken from the Senior Aviation Policy Officer.

AAIRS is not available online at this time. To file a report with AAIRS, e-mail or phone the Senior Aviation Policy Officer and he/she will assist you in filing a report with AAIRS. Consult the DOE Aviation Management home page for e-mail address and phone number.

c. Explain how individuals within your program are using AAIRS and the types of reports that they have filed.

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

d. Discuss how to retrieve previously filed reports from AAIRS.

The following is taken from the Senior Aviation Policy Officer.

The best way to retrieve a previously filed report at the present time is to go to the Aviation Safety Network online page or www.FAA.gov.

e. Discuss how your program can use AAIRS reports to increase safety awareness within your program.

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

20. Aviation Safety Officers must demonstrate a working level knowledge of the Aviation Safety and Management Awards Program.

a. Describe the purpose of the Department's Aviation Safety and Management Awards Program.

The following is taken from DOE G 440.2B-2A.

The purpose of the Aviation Safety Awards Program is to promote aviation safety by appropriate recognition of exceptional safety by individuals and groups.

The purpose of the Management Awards Program is to promote effective management of DOE aviation programs by appropriate recognition of management by individuals and groups.

b. Identify the various award categories that are available to organizations and individuals and the frequency of which they may be awarded.

The following is taken from DOE G 440.2B-2A.

The following safety awards may be presented annually:

- Award for In-Flight Actions
- Award for Accident-Free Flying
- Award for Significant Contributions in Aviation Safety
- Secretary's Award for Outstanding Contributions in Aviation Safety

Award categories for pilots:

- Award of Merit—five years or 1,500 hours of accident-free flying
- Award of Distinction—ten years or 3,000 hours of accident-free flying
- Award of Excellence—fifteen years or 5,000 hours of accident-free flying
- Award of Honor—twenty years or 7,500 hours of accident-free flying
- 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)

Award categories for aircrew members and qualified non-crewmembers:

- Award of Merit—five years of accident-free flying
- Award of Distinction—ten years of accident-free flying
- Award of Excellence—fifteen years of accident-free flying
- Award of Honor—twenty years of accident-free flying
- The OAM Director Award of Honor—more than 25 years of accident-free flying (presented by the OAM Director)

Award categories for aviation managers:

- Award of Merit—five years of accident-free flight activities for the unit managed
- Award of Distinction—ten years of accident-free flight activities for the unit managed
- Award of Excellence—fifteen years of accident-free flight activities for the unit managed
- Award of Honor—twenty years of accident-free flight activities for the unit managed
- The OAM Director Award of Honor—more than 25 years of accident-free flight activities for the unit managed (presented by the OAM Director)

The following aviation management awards may be presented annually:

- Aviation Program Award
- Aviation Management Professional Award
- Operations/Support Professional Award

c. Discuss the process for nominating organizations and individuals for awards.

The following is taken from DOE G 440.2B-2A.

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 year.

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.

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.

Any person aware of outstanding performance by onboard personnel during an emergency situation may nominate one or more individuals for an appropriate award. The nomination should contain a description of the event to include the following:

- Full name and duty (e.g., pilot, co-pilot, flight attendant, mechanic) of the individual being nominated, as well as other onboard personnel (e.g., passengers) who are being nominated
- Name, address, and telephone number(s) of other individuals having knowledge of the event
- Date, time, and location of the occurrence
- Make, model, and registration number of the aircraft involved
- Project or mission being conducted at the time
- Phase of flight when the emergency occurred (e.g., hover, takeoff, climb, cruise, descent, approach or landing, autorotation)
- Kind of terrain over which the emergency occurred (e.g., hills, trees, open water, rivers, mountains, tundra, etc.)
- Description of the emergency landing area (if applicable) and of obstructions, and dimensions and photographs if possible
- Environmental conditions: visibility, wind direction and speed, snow, rain, etc.
- Concise narrative description of the emergency from onset to termination

- 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.

An individual should not be considered for the award under the following conditions:

- When it is self-induced
- 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)
- 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.)
- When it is determined that no emergency actually existed
- When in the committee's opinion, a lack of discipline or individual judgment may have induced the emergency

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.

Safety Award for Accident-Free Flying standards:

- 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.
- 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 accident, whichever is the most recent. A copy of this authorization or other substantive documentation should be submitted with the nomination.

Safety Award for Accident-Free Flying criteria:

- Professional, dual function, incidental pilot, or professional aircrew member or qualified non-crewmember as determined by employment status.
- 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.
- Aviation managers include managers at sites with DOE-Federal aircraft and those sites that only use CAS.
- Dates of consideration need not be consecutive. However, dates should not be omitted to avoid identification of a chargeable accident.

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

- A statement of verification of eligibility by the DOE/NNSA element ASO.
- Full name, FAA Airmen's Certificate number or employee identification number.

- Pilot status (e.g., GS-2 181 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.
- Period of consideration and total number of accident-free flying hours attained.

For the purpose of these awards, 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.

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.

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

Criteria:

- The circumstances being presented should clearly demonstrate a significant contribution to aviation safety or aircraft accident prevention effort within the DOE.
- 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. 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.

Procedures:

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

Secretary's Award for Outstanding Contributions in Aviation Safety

This award is established to recognize an individual or group for outstanding contributions in aviation safety or aircraft accident prevention within DOE.

Standard:

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

Criteria:

- The circumstances being considered should clearly demonstrate an outstanding contribution in aviation safety or aircraft accident prevention within DOE.
- 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.

Procedures:

- 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.
- Nominations should be submitted through the appropriate ASO for review and endorsement prior to being forwarded to the Director, OAM.
- 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.
- The OAM Director should review each nomination, consider the recommendations of the awards committee, and make recommendations 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.
- The Director, OAM should apprise the Secretary of Energy of the selectee for recognition and arrange for the presentation by the Secretary.

Aviation Program and Aviation Management Professional 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 in DOE G 440.2B-2A.

The DOE Office of Aviation Management (MA-30) annually sponsors three agency-wide aviation management awards: the Aviation Program Award, the Aviation Management Professional Award, and the Operations/Support Professional Award. The program goal is to promote continuous improvement of DOE aviation management by publicly recognizing and rewarding DOE's best organizations and individuals. The improved contributions of aviation assets will, in turn, enhance the efficiency and effectiveness with which the entire

Department accomplishes its missions.

- 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.
- These awards can promote continuous improvement in DOE aviation management, but success will depend on total participation. The OAM must receive the field elements' nominations by the first week of April for activities during the preceding calendar year.
- All DOE/NNSA elements that own or use CAS aircraft to perform their missions may submit nominations for the aviation excellence awards. Neither MA-30, nor any of its assigned members, may be eligible for these awards.

d. Identify the various types of award items that are presented to organizations and individuals for each award.

The following is taken from DOE G 440.2B-2A.

Award for In-Flight Actions

The award is a gold colored wing lapel pin and appropriate certificate or wall plaque.

Award for Accident-Free Flying

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 this category. Each field element ASO should administer the Award for Accident-Free Flying according to procedures established for each respective organization.

Award for Significant Contributions in Aviation Safety

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

Secretary's Award for Outstanding Contributions in Aviation Safety

- Individual(s) should be recognized by presentation of a certificate signed by the Secretary of Energy, and an appropriate memento.
- Group(s) 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.

Aviation Program Award

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.

Aviation Management Professional Award

The Department will annually present a trophy and a cash award, the amount to be determined by the SAMO, to its best aviation management professional. 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.

Aviation Operations/Support Professional Award

The Department will annually present a trophy which will be given to the best Aviation Professional in an operational or support crew position. In addition to a personal trophy, the winner's name will be engraved on a permanent trophy that may also be displayed by the winner's organization until the award ceremony for the following year's trophy is held.

21. Aviation Safety Officers must demonstrate a working level knowledge of 41 CFR 102-33, *Management of Government Aircraft*.

a. Describe the program that is outlined in this regulation and identify which organizations are required to comply with this regulation.

The following is taken from 41 CFR 102-33.

41 CFR deals with public contracts and property management. Part 102 is the Federal Management Regulation. Section 33 covers management of government aircraft.

This section presents the requirements of Federal agencies to acquire, manage, and dispose of government aircraft (i.e., Federal aircraft and CAS) as safely, efficiently, and effectively as possible, consistent with the nature of their aviation missions.

The following is taken from 41 CFR 102-33.5.

The rules in this part apply to all federally funded aviation activities of executive agencies of the U.S. government, except:

- The Armed Forces are exempt from all but responsibilities related to ICAP; and subpart D of 41 CFR 102-33, "Disposing of Government Aircraft and Aircraft Parts."
- The President or Vice President and their offices are exempt.
- When an executive agency provides government-furnished avionics for commercially owned or privately owned aircraft for the purpose of technology demonstration or testing, those aircraft are exempt.
- Privately owned aircraft that agency personnel use for official travel (even though such use is federally funded) are exempt.

b. Describe some of the program elements that are identified in the safety program outlined in 41 CFR 102-33.

The following is taken from 41 CFR 102-33.180.

Flight safety programs should require (contractually, where applicable) the following elements:

- The appointment of qualified aviation safety managers (i.e., those individuals who are responsible for an agency's aviation safety program, regardless of title), who must be:
 - Experienced as pilots or crewmembers or in aviation operations management/flight program management
 - Graduated from an ASO course provided by a recognized training provider and authority in aviation safety before appointment or within 1 year after appointment
- Risk analysis and risk management to identify and mitigate hazards and provide procedures for managing risk to an optimum level
- Use of independent oversight and assessments (i.e., unbiased inspections) to verify compliance with the standards called for in this part
- Procedures for reporting unsafe operations to senior aviation safety managers
- A system to collect and report information on aircraft accidents and incidents (as required by 49 CFR 830 and 41 CFR 102-33.445, "What Accident and Incident Data Must We Report?", and 102-33.450, "How Must We Report Accident and Incident Data?")
- A program for preventing accidents, which includes:
 - Measurable accident prevention procedures (e.g., pilot proficiency evaluations, fire drills, hazard analyses)
 - A system for disseminating accident-prevention information
 - Safety training
 - An aviation safety awards program
 - For Federal aircraft-owning agencies, a safety council

c. Discuss the level to which the Department and your site comply with this regulation.

This is a performance-based KSA. The Qualifying Official will evaluate its completion.

22. Aviation Safety Officers must demonstrate a working level knowledge of safeguards and security as it relates to aviation operations.

a. Define the terms "safeguards" and "security" as they apply to the Department's aviation program.

The following is taken from DOE M 470.4-7.

Safeguards

An integrated system of physical protection, material accounting, and material control measures designed to deter, prevent, detect, and respond to unauthorized possession, use, or sabotage of nuclear materials.

Security

An integrated system of activities, systems, programs, facilities, and policies for the protection of classified information and/or classified matter, unclassified controlled

information, nuclear materials, nuclear weapons, nuclear weapon components, and/or the Department's and its contractors' facilities, property, and equipment.

The application of the terms above to the Department's aviation program could be construed as narrowly focused on missions dealing with nuclear materials. Here is a definition of another term (phrase), "safeguards and security interests," that is broader in scope.

Safeguards and Security Interests

A general term for any departmental resource or property that requires protection from malevolent acts. It may include, but is not limited to, classified matter, special nuclear material and other nuclear materials, secure communications centers, sensitive compartmented information facilities, automated data processing centers, facilities storing and transmitting classified information, vital equipment, or other departmental property.

b. Discuss the following and their implications within your program:

- **Physical security**
- **Personnel security**
- **Material control and accountability**

The following is taken from DOE M 470.4-7.

Physical Protection

The application of physical or technical methods designed to protect personnel; prevent or detect unauthorized access to facilities, material, and documents; protect against espionage, sabotage, damage, and theft; and respond to any such acts should they occur.

Personnel Security/Personnel Security Program

A defined set of policies, procedures, and activities established to ensure that granting an individual access to classified matter and/or special nuclear material would not endanger the common defense and security and would be clearly consistent with the national interest.

Material Control and Accountability

Those parts of the safeguards program designed to provide information on, control of, and assurance of the presence of nuclear materials, including those systems necessary to establish and track nuclear material inventories, control access to, and detect loss or diversion of, nuclear material, and ensure the integrity of those systems and measures.

The types of operations conducted at each location will determine implications, if any, from the above listed items. Look in the site AIP for more information

c. Describe the use of information security systems within the Department.

The following is taken from DOE M 470.4-7.

Information security is defined as a system of administrative policies and procedures for identifying, marking, and protecting from unauthorized disclosure, information that is authorized protection by executive order or statute. Information is defined as facts, data, or knowledge itself as opposed to the medium in which it is contained.

The following is taken from DOE P 470.1.

The Department is committed to conducting work efficiently and securely. It is Department policy that the Integrated Safeguards and Security Management (ISSM) framework shall be used to systematically integrate safeguards and security into management and work practices at all levels so that missions are accomplished securely. Direct involvement of all personnel during the development and implementation of an ISSM framework is essential for success. The ISSM system framework encompasses all levels of activities and documentation related to safeguards and security management throughout the DOE complex.

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