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Acquisition

**ASSURANCE OF OPERATIONAL SAFETY,
SUITABILITY, & EFFECTIVENESS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 63-12 and AFI 63-1201, *Assurance of Operational Safety, Suitability, & Effectiveness*. It assigns AFMC responsibilities and requires the development of processes and technical standards, and the implementation of best practices by product line. (Note: Per AFI 37-124, the reporting of metric information is approved and licensed with the Report Control Symbol (RCS): MTC-XP(AR)9302, AFMC Performance Measurement.)

1. AFMC Business Areas. AFMC Business Area Plans will address implementation requirements (resources, training, tools, etc.) for assurance of operational safety, suitability, and effectiveness (OSS&E) for designated Air Force systems and end-items managed by AFMC.

2. Air Force Product Lines. AFD 63-12 defines four product lines (Air, Air Armament, Command and Control, and Space and Missile). Responsibility for these product lines is assigned as follows:

- 2.1. Air systems are the responsibility of Aeronautical Systems Center (ASC).
- 2.2. Air Armament systems are the responsibility of Air Armament Center (AAC).
- 2.3. Command and Control (C2) systems are the responsibility of Electronic Systems Center (ESC).
- 2.4. Space and Missile systems are the responsibility of Space and Missile Systems Center (SMC).

3. Responsibilities and Authorities.

3.1. AFMC. For all operationally fielded systems and end items managed by AFMC, the **Product, Air Logistics, and Test Centers** will:

- 3.1.1. Assure preservation of operational safety, suitability, and effectiveness baselines of all operational systems and end-items provided to the user.

3.1.2. Assign single manager (SM) responsibility for systems and end-items, that AFMC has OSS&E assurance responsibility.

3.1.3. Assign a chief engineer (CE) and lead engineer (LE) for all systems and end-items on the USAF/IL master list managed at their center or operating locations. "Basket" Program Offices may share a CE or LE among multiple programs.

3.1.4. Assign a senior technical advisor to provide advice and counsel to the center commander for technical matters. The senior technical advisors will support the CEs and LEs at their centers and request support of centers when required.

3.1.5. Assure program offices, wherever located, properly implement the product guidance.

3.1.6. Develop and report OSS&E assurance policy effectiveness and product line "health" metrics to the AFMC Commander and the Product Support Business Area.

3.1.7. Identify requirements for the information systems necessary to evaluate the health of fielded systems and end-items. Provide the information system requirements to HQ AFMC/DR. Utilize existing data systems and information sources to maximum extent possible to assess the health of systems or end items.

3.1.8. Notify HQ AFMC/DR of new and existing operational systems and end-items that should be entered on the USAF/IL master list along with the recommended management organization. Inform HQ AFMC/DR of items leaving operational use for deletion from the list.

3.1.9. Review/analyze all product line mishap reports. Notify applicable single managers, CEs or LEs of possible trends or systemic problems affecting their systems. Modify technical standards, practices, and guidance as necessary to ensure OSS&E.

3.2. Product Centers will:

3.2.1. Develop, deploy, and maintain guidance, OSS&E tools and training necessary to support their product lines, this should include: operational safety, suitability, and effectiveness assurance criteria, metrics, processes, technical standards, procedures, handbooks, and best practices.

3.3. Air Logistics Centers and Test Centers will:

3.3.1. Assist the product centers in deploying product line policy, tools, training and guidance to the SMs, CEs, LEs and the engineering community assigned to their centers.

3.3.2. Develop, deploy, and maintain guidance, OSS&E tools and training necessary to support their equipment that falls outside the product lines, this should include: operational safety, suitability, and effectiveness assurance criteria, metrics, processes, technical standards, procedures, handbooks, and best practices.

3.4. HQ AFMC/DR will:

3.4.1. Assign OSS&E assurance responsibility to the appropriate center for all operational systems and end-items that are managed by AFMC.

3.4.2. Provide a listing of designated programs and responsible AFMC organizations to USAF/IL. Notify USAF/IL of any changes.

3.4.3. Provide AFMC data requirements to USAF/IL on appropriate data systems (e.g., Integrated Maintenance Data System (IMDS)) to ensure support of OSS&E requirements.

3.4.4. Provide AFMC data requirements to USAF/SE for mishap report data system to ensure support of OSS&E requirements.

3.5. HQ AFMC/EN will:

3.5.1. Provide technical support and guidance on OSS&E assurance.

3.5.2. Assist in the development or modification of pipeline training that includes the requirements for assurance of operational safety, suitability, and effectiveness.

3.5.3. Develop the core qualification criteria for chief and lead engineers.

3.6. HQ AFMC/DO will:

3.6.1. Develop, deploy, and maintain guidance to the test centers for the preservation of OSS&E baselines.

3.6.2. Assist HQ AFMC/EN in the development or modification of training material to illustrate verification techniques for the preservation of operational safety, suitability, and effectiveness baselines.

3.7. HQ AFMC/DP will ensure that OSS&E assurance is included in pipeline training courses and other training methods deemed appropriate.

3.8. HQ AFMC/LG will ensure supply management and depot maintenance organizations do not change the configuration, sources of supply or maintenance for items they manage without approval from the responsible engineering authority.

3.9. AFRL will:

3.9.1. Develop, deploy, and maintain guidance defining the OSS&E requirements for laboratory developed systems and end items (including Advanced Technology Demonstrators (ATDs), Advanced Concept Technology Demonstrators (ACTDs) and experimental leave behind systems, etc.) provided to the user.

3.9.2. Notify HQ AFMC/DR of any laboratory developed systems and end items provided to the user for inclusion on the USAF/IL list.

3.10. Chief Engineer / Lead Engineer will:

3.10.1. Be responsible and accountable to their single manager for the consistent application of a disciplined engineering process, as defined in AFI 63-1201, to achieve and preserve operational safety, suitability, and effectiveness baselines throughout the system or end-item operational life.

3.10.2. The CE/LE has ultimate technical control of all components used in their systems. Ensure any delegated authority, for technical activities across the operational life of their systems, is to technically competent organic or contractor entities capable of performing those activities.

3.10.3. Be responsible for system or end-item configurations to include all supply items (e.g., Defense Logistics Agency (DLA), AF, Navy, Army, etc.), and Operational Command, Air Force Reserve or Air National Guard initiated changes.

3.10.4. Ensure development and maintenance of appropriate technical data required to support the preservation of OSS&E baselines.

3.10.5. Develop sustainment actions (e.g., inspections, maintenance, training, tests, environmental, safety and health risk assessment, etc.) from fielded performance data to prevent OSS&E degradation.

3.10.6. Ensure manufacturing and repair entities provide quality products and services. Provide selection and qualification criteria for new sources of supply and maintenance repair.

3.10.7. Monitor available data sources such as FAA Airworthiness Directives, advisories and alerts, Original Equipment Manufacturer service literature, USAF Deficiency Reporting and Investigating System (T.O. 00-35D-54), Government Industry Data Exchange Program (GIDEP), etc., for information relevant to their engineering responsibilities.

3.10.8. Coordinate operational safety, suitability, and effectiveness assurance with other centers when systems or end-items involve more than one product line.

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Vice Commander

Attachment 1**GLOSSARY OF TERMS*****Terms***

Assurance—A planned and systematic pattern of actions necessary to provide confidence that expected performance is achieved.

Baseline—A description of the operational safety, suitability, and effectiveness characteristics and limitations of any system, system increment, end-item, or end-item increment that must be understood, acknowledged and maintained during operational deployment, use, experimentation, exercises, training, and maintenance of the system or end-item. (The OSS&E baseline is established in development and updated as changes (threat, operational usage, aging, etc.) and improvements are made to the system/end-item. The OSS&E baseline can include the configuration baseline (specifications, drawings, and S/W code listings), MNSs/ORDs, TOs/TCTOs, certifications, training, maintenance facilities, spare parts, threat scenarios, etc.)

Chief Engineer (CE)—The individual responsible for all system technical activities, including engineering and configuration changes, in support of the System Program Director.

End-Item—Equipment that can be used by itself to perform a military function.

Lead Engineer (LE)—The individual responsible for all end-item technical activities, including engineering and configuration changes, in support of the end-item single manager.

Operational Effectiveness—The overall degree of mission accomplishment of a system used by representative personnel in the environment planned or expected (e.g., natural, electronic, threat) for operational employment of the system considering organization, doctrine, tactics, survivability, vulnerability, and threat (including countermeasures, initial nuclear weapons effects, and nuclear, biological, and chemical contamination threats).

Operational Safety—The condition of having acceptable risk to life, health, property, or environment caused by a system or subsystem when employing that system or subsystem in an operational environment. This requires the identification of hazards, assessment of risk, determination of mitigating measures, and acceptance of residual risk.

Operational Suitability—The degree to which a system can be placed satisfactorily in field use, with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime use rates, maintainability, safety, human factors, architectural and infrastructure compliance, manpower supportability, logistics supportability, natural environmental effects and impacts, and documentation and training requirements.

System—A specific grouping of components or elements designed and integrated to perform a military function.